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مشروع بناء القدرات لتمكين الإدارة الحضرية مشاريع التصميم الحضرية للمناطق التقليدية في البحرين المرحلة الأولى: الاستراتيجيات والسياسات

تقرير الاستشاريين

**CAPACITY - BUILDING FOR ENHANCEMENT
OF URBAN GOVERNANCE**

Urban Design Projects for
Traditional Areas in Bahrain

Stage One: Strategies & Policies
CONSULTANTS REPORTS Feb. 2006





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مشروع

بناء القدرات لتحسين الإدارة الحضرية
(الحفاظ على المناطق والمباني التراثية)
المرحلة الأولى: الاستراتيجيات والسياسات

**Capacity-Building for Enhancement
Of Urban Governance**
(Conservation Urban and Architectural Heritage)
Stage One: Strategies & Policies

Prof. Arch. Daniele Pini

February 2006

UNDP, Bahrain
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Capacity Building for Enhancement of Urban Governance

Urban conservation zones in Manama and Muharraq

Final Report



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Terms of Reference

The consultant's objective was defined as follows:

"...to identify and establish the areas that should be designated for special protection as urban cultural heritage sites; the goal being the economic regeneration of the culturally and historically rich sites and buildings already designated and identified in the districts of Manama and Muharraq by the Ministry of Municipalities and Agriculture Affairs, Kingdom of Bahrain, in order to re-integrate them into the daily life of their surrounding community for the benefit of all stakeholders, while at the same time protecting the architectural and cultural value of the area and individual structures"

With reference to this objective, the scope of work specifically included the following:

- *Recommend relevant UN and international conventions/agreements pertaining to the establishment and definition of urban cultural heritage zones.*
- *Propose and recommend the establishment, where and if appropriate, of urban cultural heritage zones and their boundaries in the districts of Muharraq and Manama.*
- *Integrate the proposed urban cultural heritage zones into the data bank using the criteria set.*

Executive summary

The present report presents the findings and the proposals, which were developed during two missions undertaken in November 2005 and January 2006, in collaboration with the team of international experts coordinated by Mr. Duane Phillips and the offices of the MOMAA directed by Dr. Falah Al Kubaisi.

The report is structured in three chapters:

1. Preliminary remarks
2. Findings from the initial appraisal
3. Proposals for the establishment urban conservation zones

In the first chapter, some preliminary remarks are presented by the consultant, based on previous experiences, and concerning the evolution of the notion of "heritage" and the concept of conservation as applied to the historic cities. According to the international best practices, these are now subject to conservation policies, which consider the following aspects:

- The value of cultural heritage as a source of social cohesion and identity;
- The potential for activities related to the protection and development of cultural heritage to act as a driver for economic development;
- The challenge posed by the need to balance the requirement for conservation with the demands of modernization.

In this view, the historic fabric is considered a living and liveable component entity of the urban environment and the establishment of conservation zones is a first step in a more complex and long term planning exercise.

In the second chapter, the findings from the initial appraisal are presented, which are mainly based on the information gathered during the two missions, with the participation to a charrette organised by the MOMAA, several visits on site and a survey on a sample area.

These concern:

- The tentative identification of the historic cities fabric, based on the available documentation;
- the appraisal of the state of conservation of the urban fabric of the two cities, according to the different degrees of integrity of the street pattern;
- The appraisal of the main typological characteristics of the architectural heritage and of the trends affecting the housing conditions.

In both cities of Manama and Muharraq a widespread process of deterioration and decay of the historic urban fabric can be noted, which is not only leading to the loss of many buildings of architectural significance, but also, to the worsening of the housing conditions, the decline of the traditional activities, the overall deterioration of the urban environment. As a result, to a different extent and for different reasons, the two historic fabrics are becoming more and more ordinary and are definitely losing its capacity to stir up the community's sense of belonging. A consistent planning policy is needed, which associate the conservation goals with the development of the future urban structure.

To this purpose a review of the issues raised by the participants to the "charrette" is also proposed concerning the planning tools to be established in order to ensure an effective conservation policy, and to address the priorities of intervention as assessed through the meetings and the visits on site. Besides the need of an overall protection of the historic fabrics, among the priorities to be addressed in the short term, the following could be considered as a precondition or a start up:

- The reorganisation of the circulation pattern and an overall upgrading of the urban environment: this could result in a sort of "plan of the public open spaces";
- The adaptive reuse of some important empty buildings, in order to experiment and demonstrate the appropriate methods of restoration, whilst creating new activities and income opportunities.
- The definition of urban design criteria for the infill intervention that seem to be necessary, in order to recover the continuity and the spatial coherence of the urban fabric,

The critical issues from the initial findings are summarised in section 2.3.2 These mainly concern:

- The present planning documents that totally neglect the features of the historic urban fabrics.
- The threats to the integrity of the urban and architectural heritage, due not only to the lack of maintenance but also to diffused interventions of transformation based on the present land use zoning;
- The lack of an established record of heritage buildings;
- The lack of information on some crucial topics like land use, building conditions and state of occupancy, and the use of open spaces;
- The complexity of the institutional framework, which may lead to a lack of coordination and eventually to conflicts.

Finally, the third chapter develops some proposals for the establishment of urban conservation zones. A set of actions is proposed to start a process, which namely implies:

- The definition of the objectives and the tools for a conservation strategy;
- The establishment of protection perimeters and temporary protection measures;
- The inventory of buildings and open spaces within the protection perimeters;

- The preparation of a comprehensive Conservation Plan;
- The implementation of the Conservation policy.

Particular emphasis is given to the objectives of the conservation policy and to the establishment of the protection perimeters and temporary regulations. Overall protection perimeters and buffer zones are envisaged the two cities of Manama and Muharraq, not to “freeze” the actual urban situation but rather to re-orient and steer the undergoing dynamics toward “virtuous cycle” of rehabilitation and revitalisation.

In order to define appropriate categories of interventions, a test survey has been undertaken in a sample area of Manama, whose early findings are presented in order to demonstrate the methods and the techniques to be applied. On these bases some methodological and operational proposals are put forward for the definition of a detailed land use and conservation zoning within the protection perimeters, which would form the core of the Conservation Plan to be established.

It is also proposed to develop, in the framework of the Conservation Plan, the following planning studies:

- The reorganisation and improvement of the vehicular accessibility to the historic cores
- The rehabilitation of the historic street and open spaces pattern
- The re-establishment of the linkages between the historic fabrics and the seaside

1. BACKGROUND

The establishment of conservation zones for historic cities and neighbourhood responds to an approach to urban planning and development that consider the historic city and its neighbourhoods not simply as a legacy of the past but as an heritage to be preserved for future generations.

It also reflects the evolution of the concept of “heritage” over time, as applied to historic urban fabrics. Up until the 1970's, conservation was mainly concerned with the preservation of some selected "monuments", buildings and "sites" featuring some outstanding architectural, artistic or symbolic characteristics. Conservation applied to a collection of protected, isolated "objects", which often had a major role in the formation of the urban image and of local cultural identity (mosques, city walls and gates, etc.), and the criteria of classification and protection were mainly “aesthetic”, inscribed under the logic of "cultural" policy. This concept of heritage, considered the historic fabric and its different functional and morphological components, as well as the urban landscape, simply as a "context", without any specific heritage value, where constraints and legal measures had to be imposed only in the aim to protect the classified monuments and sites from visual intrusions.

1.1. The notion of urban cultural heritage

In recent decades, a wider and more complex notion of "heritage" has established itself, notably as a result of academic research and municipal policies, which were supported and assisted by UNESCO and other international organizations. This evolution has been highlighted by the various "charters" and international conventions, from the Venice Charter (1964), which widened the definition of "monuments" to include its "rural and urban setting"; to the Washington Charter (1987), which embraced historic towns as well as their natural or man-made environment as "historical documents" and as expressions of "traditional urban cultures". The concept of "heritage" now goes well beyond the outstanding monuments and sites to include the urban pattern of the historic cities in its entirety, and those parts of the urban fabric that has retained certain "integrity", with varying degree.

Conservation must therefore take into account all the elements of an “urban heritage” that, in the different historic "layers", represent the culture and know-how, which find their expression in the morphology and the spatial organisation of the city, thus defining its identity. Not only the monuments or exceptional buildings, but the different forms and types of building of residential, manufacturing and trade activities, the layout and the fixtures of public spaces, as well as the various expressions of "vernacular" architecture represent what can be defined as tangible “urban cultural heritage”.

This evolution of the concept of "heritage" reflects a growing awareness of the role that historic cities have played in forming local cultural values, traditions and lifestyles. It also holds with the growing importance given to activities linked to the valuing of urban areas and historic sites as sources of income and job creation and as factors in economic and social development. Heritage conservation thus takes on a new connotation, it aims to not only simply "preserve" some more or less complex and extended set of "objects", but becomes both the goal and the means of an urban planning policy to address the needs and aspirations of the concerned populations.

1.2 The historic city as "urban heritage"

In this new conceptual framework, the first set of questions concern the definition of the "historic city". How far back do we have to go for a building, urban fabric or landscape to be considered "historic"? How do we delineate the "perimeter" of the conservation urban areas? These are cultural and technical decisions that have obvious political implications and, in this regard, the debate is still open in so far as the temporal limits are always called into question and diminished more and more in these days. Furthermore, the spatial limits can grow and diminish depending on the "heritage value" which one attributes to the various historic layers, notably to different phases of recent urban development.

In general terms, the "historic cities" in many regions of the Arab world consist of the pre-colonial "medina", or those parts of the urban pattern, which were formed prior to the processes of "modernisation, but increasingly in recent years a "historic" and "heritage" value has come to be associated with certain parts of the "colonial" or the "modern" city. The term "historic city" therefore includes very diverse urban realities, which are different or even opposed in terms of their cultural and spatial forms (even the pre-colonial city could not be considered as a homogeneous whole), which manifest varying degrees of social, economic and cultural dynamism that tend towards never-ending transformations in the use and configuration of the spaces. The "historic city" can also present internal "ruptures" and discontinuities that constitute an essential feature of its identity (for example, the ramparts and its constraints of protection). Others are, on the contrary, the expression of "rifts" which devalue and degrade it, such as the "vacuums" which result from the collapse of houses, and also from "intrusion" of new roads or from unfinished urban renewal projects.

In any case, this broader notion of "heritage" directly concerns the ways the urban space is used by the community, and this conception of heritage has profoundly modified the concepts, objectives and instruments of conservation. While in the past the main goal was essentially to "preserve", indeed to "reconstruct" objects, structures and sites to reinstate their original appearance and to restore their symbolic and formal coherence, when it comes to urban conservation it is obviously no longer a question of recreating the original configuration; it is rather a matter of respecting the various contributions of culture and knowledge that have proliferated in the urban context, while trying to restore the morphological and functional coherence of the various fabrics that have undergone transformations which have disfigured their identity.

Conservation is hence accomplished not only through "preservation" and "restoration" but also, and perhaps primarily, through "revitalization" and "rehabilitation", even sometimes though "renewal". At the same time, whatever its degree of integrity, the conservation of urban heritage cannot consist only in the interventions linked to the architectural and spatial characteristics of each building or site, but it becomes more and more a process whereby policies are put in place, through direct action, legal means and various incentives, to orient the process of transformation towards the respect and maintenance of the characteristic identity of the historic city as a whole.

The establishment of conservation zones is nowadays a worldwide diffused planning exercise, since heritage conservation is being taken into consideration by governments, national and regional administrations, financial institutions and international cooperation agencies as an aspect of the development policies. The variety of circumstances makes it difficult, if not impossible, to develop "recipes" for action which are valid for all cases, or to "import" experiences that have succeeded in other contexts. Nevertheless, taking into account the international charters and conventions, and the technical and

methodological expertise gained through previous endeavours, it is possible to identify some strategic objectives, which necessarily relate to long term policies; and find appropriate solutions which take into consideration the specific resources and requirements. In particular, according to the international best practice, it is essential to consider the interdependent link between cultural policies and sustainable development, under the following aspects:

- The value of cultural heritage as a source of social cohesion, creating consensus about the objectives of a sustainable development;
- The potential for activities related to the protection and development of cultural heritage to act as a driver for economic development: that is, as a means of creating jobs and generating income; in particular through cultural tourism; training and research; the craft industry and trade.
- The challenge posed by the need to balance the requirement for conservation of tangible and intangible cultural heritage with the demands of modernization.

In this view, the historic city is therefore a living and liveable component entity of the urban environment and the establishment of conservation zones is a planning exercise, which becomes relevant to many different regards, since it necessarily implies: (a) the cultural awareness and the political willingness of the authorities and the local population to preserve undertake a long term process, (b) the availability of economic, financial and human resources to support the costs of conservation, (c) the interaction of various decision makers, stakeholders and actors, both private and public.

1.3 Urban Conservation Zones and conservation policy

The establishment of Urban Conservation zones is a very basic but fundamental measure not only to ensure the protection of the buildings of traditional construction techniques and materials but also to preserve the sense of belonging to a place (the historic cities and their neighbourhoods), and hence to the culture (tangible and intangible), which finds expression in their space and architecture. This exercise must be intended as a part of a policy, which normally is implemented through plans, programmes and projects requiring a wide display of legislative, administrative, financial and socio-economic tools.

It is important to stress however that a Conservation policy should be future oriented, and for this reason has to be based on an accurate knowledge and a deep understanding of the whole heritage asset to be preserved for the next generations. As for the urban fabric, this would require the following steps as pre-conditions for an appropriate and consistent implementation:

- a) An accurate and in-depth knowledge of the historic development of the city, particularly of the spatial codes that have regulated the constitution and the transformations of the urban fabric until the recent times. This should be based on different sources, but the comparative analysis of historic cartography and iconography is an essential and unavoidable tool for an early identification of the conservation zones;
- b) The recognition on the ground of those parts of the present urban fabric, whose spatial, morphological and typological features still reflect, to a certain extent at least, the historically established structure of the city, prior to the recent modernisation and urbanisation process;
- c) The accurate identification of all the individual urban and architectural heritage items to be preserved, to be carried out through a comprehensive survey of all the buildings

and open spaces which form the remaining historic urban fabric, regardless to their state of conservation;

- d) The classification of these items, according to their cultural heritage interest, typological characteristics and architectural values, also taking in consideration their state of conservation and potential for adaptive reuse;
- e) The establishment of a specific conservation zoning code, to be integrated into the urban planning documents (land use zoning), which would take in consideration the different degrees of integrity of the urban fabric and the different levels of heritage interest of the architectural items;
- f) The establishment of specific building regulations, to be integrated into the urban planning documents as well, which define the possible types of intervention for each building and open space, according to their heritage interest, typological and architectural components, state of conservation and possible reuse for compatible activities.

In this framework, the identification and establishment of urban conservation zones has only to be seen as an initial but essential step toward the establishment of a conservation plan, whose aim would mainly consist in steering the interventions of the public bodies and the private investors into a virtuous cycle of protection and revitalisation leading to the rehabilitation of the historic asset, through the enforcement of appropriate regulations.

It must be clear that the establishment of the conservation zones should not lead in any way to a sort of “freezing” of the urban fabric; nor can it be intended as a tool to transform the historic city into a “theme park”. On the contrary it has to be intended as a tool dealing with the improvement of the living conditions of the population, and ensuring the functional revitalisation of the historic city and its neighbourhoods. To this purpose, an adaptive reuse approach has to be developed and enforced, which considers heritage as a resource to be protected and utilised through imaginative but appropriate solutions, not as a constraint to be minimised or eliminated for the sake of a conventional and standardised modernisation. The virtuous cycle of the rehabilitation (if not regeneration) has to be created through the preservation and the revitalisation of the remaining historic urban fabric and its spatial and architectural heritage: this should be the aim of a consistent conservation policy.

In this view, the assessment of the current situation carried out in Manama and Muharraq has only been a first appraisal, which was aimed to nothing but an initial identification of the critical issues to be addressed, and to outline the possible objectives and methods to be suggested in order to undertake a conservation policy for both cities. It must be stressed that the pre-conditions cited above would require a much more extended time framework, as well as an appropriate and systematic preparatory work – i.e. a complete and systematic collection of historic maps and field surveys - which have not yet been undertaken. Therefore the evaluations and the proposals presented hereby in this report, mainly reflect the elaboration of the impressions received from the first short term mission and need to be verified and developed on the cases of further, more systematic analyses and studies.

2. FINDINGS FROM THE INITIAL APPRAISAL

The appraisal of the current state of conservation and trends in Manama and Muharraq has been accomplished during the two missions undertaken in November 2005 and January 2006, in collaboration with the other members of the international team of experts and the officials of the MOMAA. It mainly consisted in the following actions:

- a) The participation to the “charrette”, where some general and specific planning issues were raised, and the debate addressed the planning approaches and tools to be used, in order to undertake an efficient and appropriate conservation policy;
- b) Several field visits to different historic districts of Manama and Muharraq, and various informal and formal meetings with different experts and stakeholders, which have been useful to identify some urgent and priority actions to be undertaken as a pre-requisite for an appropriate and consistent conservation policy;
- c) The consultation of the available bibliographic, cartographic and photographic sources, which have given the fundamental hints to undertake an initial identification of the perimeters of the two historic cities of Manama and Muharraq, also based on findings of (a) and (b);
- d) The accomplishment of a survey on a sample area in the historic fabric of Manama, which mainly aimed to test the methods and the tools for the overall and extensive survey to be carried out in order to assess the current conditions and trends in the two historic cities.

Hereby the findings of this appraisal are presented, upon which some critical issues have been identified and proposals have been developed, which aim to define the guidelines for the establishment of “urban conservation zones” in Manama and Muharraq, intended as a tool for the implementation of a consistent conservation strategy according to the methods of the best international practices.

Due to the lack of structured information and documentation, the time framework and the scope of the work, the appraisal is to some extent rather impressionistic and needs to be verified on the basis of specific and accurate researches and studies to be hopefully carried out in the future.

The appraisal is structured in the following sections:

- The identification of the historic cities;
- The state of conservation of the historic cities;
- The critical issues and priorities.

2.1. The identification of the historic cities

The identification of the historic city to be the object of a conservation policy is the first essential step to undertake in order to set up a consistent strategy, efficient policies and appropriate tools. Worldwide diffused practices identify the historic city as those parts of the urban area that bear in its urban fabric and architecture testimony to the different phases of development prior to the modernisation processes, which can threaten its survival.

The identification is usually carried out according to well established methods, on the basis of an accurate analysis of all the cartographic, iconographic and literary documents, which can help to outline the city’s historic evolution. It must be stressed that this work has not been yet accomplished and that, during the missions, it has not been possible to acquire and consult all the existing documentation and particularly the various relevant studies on the historic development and the architectural heritage of the two cities, which

are published in Arabic language.

However from the recent history of the nation and the few sources available on the urban development of the cities of Manama and Muharra¹q , it clearly appear that a radical change in the urban process occurred since the '20s of the past century, with the British rule introducing new institutions and management criteria, and mostly after the mid – '30s when a new economy, based on the oil resources, made obsolete the traditional economy based on pearl fishing and maritime trade. This radical change made available the economic resources to undertake a process of modernisation, which has become much faster and deeper in the recent decades, since the '70, after the Independence and the new oil-boom.

As for the two cities, this modernisation has progressively meant a definite rupture in the traditional development process and urban organisation, which was essentially based, at least until the '40s and the beginning of the '50s, on a close spatial and functional relationship with the harbour and the seashore.

The morphological structure of both Manama and Muharra¹q is indeed characterised until that date by a continuous and densely built-up pattern, which features a close interdependence between the spatial and functional pattern of the urban fabric and the waterfront. The linkage of the suq and the commercial districts with the harbour and the seaside is evident and clearly determines, together with the traditional “poles” (i.e. the mosques, the rulers palaces, etc.), the functional and morphological structure of the fabric that comes to close contact with the seaside.

Images of the Manama waterfronts in the 20's

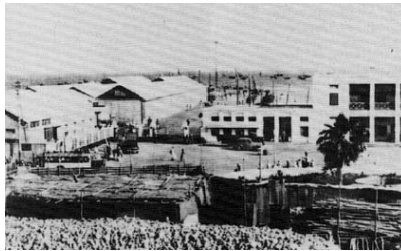


¹ These namely consist of a set of historic maps and aerial photographs made available by Dr. Abdallah, as well as the drawings from the book of Tariq Wali: " Al Muharra¹q 1783 – 1971. The urbanism of a Gulf City", Gulf Panorama, Bahrain 1990, and the images from the book of Andrew Wheatcroft: “Bahrain in original photographs 1880-1961”, Kegan Paul International, London 1988

The modernisation process undertaken in the '20s and the '30s confirmed and reinforced the linkages with the sea, whilst boosting the inner transformation and the growth of the existing fabric. A main change occurred with the construction of the corniche roads in Manama and Muharraq in the '30s and eventually the causeway linking the two cities with the swing bridge opened in 1942.

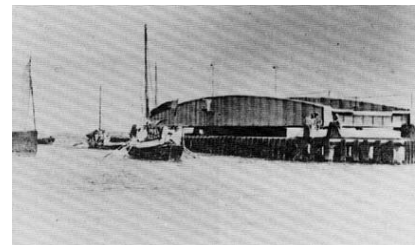
These works modified the relationship of the two cities with the seaside. The previous pattern of perpendicular streets linking the docks and the warehouses to the suq and the commercial areas was completed and partially replaced, especially in Manama, by a new waterfront parallel to the coastline forming a main spine where modern activities and new institutions concentrate.

Above: the harbour of Manama and the causeway to Muharraq in the '40s



Below: the harbour of Muharraq and the swing bridge opened in 1942

The early modernisation has considerably reinforced the linkages of the two cities with the seaside



As a result, the existing streets were extended and modified to be connected with the corniche road built along the coastline on shallow waters. A new pattern was thus created, consisting of an almost regular road grid, which formed the framework of early modern urbanisation on the previous seashore and the reclaimed land.

In both cities new districts developed merging with the former fabric. These progressively became the modern city centres, accessible to vehicular traffic and attracting new commercial and business activities. As a result, a new system of access to the traditional city centres was created, the existing docks and warehouses were replaced or transformed, and structures were built adjacent to the suqs, thus modifying the former urban hierarchies.

Manama. Above: the new urbanisation of the waterfront in the '30s. Below the merging of the new fabric with the traditional suq in the '40s.



The transformations are particularly intense in Manama, the administrative and economic capital city. The new institutions created under the British rule (government offices, new municipality, law courts, the custom house) are aligned along the Government road, together with hotels, cinemas and other commercial and business activities.

The new Bab Bahrain and its square, definitely structured in 1945 with the Government offices, the Post office and the Custom house, become the focus of two sections of the eastern and western sections of corniche, and the hinge of the whole urban structure, giving access to the suq and the harbour.

Similarly, in Muharraq a new focal area in the urban structure was formed in between the suq entrance and the swing bridge of the causeway leading to Manama. This became also the main access to the inner fabric, which was later enhanced by the widening of the streets leading to the rulers palaces and the main mosques, in order also to allow the vehicular circulation.

Above and below left: the new institutional buildings and built road along the Government road in Manama in the '30s and '40s: the Custom house, the new Government offices at Bab Bahrain and the Law Courts



Below right: the premises of the Muharraq Municipality at the entrance of the suq



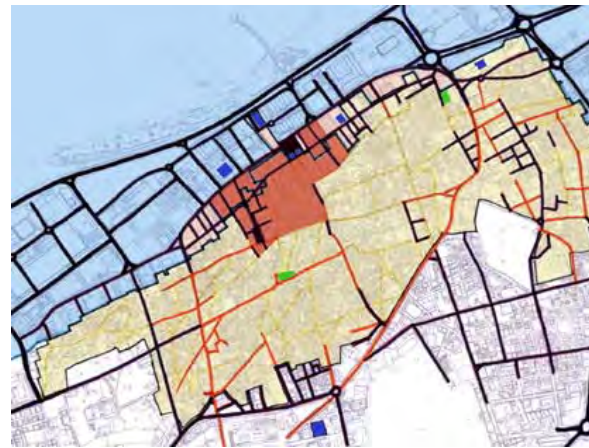
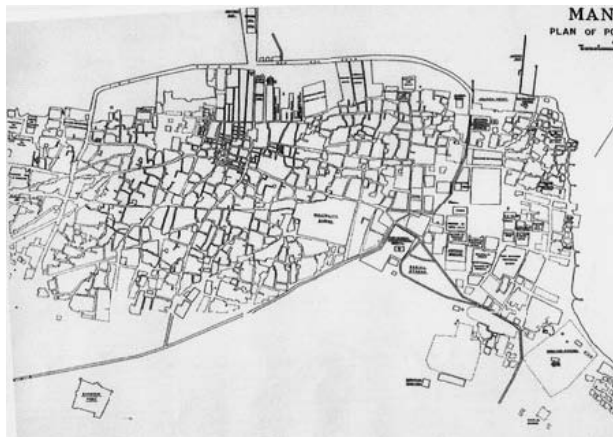
In both cities, the existing traditional fabric was progressively transformed and new extensions took place, relating to the new poles of activities. New roads were cut or existing ones widened in order to connect the new waterfront and allow the vehicular circulation within the traditional fabric, also in the framework of the public works programs undertaken since the '40s.

Muharraq: a street in the '20 before the beginning of the program of public works (above), and historic streets widened (below)



The plans below show the main transformations occurred in the urban fabric of the two cities since the '30s and the '40s. In particular the evolution of the street patterns is shown, comparing the actual situation to the one that appears from the available documents dating of the early phase of modernisation.

In Manama, the main transformations of the historic fabric occurred along the waterfronts to the north and the east, along the main spine of Government road, which is already marked out in the early '30s to form the new waterfront and serve the main pier with the Custom house in front of the actual Bahrain Gate. In the late '30s, this spine will be continued to the north-east with the causeway linking Manama to Muharraq and be connected to the existing roads leading inland. A major system is thus created with a vehicular ring road, surrounding the central core of the traditional city and creating the premises for the further urban growth in the different directions. Focussed on this major system, a new street pattern is created, which penetrates from Government road into the pre-existing fabric. This is particularly dense and continuous along the waterfront, where a new urbanisation take place on the early land reclamations, but it is also relevant on the southern and eastern edges.

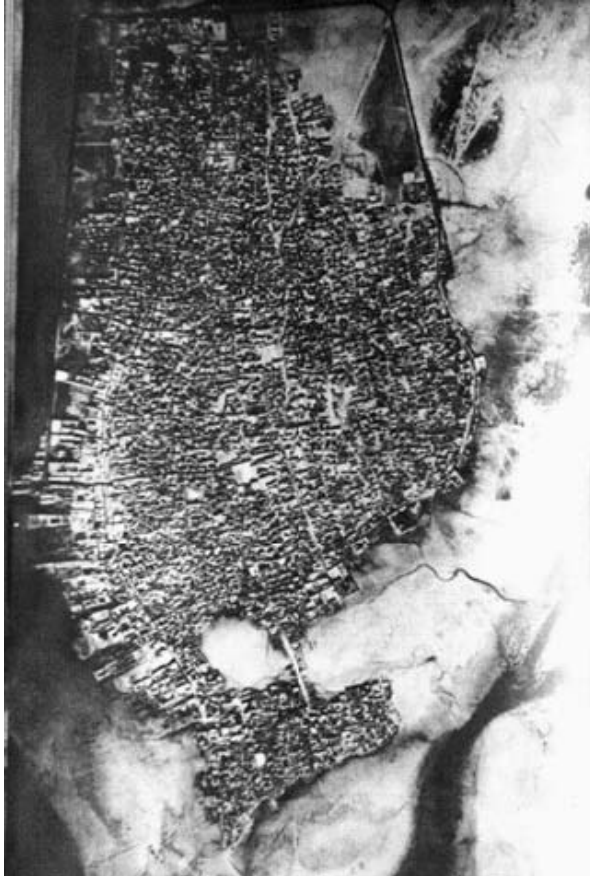


-  Preserved urban fabric and main street pattern
-  Pre-existing and modernised commercial districts
-  Early land reclamation and urbanisation
-  Pre-existing main streets widened and "modernised"
-  Main religious and institutional poles
-  New street pattern
-  Coastline in the '30s

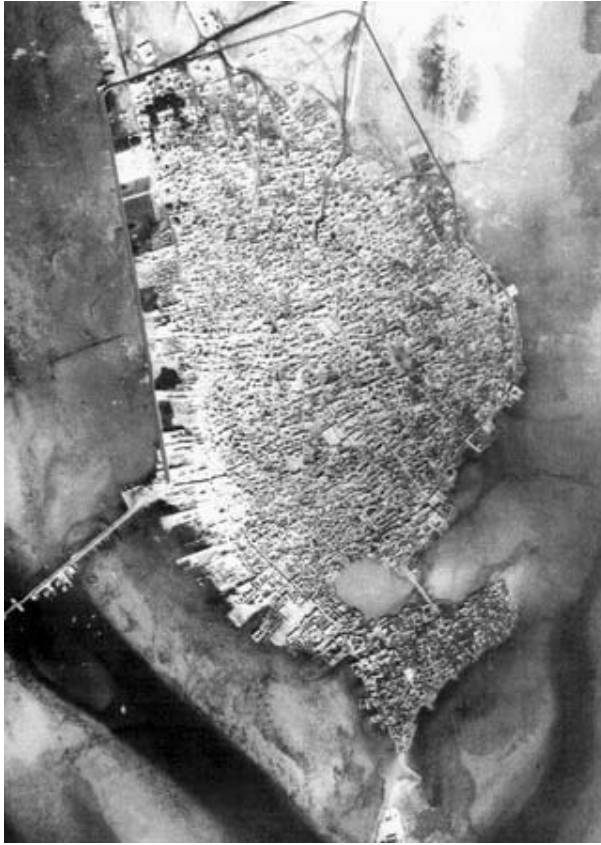
Manama in a map of the early '30s (above left) and the transformations occurred in the historic fabric (above right) until the present times.

The traditional fabric is progressively encapsulated by the new motorways and urban extensions, and the pre-existing traditional street network is transformed in order to allow the vehicular traffic to reach the central core and its commercial and institutional districts from the new extensions. To this purpose, some historic threads are modified with the widening of the pre-existing streets and some limited cuts, in order to provide the continuity of the vehicular connection between the ring road and the main inner traditional spines "modernised". The central core, and particularly the traditional suq area have been preserved however, to a certain extent at least, from main interventions of road widening and cutting, even if it has become the focal destination of the new traffic penetrations. This helped to protect the historic fabric from heavy fluxes of through traffic, which still concentrate on its edges, along the Government road and the ring road.

To a certain degree, the same process of modernisation occurred in Muharraq, even if the impact on the pre-existing traditional fabric has been different, due to the morphological and functional structure of the city determined by the peninsular condition and by the lesser presence of "modern" institutions and activities. Main transformations were initially concentrated in the area surrounding the swing bridge of the causeway leading to Manama, adjacent to the traditional suq. The new waterfront developed along the motorway, which was created on the north edge of the peninsula north of the bridge head, whilst the southern and eastern edges were not concerned until the '60s by the related new urbanisation.



Muharraq in 1939 (left) before the construction of the causeway and the bridge leading to Manama, and the plan of the suq area in the '40s with the head of the causeway (above).



Muharraq in 195, with the bridge to Manama (left), and the transformations occurred in the historic fabric (above right) until the present times (see the legend above).

In the same time, the main streets connecting the central core of the inner fabric to the new urban hinge were widened or “rectified” in order to fit with the vehicular traffic, thus forming the framework of a new system of accessibility, which was eventually extended to serve the new urbanisation on the northern and the eastern edges of the peninsula. In this process, large areas of the pre-existing historic fabric, including the qissaria in the recent years, were “modernised” and heavily transformed.

In both cities however, the pre-existing morphologic and functional structure has been definitely preserved through the early modernisation process, though with different degrees of integrity and a new system of urban hierarchies. The real rupture has occurred in the ‘50s and ‘60s, as a result of the new developments on the land reclaimed beyond the previous early modern waterfronts featuring a totally different scale and spatial organisation.

In this process, the historic cities fabrics have lost definitely their contact with the seaside, being encapsulated by a new urban structure based on motorways and larger scale blocks, which have progressively destroyed or disfigured the previous waterfront and made the historic fabrics more and more “marginal” in the rapidly changing urban structure.

The actual waterfront of Manama



On these basis, the identification of the historic cities is quite obvious, even if the street pattern is not but one of the elements to be considered as an indicator of the integrity of the urban fabric and hence of its historic character.

It is evident that other elements have to be taken in consideration in further and more in depth studies, such as the spatial distribution of some peculiar urban functions and typologies or the plots subdivision, according to well-established methods of the urban history and geography. These require accurate and specific analyses, which should be carried out on the basis of an more extensive and accurate documentation, which seems to be lacking at the moment.

Moreover, and most of all, the transformations of the urban fabric should be considered, which result from the diffused interventions of reconstruction and addition that modified through the ages the built-up structures. These would required other specific surveys and investigations on architectural typologies and urban morphology.

However the morphological (and functional) difference between the two patterns built before and after the '60s is so striking that can be surely be assumed as an important point of reference for the identification of the protection areas, which in any case should be carried out in more detail and possibly on the base of a wider and more accurate documentation.

2.2. The state of conservation of the historic cities

In both cities of Manama and Muharraq a widespread process of deterioration and decay of the historic urban fabric is undergoing, which is not only leading to the loss of many buildings of architectural significance, but also, to the worsening of the housing conditions, the decline of the traditional activities, the overall deterioration of the urban environment. As a result, the historic fabric is becoming more and more ordinary and is definitely losing its capacity to stir up the community's sense of belonging.

Several oriented visits and a limited survey on a sample area (see also section 3.2) have clearly shown that the fabric of the two historic cities is very diversified in its morphological and typological characteristics, due to the different impact of the modernisation process after the '30s and '40s, and of the recent urbanisation trends.

The appraisal carried out in the two missions has allowed to recognise different degrees of preservation in both the urban fabrics, which depend on:

- the integrity (or transformation) of the morphology and texture of the historic fabrics;
- the presence of buildings of architectural and historic significance and the overall housing stock conditions.

Other indicators should be taken in consideration to assess the state of conservation of the two historic cities, i.e. the transformations in the activities pattern and the spatial organisation of the ferij, the different spatial components of the urban environment, that would require specific and accurate investigations. The findings below are therefore necessarily partial and subject to change considerably, when extensive and systematic information will be available.

2.2.1. The urban fabric

As a result of the process outlined above, in both historic cities the fabric considerable changes occurred in both the street and open spaces pattern and the built-up structures. In general terms different degrees of integrity or transformation can be recognised, which define the following situations:

- Preserved “traditional” fabric;
- Transitional or “mixed” urban fabric;
- Transformed or “modernised” fabric.

These three types of historic fabric are mixed and often overlap in both cities and, given the actual state of information and understanding, the most relevant indicator for their identification is offered by the evolution of the street pattern and by the streetscape in itself, which make evident the impact of the modernisation.

In the preserved traditional fabric, whose spatial pattern show an high degree of integrity of the “pre-modern” features, most of the main components and characteristics of the historic structure are still clearly visible and recognizable:

- the street network still reflects the historic threads and the traditional relationships of the different districts and neighbourhood to the main structural elements, i.e. the mosques, the suq, the harbour, and so on;
- the relationship between the built-up structures and the open spaces still reflects the traditional spatial hierarchies and sequences, which were meant for the pedestrian mobility and resulting from a clear identification of the spaces of proximity and community interaction;
- the “grain” and the “texture” of the built-up fabric is characterised by the association of buildings of different typology and size, which however are of the same height, basically structured around an inner courtyard and inward oriented, and always abutting one to each other, thus ensuring the compactness and the continuity of the fabric, but also creating a diversified and stimulating urban environment

In this framework, the traditional fabric includes building with different degrees of integrity and authenticity. Buildings of architectural significance may have been replaced or transformed into ordinary recent buildings, but these changes have not affected the compactness and the continuity of the spatial pattern.

Traditional fabric in Manama



Traditional fabric in Muharraq



In the “transitional” or “mixed” urban fabric, the historic spatial pattern has been more or less transformed by the opening of new roads or the widening and the rectification of the historic threads. These areas are characterised by the densification or, on the contrary, the crumbling of the historic fabric, due to the urbanisation of the pre-existing open spaces, localised redevelopment interventions or simply functional decay abandon. However, the street pattern and the most relevant functional components of the historic urban structure are basically preserved, as well as some relevant items of architectural significance;

Transitional areas in Manama



Transitional areas in Muharraq

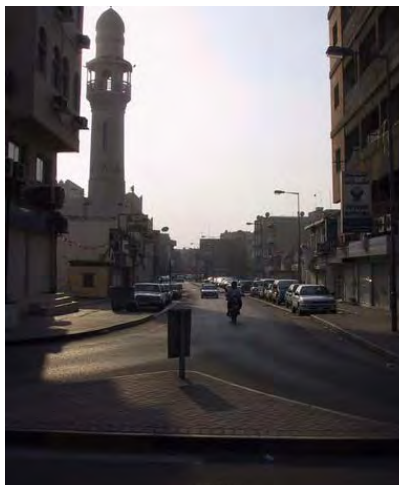


The “transformed” or “modern” fabric is characterised by a spatial pattern which results from modern urbanisation and may include some architectural and landscape features, which reflect the linkage of the city with the seaside reinforced by the early modernisation or the permanence of historic landmarks and focal points.

Transformed and modern fabric in Manama



Transformed and modern fabric in Muharraq

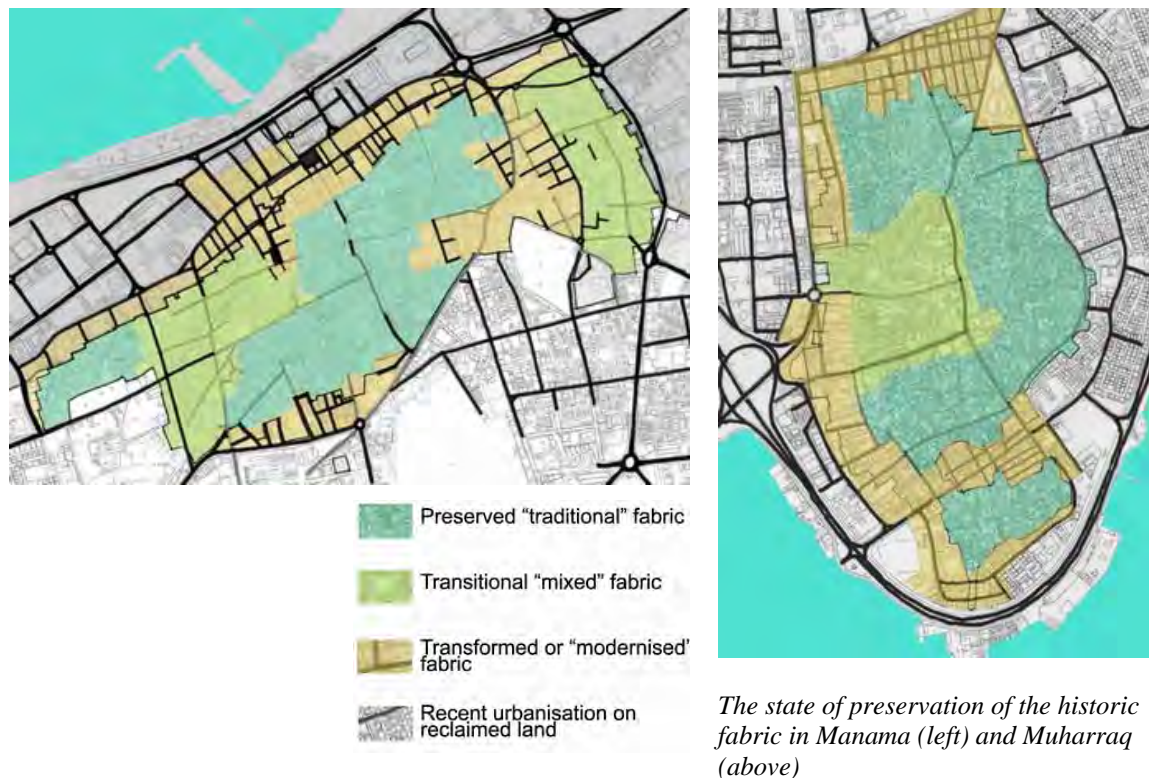


In the figures below, an initial classification of the historic fabric is proposed, which respond to the criteria outlined above, based on the evolution of the street patterns analysed in section 2.1 and partially verified through site visit. This classification can not be intended as an analytical representation of the state of conservation of the two cities, nor must be considered as a zoning exercise with planning purposes. It simply

summarises some initial findings, largely impressionistic due to the lack of an exhaustive basic information, in order to point out issues that may be relevant for the establishment of a conservation planning strategy.

With regard to the street spatial pattern, in both cities the extent of the “preserved” areas is still relevant and, on the other hand, the new urbanisation has not considerably affected the historic fabric since it concentrates along the waterfront of the early modernisation and at the edges of the “preserved” or “mixed” fabric.

However a difference appears between the two cities when the central core is considered. In Mamama the suq and the surrounding central areas fabric still keep the basic spatial characteristics of the “traditional” fabric, even if an higher degree of environmental deterioration can be noted. In Muharraq, as outlined in section 2.1, the same areas seem to have a “transitional” character; the morphological integrity of the street and open spaces pattern has been heavily affected by the widening of the most important streets, and the transformation of the pre-existing threads into through fares doubled by the construction of new buildings, whose shapes, volumes and constructive techniques reflect a very conventional idea of modernity is giving place to a more and more ordinary urban scene.



However the comparison of the urban fabric in the two city centres, put in evidence how in both cases the street pattern is still structured by the centrality of the main mosques and by the close spatial links that used to exist between the suq and the activity near the harbour and the docks. These links are now completely disappeared, but the spatial sequence is still readable and remains an interesting feature, since it regulates the hierarchy of streets and public open spaces.

In both cases also, but for different reasons, a widespread deterioration of the urban environment can be noted. If in Manama this is mainly due to the lack of maintenance of

the open spaces and to the poorer living conditions of the population, in Muharraq a large amount of open spaces can be recorded, which are nothing but vacant lands resulting from house demolitions: these have destroyed in many neighbourhoods the sense of continuity and the coherence of the traditional street pattern, and hence the compactness of the urban fabric, giving place to shapeless and blind spaces often used as informal parking and garbage disposals.

It seems necessary to investigate in depth the reasons of such a widespread process of demolition, which heavily affects not only the morphology but also the quality of the urban environment. On one hand it appears to be the first step toward reconstructions or redevelopments, in other cases it gives the opportunity to create public spaces and parking, but most of the time it simply looks as the result of abandonment and decay.



The city centres of Manama (left) and Muharraq (right). In both cases the historic street pattern is perfectly recognisable, in spite of the transformations of the last decades along the sea side (above, in the case of Manama, below, for Muharraq). It is evident however the very different degree of compactness and continuity of the city fabric in the two cities.

2.2.2. The architectural heritage and the housing conditions

The extent and the characteristics, as well as the overall state of conservation of the architectural heritage look also very different in the two cities. In spite of the evident loss of its spatial and morphological integrity, the urban fabric of Muharraq seem to reveal a higher degree of typological diversity and is enriched by a considerable amount of buildings of the highest architectural interest. Some of these buildings have been recently restored and reused for cultural purposes, which show a growing awareness amongst the owners and the public opinion in the heritage conservation.

In both cities however, a wide range of historic and traditional building types can be found, which generally reflect the courtyard house model, with a remarkable variety of

spatial solutions, architectural elements, decorative and constructive details. In any case, regardless to the typology – many small size traditional buildings do not have a real courtyard indeed – these are based on the principle of separating and protecting the domestic from the public realm to ensure privacy, and display a large array of architectural techniques – from the very simple to the most sophisticated – in order to regulate the uses and the visual relationship between the indoor and the outdoor spaces.

In particular, the courtyard (*fina* or *housh*) characterises the largest or medium size houses. In these cases, it can feature different architectural forms or spatial arrangements but it always represents the core of the house and the hinge that articulates all the different domestic spaces, ensuring the unity and the consistency of the family living environment. The roof terraces, on the other hand, represent the complement of the courtyard, as a multipurpose space visually protected and ventilated by the *badjr* on the high parapet all around the perimeter walls.

Traditional houses with courtyard



In the smaller buildings the courtyard is reduced to a simple light well near the entrance, or it disappears completely. In these cases, galleries or balconies protected by wooden screens provide the families with an outdoor enclosed open space, whilst the wall *badjr* enriches the parapet of the roof terrace.

Traditional houses without courtyard



The implications of the traditional codes on the urban morphology and on the cityscape are evident, since these are the premise and the basic condition of the compactness and continuity of the historic urban fabric. By contrast, the appearance and the diffusion of new building models, particularly the apartment building, create ruptures and discontinuity in the fabric, progressively becoming more and more ordinary and reflecting conventional “modern” standards.

This modernisation is linked to the transformations of the urban fabric outlined above - particularly the road widening and the creation of new open spaces, associated with setbacks and/or building heights, which are inconsistent with the surroundings - but is also clearly epitomised by the introduction of the new architectural and constructive techniques, which are used in the transformation and most of all in the reconstruction and

redevelopment of the traditional buildings and properties.

In spite of any reference to a supposed “traditional” style – made totally inconsistent by the use of concrete structures and other modern materials – it is evident that the use of large and serial openings, balconies and loggias and arcades, together with the lack of protected private open space and the fragmentation of the living environment into separated “housing units”, do represent indeed as many elements that contradict and overturn the traditional relationship of the domestic to the public spaces and deny the basic codes of the historic fabric.

Without any doubt, these ruptures reflect the speculative trends of the real estate and housing market. In many cases, especially in Manama, the “modernisation” of the traditional houses and the construction of new apartment buildings, result from investment strategies, which are intended to supply lower cost housing units to the low income foreign population employed in the commercial or the service and productive activities in the surrounding areas. In other cases, particularly in Muharraq, these interventions have a different target – the Bahraini lower or middle classes - but in any case they put in evidence a major challenge and a severe issue for the conservation of the historic urban fabric.

As a matter of fact, the courtyard house model could represent a constraint in the seek of modern standards of living: the courtyard reflect a lifestyle that is no longer compatible with the actual size of the families and the organization of the domestic life, and the introduction of modern utilities and the air conditioning has modified or even made obsolete the functional meaning of some spatial arrangements. Moreover the need of a continuous maintenance as well as the costs and the technical difficulties of the rehabilitation works, make the investment in conservation less and less convenient and attractive, when compared to reconstruction or redevelopment with the presumed “modern” standards.

As a conclusion, it should be made clear that, if the historic urban fabric has to be preserved, a better understanding and a deep respect are needed of the spatial and architectural “codes”, which represent the very deep root of the traditional typologies in their different expressions, in order to define the possible modes of evolution and the criteria for adaptive and compatible reuse. For instance, the awareness should be spread that the courtyard or the roof terrace can not be subdivided or suppressed without changing radically the meaning itself of the house and its relationship to the urban context, whilst denying the principles of the compactness and continuity of the fabric.

On the other hand, the negative effects of the demolitions or the new constructions referring to conventional “modern” western building types are more and more evident in these contexts and introduce a radical change in the urban fabric that could be hardly mitigated by stylistic or decorative solutions.

The two aspects above considerably affect the conditions and the quality of the housing stock and the overall environmental situation in the two cities.

As for the housing no clear data exist on tenure and occupation, as well as on the families. Anecdotic reports and the evidence of a survey conducted on a sample “transitional” area in Manama (see section 3.3) relate to a more or less recent considerable changes in the population (notably due to the influx of bachelors

immigrants), a widespread deterioration of the stock due to the lack of maintenance, inappropriate interventions of rehabilitation (i.e. subdivisions, use of inconsistent materials and techniques), and diffused interventions of reconstructions or redevelopment with modern conventional typologies.

2.3. The critical issues and priorities

An initial identification of the critical issues and priorities has been made possible by the participation to the “charrette” exercise, organised by the MOMAA in November 2005. This has allowed receiving by the participants interesting and useful information and opinions, as well as many hints that have been helpful to develop a further appraisal with visits and surveys on the ground. During the discussions many participants have expressed repeatedly an evident concern about the following issues:

- The changes in the social and cultural structure of the resident population, due to the uncontrolled flow of low income expatriates bachelors;
- The dramatic increase of the land prizes, and the high costs of restoration of the old buildings (materials and manpower), which push the residents and the new families to look for a new dwelling in the suburban areas;
- The more and more complex pattern of property of many ancient buildings, which often hampers their rehabilitation and restoration;
- The deterioration of the urban environment (informal parking and traffic congestion, garbage, lack of maintenance of open spaces);
- The lack of parking, which make more and more difficult the accessibility to the residential neighbourhoods;
- The current state of urban planning is particularly unsatisfactory, since no specific regulation is provided for the historic fabric, which is submitted to the ordinary land use zoning;
- The risks of some planned interventions are evident, which would definitely disfigure the historic urban fabric of both cities.

On the other hand, the “charrette” has drawn attention to:

- The strong cultural ties that link the Bahraini society to its historic and traditional urban environment;
- The various attempts, sometimes very successful, carried out by private owners, to restore and give new life to some relevant historic buildings, especially in Muharraq;
- The efforts of investigation, made by the Housing Committee, in order to identify and classify the “traditional buildings”;
- The urgent need of appropriate planning and urban design actions to preserve the remaining historic urban fabric, with its own “spirit of the place”, including the traditional activities and way of life, and recovering the traditional value of “simplicity”;
- The urgent need of incentives and appropriate regulations to encourage the owners and the tenants to undertake rehabilitation works and keep on living in the old cities;
- The urgent need of measures to control the vehicles traffic and provide appropriate parking, whilst improving the environmental context;
- The importance of a strong and efficient coordination amongst the different administrations and bodies, which are involved in the conservation process with different competences and responsibilities.

2.3.1. Planning issues

As for the planning issues, two basic questions have remained however largely open through the debates carried out in the “charrette” exercise:

- a) What kind of planning and/or conservation and urban design actions are needed, in the short term to stop the undergoing deterioration process, and in the long term to rehabilitate and revitalize the historic cities?
- b) What are the magnitude and the depth of the information required in order to undertake an appropriate and consistent heritage conservation policy?

These two questions are clearly bound together, since the information required depends on the kind of conservation actions that would be to be undertaken. To this regard, many different options have been recalled, ranging from the comprehensive “conservation plan” to specific “pilot” or “special” projects for some selected areas and buildings. The need for some overall protection measures is however largely admitted, since it was evident to all the participants that, in the long term, the undergoing deterioration of the urban environment and the decline of the urban liveability in both cities could make useless any effort of rehabilitation, if limited to few selected buildings.

It is clear that the answer to these questions cannot be simplistic. If conservation is intended as an overall approach to the historic city, which would result in a long-lasting continuous process, then the different tools recalled in the discussions are not alternative but complementary.

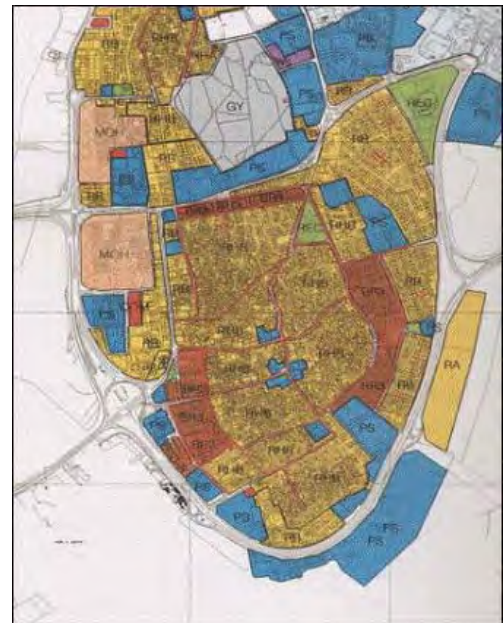
On the other hand, it is absolutely evident that the actual master plan is useless, if not harmful, for the sake of a conservation policy. The land use zoning is very simplistic, and it favours the demolition and reconstruction of large part of the historic fabric, especially in Manama, but also in Muharraq. In such a planning framework, no sensitive and foreseeing “special” or “pilot” project could help to stop the overall decay of the urban fabric, which has been pointed out by most of the participants.

So far, it appears that some critical issues have to be addressed in order to undertake an appropriate conservation policy with the establishment of conservation zones. The following can be cited:

- a) Present planning documents totally neglect the features of the historic urban fabrics. Zoning regulations allow for the demolition and reconstruction of buildings without any reference to their heritage interest; also road widening to improve the vehicle circulation has been extremely harmful for the urban fabric.
- b) The integrity of the urban and architectural heritage is threatened not only by the lack of maintenance but also by diffused interventions of transformation (including several demolitions) made by the private, as well as by the implementation of public interventions (i.e. the suq area in Muharraq). These are clearly based on the present land use zoning, but generally show a total lack of concern for the preservation of the historic features and characteristics of the urban fabric;
- c) No record or list of heritage buildings has been established, which has a legal value. The inventory of the “traditional buildings”, undertaken in 2001 – 2002 by the Housing Committee could be hardly used to this purpose, since the criteria for the identification of the heritage buildings were not clearly defined, and the investigation was stopped before the completion. Moreover no systematic record

of those buildings has been kept, which could be updated and integrated with other basic data and information;

- d) The information is apparently lacking as far as it concerns some crucial topics like land use, building conditions and state of occupancy, and the use of open spaces;
- e) The institutional framework seems rather complicated, which may lead to a lack of coordination and eventually to conflicts. Different ministries (Municipalities, Information and Culture, Housing), besides the Housing Committee, have responsibilities and competences, which may be involved in a conservation policy. Moreover none of the competent authorities has created technical structures with competent staff being specifically committed with urban heritage conservation issues.



The land use zoning of Manama and Muharraq. In brown colour, the zones are indicated where as a matter of fact the admitted building height is higher, some times much higher than the existing and make convenient massive redevelopment interventions.

The set-up of an appropriate institutional and legislative framework is a particularly important issue, which obviously affects the way the other issues are addressed. Due to its very political nature, it cannot be solved through merely technical solutions, since it require decisions, which can only be taken at the governmental level.

According to the most advanced international experiences, it seems necessary to empower one of the existing authorities to act as coordinator of the different sector policies, which may contribute to the implementation of the conservation policy. Nevertheless it is important here to stress that an administrative and technical efficiency should be sought, which could be fed by a “bottom-up” process.

This imply on one hand the creation of an ad hoc technical structure: hereby is proposed to create a “conservation planning unit” or something similar, based on the experience of other Arab cities like Tunis and Fes or else like many other European cities. On the other hand, it is necessary to identify since the beginning appropriate forms of participation

and consultation, involving the different stakeholders and the public opinion as actors in of the planning process according to a well-defined work plan.

2.3.2. Priorities

The urban and architectural heritage of both cities seems to be at risk for different reasons, and probably require different criteria and methods in the definition of the cultural heritage zones and the consequent establishment of zoning codes and building regulations for the conservation and infill interventions.

Besides that the impression is strong that the two urban fabrics require some urgent actions in order to remove some of the causes of the overall urban decay, but also make the best of their important asset thus starting a widespread process of rehabilitation and revitalisation.

Among the priorities to be addressed in the short term, the following could be considered as a precondition or a start up of an overall conservation policy:

- The reorganisation of the circulation pattern, with the provision of well defined parking areas and pedestrian zones in the areas surrounding the historic cities and providing the vehicular access to the “traditional” and “transitional” fabrics, in association with a programme for an overall upgrading of the open spaces and the urban environment for the whole historic pattern (see sections 4.4.2 and 4.4.3 for further details);
- The definition of urban design criteria for the infill or re-landscaping intervention in the empty plots and vacant lands resulting from demolitions, which that seem to be necessary, specially in Muharraq in order to recover the continuity and the spatial coherence of the urban fabric;
- The adaptive reuse of some important empty buildings, which are often strategically located as in the case of the Sheikh Salman House in Muharraq, in order to experiment and demonstrate the appropriate methods of restoration, whilst creating new activities and income opportunities.

These initial findings obviously need to be verified through accurate and comprehensive field surveys, as well as through an in-depth analysis of the functional and morphological characteristics of the two urban fabrics. However, it can be assumed that addressing immediately the issues above could also be helpful to develop a deeper understanding of the opportunities and constraints posed by of the material conditions of the historic cities.

Priority actions in these fields could be particularly important in order establish a positive approach to conservation and reorient some enduring tendencies that have negative consequences on the integrity and the quality of the historic urban fabric. To this regard, intervention criteria should be both "voluntary" and "tentative", able to orient a long term and effective process and also capable of being modified and enriched by the experience, creating the ground for a strategy that entails:

- An approach that favours the "re-use" of all structures which have potential for adaptation and conversion, whether it is buildings, open spaces or infrastructural layout. Such an approach not only respects the characteristics of traditional building types and the structure of the historic urban fabric and layout, but also develops its identity potential. In this sense, for example, cultural tourism can be considered as an asset because it involves the revitalization of heritage and ensures the means for its protection, while at the same time being an important source of employment and income;

- The diffusion of the interventions in the two urban fabrics, notably in those areas that are characterized by modest housing typologies or by “vacant lands”. An approach to adaptation should be established, which aims to satisfy basic needs while favouring maintenance, rehabilitation and infill rather than renovation or redevelopment. For example, if the "courtyard" constitutes a typological element which it is essential to retain, imaginative solutions can be found to avoid harmful subdivisions; as for the vacant lands resulting from demolitions, urban design and management criteria should be tested in order to re-establish the continuity and the compactness of the urban fabric with small scale infill interventions but also with simple but creative landscape elements (fencing walls, paving, vegetation) steering the interest of the owners and preventing the definite multiplication of “no man’s lands”.
- An enhanced attention to the specific functional and morphological articulation of the urban fabric and its spaces, by avoiding any planning and design solution, which tends to "standardize" the various built or non-built components. It is thus a question of varying the scale and the mode of intervention at the different levels (the urban layout, the block, the individual building or open space), considering the specific characteristics of each part. Restoration, rehabilitation, renovation, infill, represent as many modes of intervention that can be envisaged or undertaken in the fabric to achieve its revitalization, depending on its integrity and condition.

3. PROPOSALS FOR THE ESTABLISHMENT URBAN CONSERVATION ZONES

On the basis of the initial findings and the previous considerations, the following set of actions can be proposed in order to establish an efficient and appropriate conservation zoning. The aim is to start a process that can develop phase by phase, according to the available financial and human resources. This imply:

- The definition of the objectives and the tools for an overall conservation strategy for the two cities;
- The establishment of protection perimeters and temporary protection measures, in order to establish a conservation zoning;
- To undertake an Inventory of buildings and open spaces within the protection perimeters and carry out the necessary analyses of the urban fabric;
- To prepare a Conservation Plan and develop specific strategies in order to recover the potential of the two historic cities;
- To implement a Conservation policy.

3.1. The conservation strategy

As a first step, it is essential to define the goals and the objectives of a consistent conservation strategy, in relation to an overall vision of the future urban development in the two cities of Manama and Muharraq.

This vision should state the importance and the role of the urban and architectural heritage in the planning policy, both as a cultural patrimony to enhance the national identity and an economic asset to develop new activities and generate new incomes, whilst improving the living conditions of the resident population.

The vision and the related strategic objectives should originate from a large debate involving the concerned ministries (Municipalities, Information and Culture, Housing) and the Housing Committee, but open to the public opinion through an active campaign on the media. A steering Committee should perhaps be created, with the participation of important personalities of national and international level, which should play the role of preparing a sort of “heritage conservation chart” for the Bahrain historic cities.

To this regard, it is important to stress that conservation is not a goal in itself, nor is it an end that can be entirely attained, once and for all. It is a means of a broader urban policy, which aims at sustaining urban development that uses urban conservation and revitalization methods to direct and stimulate the "virtuous" dynamics of raising the value of the heritage of the historic town trough the combined actions of the preservation and the revitalisation.

Conservation should be hence the aim and the method of an urban planning policy whose general objectives, according to the international best practices, could be summarised as follows:

- The improvement of living conditions and of urban environmental quality in general, in particular through addressing situations of urgent social priority such as housing which is overcrowded and/or on the verge of collapse, but also by the clean up and rehabilitation of public spaces.
- The strengthening of the functional role of the historic cities with the creation of new attractive and compatible activities, which would reinforce their cultural identity and define new relationship with the greater urban area;
- The restoration and rehabilitation of the most remarkable buildings and urban spaces, which constitute elements of identity, in particular those that are on the verge of losing,

or have already lost, their functions and their social and cultural value. In this context there is potential for developing training, cultural and leisure activities, craft and trade and cultural tourism;

- The creation of conditions which encourage investment by the private sector in the rehabilitating and reviving of cultural heritage, and the development of economic activities compatible with the character of the historic fabrics.
- The strengthening of local capacity as regards urban management of the historic cities, including the development of criteria and exemplary methods of intervention and management which can be used as models for future reference.

In order to make the strategic vision a useful framework for planning, such general objectives need to be discussed and specified. In this framework, some issues become relevant concerning the technical, legislative, administrative and financial tools to be created in order to implement the conservation strategy.

In theory, in urban planning and in the conservation policies there is a hierarchy and a practical classification of the various types of instruments, with the "plan" being considered as the "frame of reference" - a prerequisite for all programmes, projects or operations: in some countries (Italy or Spain) the "urban plan" also includes the measures for the architectural and urban heritage conservation, in others the "conservation plan" exists (i.e. in France or Germany), which is a sector plan specifically oriented to heritage conservation. In reality, this prerequisite is not always fulfilled. Such a plan, especially in Arab countries and, is rare since it requires considerable means and, in particular, a well-structured strategy shared by the various urban actors - a difficult task to achieve. Even in European countries where conservation policies are well consolidated, the "conservation plan" or the "urban plan" with the same functions has been an accomplishment rather than a starting point.

In the decision-making process the various categories of instruments are generally confused with sometimes-harmful consequences. Individual programmes or sometimes-specific intervention projects attempt to be strategic without being anchored in a clear overall approach and without having a sound regulatory system as a base. In addition, many "detail plans" or conservation programmes have the objective of ensuring the "protection" of the historic town, but propose interventions or impose "rules" which are lacking in terms of feasibility.

In the more advanced cases the three main categories of instruments – plans, "special" programmes or "pilot-projects" and specific intervention projects - coexists without practical or functional hierarchies and are complementary. Thus a conservation plan for the historic city can be established after the implementation of individual programmes and the completion of specific intervention projects, public or private, that have enabled the accumulation of experiences and the elaboration of general criteria.

To be effective, what is essential is that the different instruments must be brought together under a shared "vision" for the historic city, which falls under a flexible urban conservation strategy. It is only under such conditions that the various instruments can create a mutually compatible framework, able to provide widely acceptable motivations for the normative and legal system, while making it possible to identify the public priorities for action, as well as supporting private actions.

3.2. The establishment of Protection perimeters and temporary protection measures

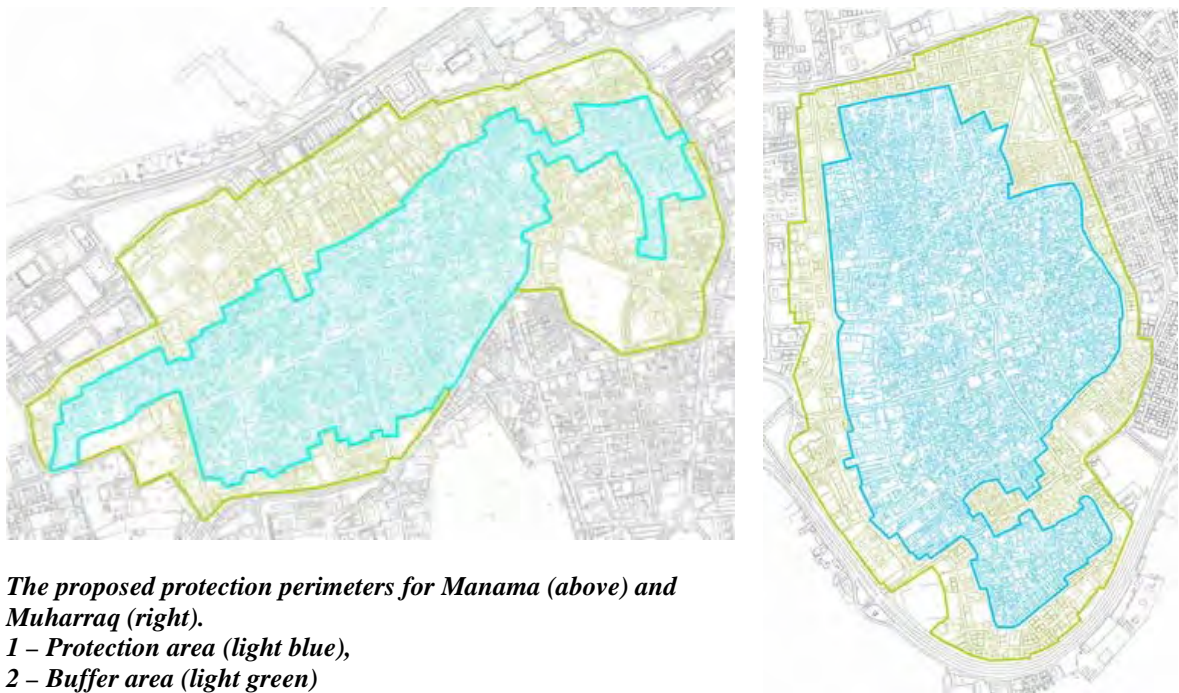
In both cities of Manama and Muharraq a widespread process of deterioration and decay of the historic urban fabric is undergoing, which is not only leading to the loss of many

buildings of architectural significance, but also, to the worsening of the housing conditions, the decline of the traditional activities, the overall deterioration of the urban environment. As a result, the historic fabric is becoming more and more ordinary and is definitely losing its capacity to stir up the community's sense of belonging.

The establishment of protection and buffer perimeters is intended to be the first step towards the implementation of a conservation policy, whose aims would be the safeguard and the regeneration of the architectural and urban heritage as a cultural asset and a vital component of both the present day and future city. These perimeters should encompass all the urban areas, which should be the object of such a policy, to be eventually carried out with different tools: i.e., a conservation plan with appropriate land use zoning and building regulations, special projects for sensitive areas, pilot projects dealing with specific issues, and so forth. Hence, the first objective is to prevent all interventions, which would continue the actual process of deterioration and decay and imply a further loss of the historic cultural heritage in the two cities, whilst creating the premises for a proactive policy of conservation.

To this purpose, according to the international best practices in conservation, it is proposed to establish two types of perimeters, to be traced out on the bases of an accurate analysis of the historic evolution of the urban fabric and of their present configuration:

- **Protection perimeters**, which would include the whole area of the historic settlement pattern, which is still existing with different levels of integrity and authenticity as outlined in sections 2.1 and 2.2. For the two cities of Manama and Muharraq these encompass the urban pattern and fabric whose morphological and typological features reflect the structure as it was before of the modernisation process, which took place during the '30s and the '40s;
- **Buffer perimeters** that include those parts of the historic urban settlement pattern, whose morphological structure and typological features have been more or less transformed by the process of modernisation but still remain visible, as well as the areas of the waterfront developed in the early phase of the modernisation.



The proposed protection perimeters for Manama (above) and Muharraq (right).

1 – Protection area (light blue),

2 – Buffer area (light green)

In the same time, it is necessary to establish some basic temporary protection measures to be enforced within these perimeters before the approval of the conservation zoning and the establishment of definitive regulatory measures.

Protection and buffer perimeters

The protection and buffer perimeters are identified so to encompass all the urban areas to be submitted to overall and specific building regulation and land use measures, intended to safeguard the whole architectural and urban heritage as a cultural asset and a vital component of both the present day and future city.

These perimeters should therefore include the historic urban settlement pattern showing an heritage interest, as identified through the analysis of the historic development of the urban fabric and/or by the appearance of specific cultural and spatial characteristics, regardless of its present state of conservation and, to a certain extent, integrity. These would approximately cover those parts of the urban fabric, whose morphological structure and typological features reflect the historic structure of the two cities, as it was before the modernisation, which took place after the '40s and the '50s of the past century, as indicated in the sketches above.

However, beyond the date of consolidation of the actual urbanisation, the following elements have been taken in consideration for the final identification of the urban fabric perimeters to be submitted to an overall protection or to be considered as a "buffer zone":

- The presence of pre-modern morphological and typological features in the spatial organisation of the urban fabric, in particular: a) the shape and spatial configuration of the street pattern reflecting the key role of historic structures such as the city walls, the mosques, the suq and other traditional services and institutions; b) the close relationship of the built-up blocks and clusters to the sea side;
- The presence of historic and traditional architectural typologies characterised by the use of the traditional spatial structures (i.e. the courtyard house), architectural elements, building materials and techniques.

These overall protection and buffer perimeters should be submitted to an administrative approval in order to proceed with the identification of the specific conservation zones. The final definition of these perimeters and the should be based:

- An extensive and accurate analysis of the historic cartographic and iconographic documentation, in order to identify the patterns, which remains after the transformations since the 30's. To this purpose an in-depth investigation is necessary in order to identify all the existing sources in Bahrain and abroad;
- An accurate analysis of the aerial and satellite images available since the '30s, associated to specifically oriented site visits, in order to carry out an overall appraisal of the different degrees of transformations of the urban fabric spatial features within the protection perimeters. Moreover it is essential to identify, in the buffer zones, the isolated buildings of architectural and historic significance (dating up to the '40s), and all the landscape features (i.e., cemeteries and other open areas) that deserve a specific protection.

Eventually, an extensive field survey has to be carried out within the protection perimeters enabling a detailed identification and assessment of the typological, spatial and constructive features. This will make possible the identification of the different micro-zones and/or buildings to be submitted to specific conservation and rehabilitation

measures, in the framework of the “conservation plan” to be established, and as a basis for the development of “special projects” for the most sensitive areas or “pilot projects” for specific priority issues.

On these bases the overall protection and buffer perimeters would definitely include all the different heritage features, at the level of the urban pattern, the built up fabric and open spaces, and the individual heritage items, even in those areas where these are interlaced with the elements brought in by the recent urbanisation or disfigured to a different degree by the transformations produced by a thoughtless modernisation at the different scales.

The urban areas encompassed within the overall protection perimeters will be therefore far from being homogeneous, as for their historic significance and cultural value. These may include areas, whose fabric deserve to be preserved and rehabilitated in its present structure, as well as surrounding or interstitial areas, which may even be considered as intrusive.

The protection perimeters are necessarily larger than the actual historic settlements of heritage interest, and respond to the fundamental goal of defining the areas where an overall conservation and rehabilitation policy is needed and has to be carried out, not only preserving the actual heritage features but also preventing other building or infrastructure interventions, which may definitely affect the role and the meaning of the heritage in the urban context, and ultimately reduce their importance as a resource for a sustainable socio economic development. These perimeters would thus represent the necessary planning context to undertake a conservation policy, which has to be eventually articulated zone by zone with specific building and land use regulations, according to the different degree of heritage interest and cultural value of the urban fabric.

In the sketches above the tentative protection and buffer perimeters for Manama and Muharraq are shown, which have been traced out on the basis of the available documentation. It is evident that due to the different impact of the modernisation and urbanisation process, the areas within these protection perimeters show different degrees of integrity and authenticity. In particular, the types of fabrics outlined in section 2.1 have to be eventually recognised in detail, since they clearly refers to a possible planning regulation framework. In general, it may be assumed that:

- The historic and “traditional” fabrics should be considered as “conservation areas”, to be preserved as a whole. Specific planning measures should be adopted in order to keep the integrity of the morphology and the spatial pattern, and detailed building regulations have to be established in order to define the types of interventions admitted for each building. In general, all interventions should be essentially oriented to the conservation of the existing architectural heritage features and to the enhancement of their integration in the surrounding context. Therefore no infrastructural or redevelopment intervention could be admitted, which may alter the compactness and the texture of the urban fabric;
- The “mixed” or “transitional” fabrics can be considered as “urban regeneration areas”, where planning measures have to be adopted in order to preserve the remaining historic spatial pattern and architectural heritage. At the same time, these measures should address the negative effects of the densification and redevelopment interventions or else the demolitions that occurred in the recent urbanisation process,

whilst preventing further transformations that could eventually disfigure the remaining historic pattern. Besides the conservation and rehabilitation of all the buildings of architectural significance, redevelopment interventions should be foreseen and encouraged, which may recover the compactness, the continuity and the diversity of the urban fabric, including the reshaping of the open spaces, respecting the spatial codes of the historic fabric with a genuine contemporary architectural language, possibly without any fake imitation of a conventional “traditional” architecture.

- The “transformed” and “modern” urbanisation area can be considered as “buffer zones” where no interventions could be admitted that may cause a further decay of the urban fabric and prevent its conservation. At the same time, conservation interventions have to be enforced for all the buildings of architectural significance, be that historic or “modern”, whilst a special attention should be given to the reshaping and upgrading of the open spaces, in order to make more meaningful the transition between the actual seaside, the contemporary and the historic city. To this regard larger redevelopment and landscape projects should be envisaged.

Due to the lack of detailed and reliable information, in the sketches below, a “protection” perimeter is proposed, which may include “conservation” and “regeneration” zones, with some limited “modern” urbanisation areas included in the historic pattern as well. A “buffer” perimeter is also proposed, which include the former waterfront, which developed from the ‘30s to the ‘50s, where a new urbanisation exist which may include some building or landscape feature to be preserved as of heritage interest.

In the protection perimeters, an inventory of the buildings and open spaces has to be carried out according to the criteria described below, in order to establish a detailed conservation zoning and identify the areas where special programmes or pilot projects would be eventually developed. In the buffer zones, other morphological and functional analyses have to be carried out in order to develop planning and urban design criteria and regulations, in order to prevent further damages to the historic fabric whilst enhancing its potential.

Within the protection and the buffer perimeters the major urban spines have been identified, which seem to form the basic morphological and functional structure of the two cities. At an initial stage of the conservation process, these spines can be considered as a spatial reference for the identification of the priority actions outlined in section 2.3.2, aiming at recovering the compactness and the continuity of the urban fabric, whilst reviving the historic city activities and liveability.

The sketches below have to be intended as an initial attempt to steer the discussion on the extent and the goals of a conservation policy. These need to be verified and amended where needed, considering the historic urban fabric as a whole, whose spatial and cultural coherence has to be preserved and re-established, not as a simple collection of objects or parts.

Temporary protection measures

The definition of the perimeters above would be associated with the establishment of some general temporary protection measures to be enforced during the preparation of the conservation plan, in order to prevent further demolitions, building interventions and land use transformations, which may hamper any further conservation policy and action. According to the international best practice, these measures should not be intended to

“freeze” the actual urban situation – this would probably result in a further rapid process of decay - but rather to re-orient and steer the undergoing dynamics toward the “virtuous cycle” of the rehabilitation and revitalisation outlined above.

These measures have to be discussed in detail but need to be clear and understandable by the administration, the stakeholders, as well as by the public opinion. These would necessarily include different fields of actions (i.e. financial incentives, administrative procedures, public works) and hence hopefully involve different authorities.

As far as the urban fabric is concerned, in the wait of a detailed conservation zoning, the following general measures should be adopted within the overall protection perimeters:

- No new roads cuts or widening should be undertaken in order to facilitate the through traffic, since the road system should be mainly intended to provide access to residents. Only interventions of maintenance, repaving and landscaping should be admitted, with the reduction of the width of the lanes and the widening of the sidewalks.
- Rehabilitation and restoration interventions should be carried out using traditional building techniques and materials to be defined;
- No demolition or reconstruction, but only conservation interventions are allowed for the heritage buildings already identified by previous survey and investigations carried out by the Housing Committee;
- No demolitions would be allowed without reconstruction. All interventions of reconstruction and new construction have to respects the basic spatial rules of the historic fabric; in particular the building height should be determined by the average building of the adjacent blocks (excluding the buildings built according to the present Master Plan), and the new buildings have to abut to the plot perimeter and the adjacent houses;
- Only limited redevelopment interventions should be admitted, fixing the maximum surface or the number of plots (no more than 2 or 3), in order to preserve as much as possible, the historic “texture” and the diversity of the fabric.

As for the buffer perimeters, the following measures should be adopted:

- No interventions of any type could be admitted whose volume, shape and height could harm the visual channels or the panoramic views on the historic fabric and its monuments; only landscape or building interventions should be admitted that enhance the visual links between the historic fabric and the seaside;
- No development of the road and parking system should be allowed that makes more difficult the pedestrian accessibility to the historic fabrics and prevent the further establishment of closer links between these and the seaside;
- No demolition or reconstruction, but only conservation interventions are allowed for the heritage buildings already identified by previous survey and investigations carried out by the Housing Committee.

These and other similar measures imply the temporary freezing of the Master Plan in both the protection and the buffer perimeters, in particular the reconsideration of some provision that actually favour the demolition and the reconstruction of any type of building in large parts of the historic fabric

Moreover, the implementation of these or similar measures implies the identification or the new constitution and the empowerment of an administrative and technical body, to coordinate and steer the related procedures and evaluations.

3.3. The Inventory and the analyses of the urban fabric

An exhaustive survey in both historic cities is proposed in order to supply the basic information, which is necessary to establish appropriate overall conservation measures. This imply the accomplishment of an exhaustive inventory of buildings and open spaces included in the above protection perimeters, creating an efficient and operational data base through a field survey. The data base can be eventually enriched and

In particular, an exhaustive inventory of all the buildings in the “historic fabric” areas should be carried out, regardless to their quality and heritage interest, whilst in the “buffer” areas the inventory can be limited to the buildings and constructions of architectural or landscape significance to be previously identified through accurate site visits and analysis. The new urbanisation areas can be excluded from the inventory but, in the meantime, it is necessary to investigate all the relevant open spaces within the protection and the buffer perimeter.

The field survey in the protection perimeters has been prepared through the elaboration of a survey form, based on previous similar experiences, and tested by consultant, in collaboration with the officials of the MOMAA and the other experts of the international team, whilst training the surveyors from the public administration.

The form (see the Annexe) is designed to give only an overall information on all the properties (buildings and open spaces) included in the protection perimeters, so to build a data base with the following objectives:

- Provide an overall and accurate picture of the actual land use;
- Provide the basic information on the conditions of each building (state of occupancy, typology, prevailing construction system, number of floors, estimate date of construction, occupant, general state of conservation, type of significance);
- Provide more detailed information on the buildings of architectural significance, that are identified according to the presence of well defined architectural elements;
- Define the permitted categories of interventions for each building (preservation, new construction, demolition)

The data base is integrated for each by a photographic documentation, which would provide an important tool of further analysis, and it is intended to become the basic tool for the establishment and the implementation of an overall conservation planning policy. It is clear that more specific conservation actions, such as pilot or special projects that may become an urgent priority, would require more detailed data and information as well as accurate architectural and topographical survey. But it is considered that, according to the international best practices, such an exhaustive inventory is a pre-requisite to ensure a consistent and aware decision-making process.

To these purposes the inventory has been planned to build a specific GIS (see the IT expert report for details), that would be eventually enriched with data coming from other sources and more detailed surveys on specific areas and groups of buildings.

According to well established techniques, the survey form is structured in different field with coded answers, and the surveyors are mainly required to assess the presence of predetermined items. In few cases, the surveyors is required to give an evaluation, based on simple and clear criteria that were the subject of the training sessions on the site. It must be noted, in particular, that no evaluation is required of the architectural

significance of the buildings, which are based on merely subjective aesthetic criteria, the aim of the survey being a more complex classification of the buildings according also to their degree of integration in the urban context, their potential of reuse, the constraints and the opportunities for the different categories of interventions.

The test has been carried out in a sample area of the “transitional” fabric of Manama, which include about 80 buildings of different types. The area stretches along one of the axes leading to the suq and the central core of the historic city, and proved to be an interesting case to verify some of the issues outlined in sections 2.2.1 and 2.2.2 as well as for an early definition of the possible technical content of the Conservation Plan proposed in the next section.



The sample of “transitional area” in Manama chosen to test the survey form and train the surveyors



As in most of the “transitional areas” the historic street pattern is here well preserved, if compared to the map of Manama of the early ‘30s, even if the streets leading to the suq and Government road have been widened and “modernised” to become commercial thoroughfares.

As an example, some thematic maps have been drafted showing the spatial distribution of the data collected through the field survey, in order to develop some initial analyses aimed to demonstrate the methodology to be eventually used for the definition of the conservation zones and the permitted building interventions.

This exercise shows that several transformations have occurred in the built-up fabric, especially along the “modernised” commercial street, where the fabric mainly consists of apartment buildings with prevailing concrete structure and no architectural significance; some of them definitely contrast with the context because of their height.

Beyond the “modernised” street, along the traditional spine, the situation is more complex and diversified. The “house” typology becomes more relevant and several buildings boast different degrees of architectural significance, some of them being courtyard houses with typical traditional materials and constructive details.

The land use reflects the building typologies, even if some significant houses are used for commercial and productive activities. On the contrary the area is completely homogeneous concerning the type of occupancy. The large majority of the buildings,

regardless to their typology, are occupied by foreign bachelors and families: many recent apartment buildings can be noted that are especially designed as dormitories, whilst almost all the traditional houses are used for the same purpose and are in bad repair.



The thematic maps above do not represent in any case a complete and operational exploitation of the data that would be acquired through the survey. They only have to be considered, as a demonstration of the potential use of an analytical tool, normally used in the last decades in most of the best international experiences in order to set up an effective urban conservation policy. In particular they can be used to accomplish an accurate definition of the Conservation zones within the protection perimeters and to establish a regulatory framework with categories of intervention, which would reflect the diversities and the articulation of the urban fabric.

The inventory can thus become a tool for a conservation planning policy, which avoid a generic and in the long-term ineffective protection, and could represent the basis for further analyses aiming to a deeper understanding of the actual trends.

3.4. The preparation of a Conservation Plan

On these bases, it would be possible to undertake a set of coordinated planning actions in order to establish a Conservation Plan. In general, these would consist:

- The detailed definition of the conservation zones within the larger protection

- perimeters. These should be the subject of different policies (i.e.: conservation, conservation and upgrading, upgrading and redevelopment), according to the possible transformations of the urban fabric (street widening and parking, infill or redevelopment opportunities, etc.) to be regulated by appropriate planning codes and building regulations: in this framework, all the buildings would be classified according to their architectural significance and to their degree of integration in the urban fabric, in order to be submitted to different categories of interventions (i.e.: restoration, rehabilitation, renovation, reconstruction, new infill construction, demolition), reflecting their architectural significance and potential for adaptive reuse;
- The identification of strategic issues and sensitive areas to be submitted to specific policies and to “special” or “pilot” projects, addressing the priority conservation and the urban design issues cited above in section 2.3.2. In this framework, specific planning codes and building regulations could be established in association with financial incentives and other social and economic measures. In particular, at the urban level, it seems important to address the following issues with appropriate planning strategies:
 - The reorganisation and improvement of the vehicular accessibility to the historic cores
 - The rehabilitation of the historic street and open spaces pattern
 - The re-establishment of the linkages between the historic fabrics and the seaside

3.4.1. The definition of a detailed land-use and conservation zoning

The spatial characteristics and the state of conservation of the urban areas within the protection and the buffer perimeters are not homogeneous. Due to the different impact of the modernisation process after the '30s and '40s, and of the recent urbanisation in the reclaimed lands along the seaside, these can show:

- different degrees of integrity (or transformation) of the morphology and texture in the historic fabrics;
- more or less important transformations in the activities pattern and the spatial organisation of the ferij;
- different presence of buildings of architectural and historic significance belonging to various typologies.

The definition of the different types of zones is crucial, in order to establish an appropriate land use regulation within the protection areas, which should be associated with the identification of the categories of intervention for each property. In particular a list of compatible activities should be established for the buildings of architectural significance, in order to promote their revitalisation through a widespread policy of “adaptive reuse.”

The definition of a detailed land use and conservation zoning implies the following actions:

- 1) To carry out the above inventory of buildings and open spaces included in the protection perimeters, collecting the basic information through a field survey. In particular, an exhaustive inventory of all the properties (buildings and open spaces) of the historic fabric should be carried out, in order to appraise all the elements that could be relevant in order to establish the permitted categories of intervention (i.e. the present uses and ownership, the typological characteristics, the architectural and historic significance, the prevailing construction system, the

general conditions of repair, the state of occupancy, the types of transformations). In the “buffer” areas the inventory can be limited to the only buildings and constructions of architectural significance to be previously identified through accurate site visits and analysis.

- 2) To identify, on these bases, the following types of zones outlined in section 2.2.1
 - The historic and “traditional” fabric, whose spatial pattern show an high degree of integrity of the “pre-modern” features, particularly the street pattern. In general, land use regulations and categories of interventions should aim at (a) the conservation and upgrading of the existing street and open spaces pattern, (b) the preservation of all the buildings of architectural significance; (c) the rehabilitation of all the buildings with no particular architectural significance that are however well integrated in the historic context; (d) the mitigation of the negative impacts of recent intrusive buildings and inconsistent or degraded open spaces. In these zones, in principle, no further demolitions without reconstruction and redevelopment interventions would be admitted in order to preserve the texture of the fabric;
 - The “transitional” or “mixed” urban fabric, where the historic spatial pattern has been more or less transformed by redevelopment or reconstruction interventions but still remain visible and relevant. In these areas, all the remaining historic features should be preserved and upgraded as in the above zones, in association with well defined interventions of urban regeneration through localised redevelopment and infill projects aiming at the recovery and possibly the reconstruction of an urban spatial framework respecting the historic fabric;
 - The “transformed” or “modernised” fabric, where an overall control of the new building construction, and the reshaping of the open spaces are needed in order to upgrade the urban environment and reduce or eliminate the negative impact of incompatible activities on the historic fabric.

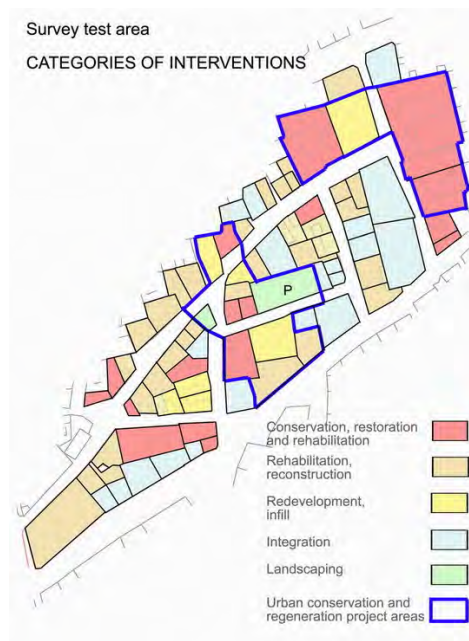
- 3) To establish a set of regulations and codes for each type of the above zones aiming at the definition of permitted interventions on buildings and open spaces. These should be based on the following general categories of intervention:
 - Preservation of the buildings of architectural significance, which should be considered as the main asset for the revitalisation of the historic fabric (conservation, restoration, cleaning, rehabilitation);
 - Rehabilitation and upgrading of the buildings of no architectural significance, which are however not consistent with the character of the historic fabric (clearing, rehabilitation, reconstruction)
 - Mitigation of the negative impacts of recent intrusive buildings, contrasting with the historic context (demolition, integration and remodelling of the facades);
 - Regeneration of empty open spaces, which contribute to the urban environment deterioration (localised redevelopment and infill projects, new landscape arrangements of parking areas and public spaces, urban furniture)

In the figures below a first exercise of definition of the permitted interventions is proposed, based on the test survey. The exercise is necessarily approximate, since the categories of intervention need to be defined in detail on the bases of a wider and deeper documentation, but it demonstrates the possibility to establish a non arbitrary regulatory framework for the guidance of the urban transformations in the historic fabric. Besides

the individual possible interventions, it also identifies the areas where larger integrated projects of urban conservation and/or regeneration could be undertaken by the public authorities or private developers.

In association with the categories of interventions, it is necessary to identify the possible compatible uses for the different types of buildings and to set up specific incentives in order to promote a widespread policy of “adaptive reuse”, whilst removing the activities, which are inconsistent with the historic fabric and may provoke further damages particularly to the buildings of architectural significance.

Both the categories of intervention and the compatible uses should be defined in detail, in order to provide a clear definition of each specific type of intervention to be coded. To this purpose, some demonstrative pilot project would be very helpful.



On the bases of the test survey data (including ownership, state of occupancy, building typology, construction system, and so forth) the category of the permitted interventions are identified for each buildings. If the historic spatial pattern is still preserved, the built up fabric consists of buildings with different functional and architectural characteristics, which call for different types of interventions.

Some “sensitive” areas can be defined to be possibly submitted to integrated conservation and regeneration projects.

Samples of buildings of architectural significance in the survey area, which are heavily disfigured and dilapidated by inappropriate uses and/or lack of maintenance.



These should be preserved through

adaptive reuse with compatible activities, and conservation interventions, (including restoration, cleaning and rehabilitation) according to the actual conditions of the buildings



Buildings with no particular architectural significance that are however integrated in the historic context.

These can be rehabilitated or, when the conditions of repair are particularly bad, reconstructed with the same footprint and height.



Informal settlements in dilapidated structures and empty spaces resulting from demolitions.

Localised redevelopment and infill interventions are to be foreseen in order to recover the continuity of the urban pattern and improve the environmental conditions



Samples of recent buildings, which are in contrast with the historic fabric. Most of them have been built with small housing units to be rented to low income immigrants.

The permitted types of interventions should enable their integration in the context (remodelling of the facades, renovation, up to the demolition and reconstruction)



3.4.2. Reorganisation and improvement of the vehicular accessibility to the historic core of the two cities

The historic cores and the early expansions of the '30s of the two cities have been encapsulated by a very heavy system of motorways and parking areas regulating the vehicular accessibility and the linkages with the larger urban areas. This system determines the functional hierarchies within the historic fabrics, whilst creating a "barrier", which has definitely interrupted any contact between those fabrics and the seaside.

The "Government road" in Manama and the street network in the buffer area are loaded with different types of traffic, of both local and urban level, generating congestion and creating a physical and visual barrier at the edge of the historic fabric



In particular, the early expansions and the fabric modernised after the '40s form a sort of "buffer area", where most of the penetrations and hence, to a certain extent, the distribution of the vehicular traffic inside the historic residential fabric are organised, in particular the access to the main commercial areas. In many points, i.e. along the Government road in Manama, these "buffer areas" suffocate from congestion, which is generated by the overlapping of the different types of traffic generated, at the local and at the urban level, by the modern and traditional commercial activities, the administrations, the private and public offices and the residents.

Moreover the vehicles circulation system is organised so to favour the penetration and the through traffic within the historic residential fabric as a result of the large works of

road widening, which have been undertaken in the last decades. Particularly in Muharraq, these works have heavily contributed to the deterioration and the decay of the historic fabric: on one hand, along the “modernised” streets, numerous buildings have been demolished, whilst new typologies are taking the place of the historic and traditional ones; on the other hand, the increasing traffic congestion has become a crucial factor of environmental degradation.

In coordination with the land use and conservation plan, the whole circulation pattern has to be reconsidered for the two cities, in order to eliminate or at least to reduce the overlapping of different types of traffic in the “buffer” zones and bring into the historic cores only the types of traffic, i.e. the local distribution for residents, which are compatible with the spatial characteristics of their traditional fabric.

To this extent, a policy should be established, which combines diffused parking facilities and innovative local public transportation, whilst reducing the existing conflict between vehicular traffic and pedestrian mobility. In this framework, a particular attention should be given to suq and other existing activities (warehouses, factories), which attract and generate heavy vehicular traffic. Solution should be found to regulate the delivery activities, but also to remove and relocate the inconsistent uses, which exist at certain locations.

The issues above have to be addressed with an approach that recognizes the need to preserve the peculiarities of the historic spatial pattern. This means that, according to the international best practices, appropriate solutions must be given to the traffic problems, which should fit with the historic pattern, opposite to the previous planning policies, which have tried instead to adapt the historic fabric to pre-established circulation patterns.

To this purpose, the following actions are proposed:

- To study alternative solutions to the present traffic organisation at the urban level, based on accurate analysis of the existing and proposed land use as well as on traffic counts and projections, in order to avoid the through traffic and regulate the penetrations within the protection perimeters;
- In connection to the above, organise a main vehicular circulation pattern of penetration and distribution within the historic cores, which should be based on the selection of the accessibility opportunities for the different types of traffic, according to the actual capacity of the existing street pattern and taking in consideration the need to preserve and encourage pedestrian mobility;
- Consider the opportunity to develop a local public transportation systems within the historic cores, based on innovative technologies and reduced environmental impact (i.e. electric vans);
- Reconsider the organisation and layout of the large parking areas along the seaside and establish design criteria for larger parking and motorways in order to reduce their negative impact on urban environment surrounding the historic cores.

3.4.3. Rehabilitation of the historic street and open spaces pattern of the two cities

Most of the urban fabric within the proposed protection perimeters is still structured by the threads of the ancient street pattern. To a large extent, this pattern still maintain its historic and traditional spatial configuration, in spite of the several changes and transformations in the built fabric, and call for an overall and widespread policy of preservation and rehabilitation.

To this purpose, the following issues have to be considered and addressed:

- At some points, the spatial and environmental characteristics of the historic pattern have been considerably damaged by insensitive streets widening, in order to favour and make easier the vehicles circulation. In particular the main historic streets leading to the suq or to other relevant locations (i.e. the main mosques) have been actually transformed into trough fares bringing heavy traffic. As a result of this “modernisation”, many architectural historic features have been deleted or disfigured especially in the “transitional areas”, whilst the unrestricted vehicular circulation creates traffic congestion, which deteriorates the urban environment;
- The land use regulations, including those of the Master Plan, enable without restriction the demolition and the reconstruction of the existing buildings, since non protection measures are taken. Moreover in certain areas the existing buildings could be replaced with 2, 3 or 5 stories buildings (in some places in the buffer area, up to 10 stories). As a result, the fabric has been disfigured by various interventions, which heavily contrast with the historic fabric, since they definitely alter the morphological relationships between the built-up and the open spaces. On the other hand, especially in the suq and in the commercial zones, the street and open spaces pattern is charged with a very high functional load, due to an increased density of activities;
- The spatial characteristics of the ancient street and open spaces pattern are also disfigured by the high number of empty plots and vacant lands resulting from demolitions and buildings in ruin. The spatial continuity and the compactness of the urban fabric is very heavily affected at certain points and the urban environment suffer from widespread deterioration, resulting for informal and chaotic parking, garbage disposal and other inappropriate uses (including public technical installations). Moreover, some important historic buildings are now set in an ordinary if not inconsistent urban context, which contradict and depreciate their architectural significance.
- The open spaces pattern also suffer from a widespread lack of maintenance, poor materials and the overall visual intrusion of inconsistent furniture and technical installations (bad signage, cables and wires, air conditioning, etc.)

In both cities, the historic pattern of streets and open spaces should be rehabilitated, with a well coordinated set actions of different types and levels, with the aim of recovering the continuity and the compactness of the historic patterns, whilst improving liveability and environment quality.

The rehabilitation of the historic street and open spaces pattern requires the following studies and actions:

- Undertake an accurate and systematic survey on spatial characteristics of the ancient street pattern, in order to evaluate its compatibility to the vehicular traffic and parking, and identify the spaces to be left mainly for pedestrian, in connection with the reorganisation and of the vehicular accessibility to the historic cores of the two cities;
- To develop planning and urban design criteria in order to improve and encourage pedestrian accessibility and movements within the historic fabric, through appropriate landscaping, and making the public open spaces attractive and liveable. To this purpose, a clear distinction should be made between vehicular street, where safe pedestrian sidewalks should be created, and pedestrian streets, where only slow vehicular circulation of residents should be admitted, with

- specific restriction;
- To develop planning and design criteria for the recover of the empty plots and vacant lands that should be used for different purposes (parking, public spaces, infill and redevelopment interventions) according to an overall strategy of restoring the continuity and the compactness of the urban fabric;
- Improve the streetscape with interventions of maintenance, repaving and landscaping, removing all intrusive elements from the public space.

Historic streets modernised in Manama (right) and Muharraq (below). Spatial characteristics of the historic pattern have been considerably damaged by insensitive streets widening, in order to favour and make easier the vehicles circulation.



Renovation and densification in Muharraq (right) and Manama (below). The fabric has been disfigured by various interventions, which definitely alter the morphological relationships between the built-up and the open spaces



Empty plots and vacant lands resulting from demolitions affect very heavily the spatial continuity and the compactness of the urban fabric. Urban environment is deteriorated by informal parking, garbage disposal and technical installations



Some important historic buildings are now set in an ordinary if not inconsistent urban context, which contradict and depreciate their architectural significance.



3.4.4. Re-establishment of the linkages between the historic fabrics and the seaside

The urban development occurred after the '60s, based on land reclamation along the seaside has definitely removed all the harbour activities and concealed all morphological and functional contacts between the historic cities and the sea. As a result the spatial structures, which were largely shaped by a pattern of activities depending on these linkages have lost much of their significance.

This is particularly evident in the “buffer areas” where the ancient pattern of streets perpendicular to the sea, leading to the suq, has been deeply transformed by recent redevelopments or lays in abandon and decay having lost its meaning. Together with some older warehouses and houses, several buildings of high architectural interest can be found there, which belong to the early period of modernisation, when both Manama and Muharraq were still two harbour cities. Most of this heritage is abandoned, under utilised or even in ruin, and seems bound to disappear.

In Manama, for instance, only few exceptions, as the Courts, Bab Bahrain and the Ministry of Municipalities are in good repair and represent as many landmarks in a quite ordinary and “modern” urban context, which is deleting all the threads and the images of the recent past. On the other hand, the actual seaside beyond the motorways and the larger parking areas, is now interested by mayor development projects, which aim at

reinforcing the role of the city as an international financial centre, whilst renovating its image. In this framework, the reestablishment of a linkage with the ancient city could add attractiveness and reinforce the sense of belonging to a place rich of history and culture.

Besides, the seaside could probably represent for both cities a potential for the development of leisure and tourism activities, which deserves to be considered as it happens in other cities of the region. Hence another reason can be found to re-establish these linkages and give new meanings to an interesting heritage at risk.

The linkages between the historic cores and the actual seaside could be re-established through the following interventions, to be specifically coordinated in a specific “action plan”:

- To revitalise the remaining ancient street pattern in the buffer areas, with the creation of pedestrian zones and incentive measures for the development and/or the upgrading of commercial and handicraft activities;
- Preservation and adaptive reuse of all the buildings of architectural significance in the “buffer zones”, including some remarkable building of the ‘30s and ‘40s (i.e. in Manama: the Lulu cinema, the Bahrain Hotel, etc.). Due to the proximity to vehicular access and parking areas, these can be preserved and converted to become attractive cultural or commercial facilities;
- To create safe, shaded and attractive pedestrian paths connecting the suq areas to the former seaside through the “buffer zones” of the modern fabric and eventually the larger parking areas. These latter should be reshaped and appropriately landscaped so to become as many “gates” to the cities on one side, and to the sea on the other side; whilst the pedestrian paths should overpass the motorways with imaginative architectural structures providing fine views over the cities and the sea;
- To create along the shore a continuous and consistent structure of parks, leisure, recreation, sport and tourist facilities, which could represent an attraction for residents and visitors.

The ancient pattern of streets perpendicular to the sea, leading to the suqs in Muharraq and Manama. Old warehouses and houses lay abandoned in decay having lost their functions and are bound to disappear



Several buildings of high architectural interest can be found, which belong to the early period of modernisation. Some of them (i.e. the Ministry of Municipalities, the Courts) are in good repair and represent a landmarks in the urban context, but many others are under utilised or even in ruin



3.5. The implementation of the conservation policy

For the reasons outlined above the specific implementation procedures and tools have to be considered within the framework of a new legislative and institutional set-up.

However the need is to be stressed to incorporate or at least to integrate the measures and the proposals of the conservation plan in the urban planning land use zoning, codes and regulations, in particular those concerning the conservation zones and the sensitive areas. This would imply a revision of the current planning instruments, as well as the establishment of an appropriate legislative and institutional framework, in order to make the conservation policy implementation efficient and consistent.

In parallel it is essential to develop an extensive program of researches, studies and initiatives, with the involvement of the university and the professional bodies, in order to enhance and diffuse the knowledge of the historic urban and architectural heritage, thus increasing awareness amongst stakeholders, administrators, technicians and the larger public.

ANNEXE 1

SURVEY FORM

BAHRAIN: Manama and Muharraq

Identification number:		Block No:	
Street name if available:		Road No(s):	Building No(s):
Date of survey:			
Name of surveyor 1:		Surveyor 2:	
Current state of activities <input type="checkbox"/> Construction <input type="checkbox"/> Demolition <input type="checkbox"/> Rehabilitation <input type="checkbox"/> No activity			
Property Ownership and Uses			
Ownership		<input type="checkbox"/> Private	<input type="checkbox"/> Public <input type="checkbox"/> Waqf
<input type="checkbox"/> Building		<input type="checkbox"/> Open spaces outside the building	
<input type="checkbox"/> Residential	<input type="checkbox"/> Cultural	<input type="checkbox"/> Existing before 1998	<input type="checkbox"/> Parking
<input type="checkbox"/> Residential & Commercial	<input type="checkbox"/> Public administration	<input type="checkbox"/> Created after 1998	<input type="checkbox"/> Garden
<input type="checkbox"/> Residential & offices	<input type="checkbox"/> Health (clinic, hospital)	<input type="checkbox"/> Fenced	<input type="checkbox"/> Garbage dump
<input type="checkbox"/> Residential & other	<input type="checkbox"/> Commercial (shops)		<input type="checkbox"/> Vacant
<input type="checkbox"/> Religious	<input type="checkbox"/> Commercial & others		<input type="checkbox"/> Other uses
<input type="checkbox"/> Educational	<input type="checkbox"/> Private and public services	<input type="checkbox"/> Walled	
<input type="checkbox"/> Storage	<input type="checkbox"/> Other:	<input type="checkbox"/> Not fenced/walled	
		<input type="checkbox"/> Historic remains	
Building Details			
Name of building (if available):			
State of occupancy		<input type="checkbox"/> Occupied	<input type="checkbox"/> Partially occupied <input type="checkbox"/> Not occupied
Typology of the building		<input type="checkbox"/> House	<input type="checkbox"/> Shop <input type="checkbox"/> Warehouse <input type="checkbox"/> Public building
		<input type="checkbox"/> Majlis	<input type="checkbox"/> 'imara <input type="checkbox"/> Mosque <input type="checkbox"/> Informal shacks
		<input type="checkbox"/> Apartments	<input type="checkbox"/> Factory <input type="checkbox"/> Ma'tam <input type="checkbox"/> Others
Prevailing construction system		<input type="checkbox"/> Concrete	<input type="checkbox"/> Stone and wood <input type="checkbox"/> Mixed <input type="checkbox"/> Other structures
Permitted		<input type="checkbox"/> 1	<input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4-5 <input type="checkbox"/> More than 5
Estimate date of construction		<input type="checkbox"/> Before 1950's	<input type="checkbox"/> 1950's-1997 <input type="checkbox"/> After 1998
Occupants		<input type="checkbox"/> One family	<input type="checkbox"/> More families <input type="checkbox"/> Bachelor labourers <input type="checkbox"/> Families & bachelors
Nationality of occupants		<input type="checkbox"/> Bahraini	<input type="checkbox"/> Foreigners <input type="checkbox"/> Both
General condition of the building		<input type="checkbox"/> Good	<input type="checkbox"/> Ordinary <input type="checkbox"/> Bad <input type="checkbox"/> Ruin
Type of significance (multiple choice)		<input type="checkbox"/> Historic/Cultural	<input type="checkbox"/> Religious <input type="checkbox"/> Architectural <input type="checkbox"/> No significance
Buildings of Architectural Significance (check catalogue for significant architectural elements)			
Internal open space (courtyard)		<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> No need to enter building		<input type="checkbox"/> Entered building	<input type="checkbox"/> Not permitted to enter building
Significant architectural elements		<input type="checkbox"/> Wall <i>badgir</i>	<input type="checkbox"/> Traditional balcony <input type="checkbox"/> <i>Badgir</i> tower <input type="checkbox"/> Gypsum ornament <input type="checkbox"/> Arches
		<input type="checkbox"/> Old door	<input type="checkbox"/> <i>Hama'im</i> <input type="checkbox"/> <i>Danjel</i> <input type="checkbox"/> Minaret <input type="checkbox"/> Other
Level of architectural significance		<input type="checkbox"/> High	<input type="checkbox"/> Medium <input type="checkbox"/> Low
Upper floors in use		<input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Partially
Recent building transformations		<input type="checkbox"/> Vertical addition	<input type="checkbox"/> Horizontal addition <input type="checkbox"/> Other transformations
Courtyard modification (if entered)		<input type="checkbox"/> Original state	<input type="checkbox"/> Subdivision <input type="checkbox"/> Merging <input type="checkbox"/> Intrusions
Overall compatibility of current use		<input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Partially
Permitted intervention		Preservation	New Construction Demolition
		<input type="checkbox"/> Conservation	<input type="checkbox"/> Re-development <input type="checkbox"/> Partial demolition
		<input type="checkbox"/> Restoration	<input type="checkbox"/> Infill <input type="checkbox"/> Total demolition
		<input type="checkbox"/> Clearing inconsistent additions	<input type="checkbox"/> Re-landscaping
		<input type="checkbox"/> Rehabilitation	<input type="checkbox"/> Integration of façade
		<input type="checkbox"/> Reconstruction	
Type of intervention		<input type="checkbox"/> Total intervention	<input type="checkbox"/> Partial intervention

Last modified January 25, 2006



United Nations
Development Program



Kingdom of Bahrain



Ministry of Municipalities
and Agriculture Affairs

مشروع

بناء القدرات لتحسين الإدارة الحضرية
(الحفاظ على المناطق والمباني التراثية)
المرحلة الأولى: الاستراتيجيات والسياسات

**Capacity-Building for Enhancement
Of Urban Governance**
(Conservation Urban and Architectural Heritage)
Stage One: Strategies & Policies

**Urban Design Consultant Report
Duane Phillips**

February 2006

UNDP/Bahrain
Ministry of Municipalities and Agriculture Affairs
“Capacity Building for Enhancement of Urban Governance”

Urban Design/Urban Environment Report

Duane Phillips

Feb. 23, 2006



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1.0 Preliminary Remarks

The project's goal of the economic regeneration of the traditional buildings within the core areas of Muharraq and Manama cannot be considered in isolation. Economic resources can be devoted to their regeneration, but these will not be effective if the urban environment and context is not taken into account. In order to attract people to return to live, work and invest in these areas, as well as to keep the residents and businesses already there from moving away, not only do the buildings need to be brought up to today's standards (modern plumbing, electrics, air conditioning, internet access, etc.) but the streets and neighborhoods must also be clean, safe, efficient, and provide a higher level of community services than is the case at present. The regeneration of the quality of the urban environment is just as or even more important than that of the individual buildings.

The aim of this urban environmental regeneration should not be to try and create an urban museum of any particular architectural style or age. Instead, the aim should be to provide a living and vital urban environment for residents, businesses, and visitors in which all aspects of everyday life can occur in safe and attractive surroundings. In addition, the regeneration should be based on principles which encourage ecological and sustainable development.

The urban environment can be identified by its components. Any plan for the regeneration of the urban environment demands: 1) an analysis of the individual components: their current state, identification of positive and negative aspects, and 2) proposals for improvement.

2.0 The Physical Urban Environment

The physical urban environment consists of the following four primary elements: buildings, streets and cul-de-sacs, the ferij, and the town as a whole. These components are all interrelated and cannot be seen or handled in isolation. The neglect of any one component will directly adversely affect all the others.

2.1 The Buildings

Buildings in an urban environment are normally of two types; 1) buildings of civic or institutional importance, and 2) background or urban fabric buildings.

Buildings of civic or institutional importance include but are not limited to the following: mosques, government buildings, schools, monuments. Background/urban fabric buildings include but are not limited to: small and mid scale uses: residential, mixed-use (commercial on ground floor, residential above), and commercial (shops, offices, medical practices, cafes, restaurants, workshops, etc.).

The vast majority of the buildings under consideration in this project are considered to be background/urban fabric buildings. Alone, these buildings have no particular individual

value. However, taken as a whole, their value lies in setting the stage for buildings of civic importance to stand out. They create the street, the urban ensemble, the ferij (neighborhood). They are where the people spend most of their working and private lives.



Typical Fabric Buildings



Typical Infill Building



Typical Fabric Buildings



Building of Importance

The initial findings revealed that the majority of the buildings are in a state of disrepair ranging from medium to dangerous. The state of the utilities and services often does not meet modern standards. Due to this, the buildings often do not generate sufficient rents for the owners in order to maintain, let alone repair the buildings. As a result, Bahraini families have moved out, and have been replaced by foreign bachelor laborers with serious overcrowding as a result.

In addition, many buildings have been left vacant deliberately by the owners speculating that if the buildings collapse, they will then be allowed to demolish them and build larger buildings as currently allowed by the zoning codes.

In order to obtain public acceptance of traditional buildings as places to live and work, they must not only be structurally repaired and their exterior and interior appearances improved, they must also be fitted out with modern utilities. This includes in residential buildings a modern kitchen, bathroom, air conditioning, telephone and internet connections, as well as cable television access (verses satellite dishes).

2.2 Streets and Cul-de-Sacs

The street is the main element for communication both pedestrian and vehicular. The street unites the individual buildings into a coherent whole irrespective of the length of the street. The street helps to give a sense of identity to its residents and to visitors. Often, the appearance of the street will reflect the relative wealth of the residents and the quality of the commercial activities. The urban environment is experienced by movement along the street and its appearance is one of the determining factors as to the success or failure of the buildings along it. A basic rule holds true: a badly designed building along a beautiful street will have more success and be more valuable financially than a beautiful building along a badly designed street.



Typical **Cul-de-Sac**



Typical Street

It was found that the physical design of the main streets is often aesthetically not attractive. Often, unattractive metal barriers separate traffic lanes traveling in opposite directions and also prevent pedestrians from easily crossing the street. Little thought has

been given to paving materials and their suitability, asphalt pavement up against the walls of a traditional building is a recipe for rising damp.

In addition, the streets are generally not clean due to uncollected or not properly stored garbage. This is part due to the fact that the garbage bins are too few in number and are of too limited capacity. Another reason is that there seems to be no collection of disused building materials; these accumulate in various corners and are not removed.

The residential streets are generally narrow and have no sidewalk. This is traditional in Arab/Islamic cities. However, since the introduction of the automobile, the pedestrian experience has become a negative one due to the competition for space with the automobile.

The most pressing issue is that of parking. There is simply not the amount of parking desired by the residents and businesses. Unregulated parking on sites of demolished building by cars, trucks, and busses devalues the value and appearance of the surrounding buildings and urban spaces. Until this problem is adequately addressed, former residents of Muharraq and Manama are not willing to return to their former ferij.

2.3 The Ferij (Neighborhood)

The Ferij (neighborhood) is both physical and psychological in nature. Physically it consists of buildings, streets, ensembles, urban spaces. It is the shops, apartments/homes, places of work, recreation, education, and association. Psychologically it consists of family, friends, and associates. The psychological aspects often determine the level of well-being of the residents of the neighborhood.

A neighborhood can be peaceful, exciting, innovative, safe, unsafe, irritating. It can be a place of familiarity; it can also become a place where one feels more and more a stranger. The physical appearance of a neighborhood can often reveal the attitudes and feelings of the residents. However, the physical appearance can also be misleading; often the strongest sense of identity is found in poorer neighborhoods. The old adage “you cannot judge a book by its cover” still applies.

The human occupation and activities that take place along the buildings’ edge and within the street determine the quality of the character and social network. The quality of the character and social network are often the determining factor in the acceptance of the ferij by residents as a nice place to live, and by businesses as a possible profitable location to invest.

This concept of a social network is still very strong in Bahraini society. The idea of moving to a place where you do not know your neighbor, where you are separated from family and friends is foreign to the mindset. This is an extremely positive aspect and should be built upon in this project. A strong social network provides security, provides help to people in need, and creates a positive and friendly community. However, this

social network can be weakened and even destroyed by inappropriate social and development policies.



Family Majlis



Neighborhood Mosque

It was found that the physiological concept of the ferij is still strong in the core area of Muharraq amongst its residents and they have a great appreciation of their social network within. This is primarily due to ties within families and friends. There is also a strong desire amongst residents in Muharraq to remain within the area despite many of the negative qualities of the present urban environment.

In the case of Manama however, the majority of the current residents are primarily non-Bahraini. There seems to be no attachment either through family or network of friends to this area by the non-Bahraini population. Surprisingly, there is a desire by the Bahraini who are former residents of Manama to return to their old neighborhoods. However until the negative urban environmental issues are resolved, along with the social problems associated with a high concentration of bachelor laborers, they are not prepared to return.

As to the physical, urban environment, the traditional urban fabric within the various feraj is robust and can withstand many unsuitable interventions. However, especially in Muharraq, the limit has been reached whereby further unsuitable interventions are likely to destroy what remains. One of the primary unsuitable interventions is road widening schemes, the feraj in both areas have been heavily damaged through such “improvements”

Gaps have also appeared in the urban fabric due to the collapse of older buildings caused mainly by neglect. One of the major reasons for this neglect is that in many cases, the sizes of the individual properties have steadily decreased due to inheritance laws, making it often uneconomic to construct new buildings due to their limited sizes. These gaps are then primarily used as uncontrolled and un-designed car parks which are visually unappealing. In cases where the gaps have been filled, these infill buildings are often of a different type and architectural style than their surroundings.

Other factors affecting the visual appearance of the ferij is the lack of thought given to the design and placement of electricity sub-stations, public toilets, bus stops, etc. near important buildings and urban spaces. This leads to non-satisfactory results and hinders future improvement efforts. In addition, little thought has been given to the design of landscaping, hard paving, and street furniture near important buildings and urban spaces. This devalues the value and appearance of the buildings and urban spaces within the ferij.

Social Aspects of the Ferij:

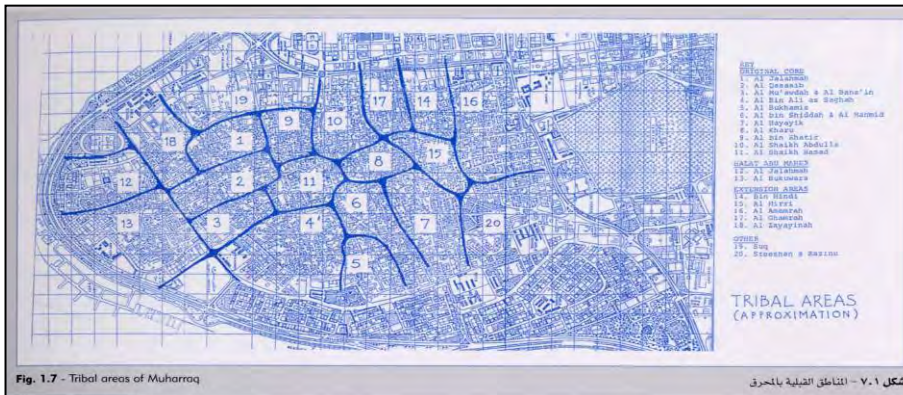


Typical festive scene



Children's' friendships

Physical aspects of the ferij



Ferij based upon the family pattern

Source: Yarwood

(Note: The block as defined in Bahrain is not the same as the definition used in Europe. In Bahrain, the block (district) is administratively defined as a collection of ferij (neighborhoods). In Europe, a series of blocks (a collection of buildings surrounded by streets) make up a neighborhood. Thus, in Bahrain, the neighborhoods (ferij) make up the large administrative block (district), while in Europe the blocks make up the neighborhood. This difference in meaning is of crucial importance).

2.3.1 Ensembles

Ensembles can exist within a ferij and consist of several buildings whose appearance and spatial relationship to each other create a special urban situation. Such ensembles enhance the urban experience and add considerable value to the areas within which they are located.

Ensembles can be residential in nature, such as a grouping of a specific house type or combining to create an attractive streetscape. They can also be commercial in nature, i.e. an attractive shopping street or urban square. They usually contribute to an increase in land and rental values for the owners and increased sales for the shopkeepers.



Identification of Potential Cultural Ensemble

Urban Ensemble of Buildings

In certain areas of Muharraq and Manama, existing and possible ensembles have been identified. Currently these ensembles are neither easily recognizable nor attractive to the general public (building appearance, quality of street, uncollected rubbish, etc.).

In central Muharraq, possibilities exist to link buildings into a new cultural ensemble; the Shaikh Isa Bin Ali House, Seyadi House, Shaikh Ebrahim Center, and Abdulla Al-Zayed House. In central Manama, proposals to develop the street Bab Al Bahrain into an attractive commercial area/ensemble have been produced, thus a possible ensemble linking the Bab Al Bahrain itself with the new Financial Harbor project should be considered.

2.4 The Town

It is important to identify not only the physical but also the perceived and psychological boundaries of the towns. Often lines are drawn on maps to delineate boundaries but have no relevance to the actual perception of the town by the residents.

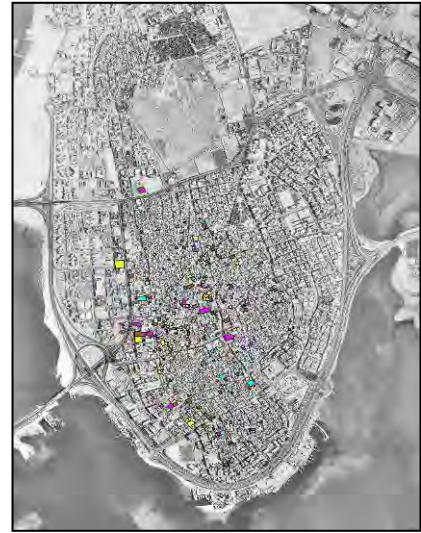
The boundaries of Muharraq and Manama reflect their physical geological nature: Muharraq is an island and Manama a peninsula. However, the perception of the residents is of a narrower definition. When one speaks of Muharraq and Manama, residents mean the old historic core areas, the feraj of their fathers and grandfathers.

The town is composed of these feraj. The quality of the individual ferij and the interrelationship between them often determines how successful the town is as a whole.



Manama

Colors Identify Traditional Buildings



Muharraq

In the past, the various feraj of the traditional core areas harmonized and flowed into each other. The perception was of a seamless whole. This strengthened the psychological bond and identity of the residents with the town. However, today, the feraj and their inhabitants are often separated from another through streets of non-traditional widths: road widening schemes have disrupted the traditional seamless flow from one ferij to another.

These road widening schemes are closely related with the current zoning codes. These codes determine the buildings' height, density, and usage within the town. They also indicate types of streets and special areas. This type of zoning code has fallen into disfavor over the last few years in many cities since they were originally developed to support 1950's planning theories which were based on the separation of uses and the attempt to make the city subordinate to the car. Such zoning codes have now come to be seen as too simplistic; they totally ignore the social and human aspects of the neighborhood and community.

3.0 Community Services

In addition to the buildings, the streets, the ferij, and the town, other issues affecting the core areas of Manama and Muharraq must be considered. These include the quality and availability of community services.

Community services play an important role in the acceptance of residents to remain in their communities as well as taking the decision by non-residents to relocate and invest in a particular area. If community services do not meet the expectations of the residents, they will eventually relocate elsewhere and a spiral of decline will result.

3.1 Schools

The number and quality of the schools was not raised as an issue during this stage of the project. Whether this is in fact not an issue needs to be further investigated. Without doubt, however, one of the main criteria young couples research before moving either to or out of an area is the quality of the local schools. If as intended, the economic regeneration of these areas leads to an increase of young families, quality schools must be in operation before young families will relocate.

3.2 Rubbish Collection

Although stated previously, the importance of rubbish collection cannot be underestimated. This is probably the most important visual element that determines if a street and neighborhood is considered successful, pleasant, and a good place to invest. Businesses wish to attract customers, property owners wish to attract buyers and home owners wish to increase their property values. Without proper rubbish collection, no area has a chance for future growth.



Current rubbish collection points: unattractive situations

3.3 Utilities

The availability and quality of public utilities is of vital importance when people are debating to move into a new house, relocate or start a new business, or even stay in a certain area. Not only does the quantity play a role but also the appearance and how the utilities affect the surroundings.



Electrical Sub-Stations



Telephone Connections

The quality of public utilities varies within the areas, the most noticeable being the electric and telephone lines, and transformer sub-stations. The majority of traditional houses have had these modern utilities added without thought to the effects on the appearance or structural integrity. In addition, no or little thought or coordination has been conducted concerning the design and placement of electricity sub-stations, public toilets, etc. near important buildings and ensembles. This leads to non-satisfactory results and hinders future improvement efforts.

3.4 Parking and Public Transport

Of all the changes that have most profoundly affected the shape of cities today is the automobile. Since the 1930's, city planners have tried to make the traditional city adapt to the automobile with disastrous results. Today, most urban planners agree that the car must adapt to the city, and that an efficient and clean system of public transport must be provided in within, to, and from the city centers.

Parking has identified as one of the major problems affecting the traditional core areas. These core areas developed before the invention of the automobile, and attempts to adapt the city to meet the needs of the car have failed, resulting in the partial destruction and disfigurement of the urban fabric. Due to convenience and security perceptions, most residents demand that the car be parked on their own property or outside the door. For reasons of the extreme heat during the summer months, residents and visitors (including

shoppers) are not willing to walk long distances to their homes or shops after parking their cars. This leads to a loss of desirability for certain areas as residential and commercial locations. To make up this deficit, many sites where buildings have been demolished are currently being used as car parks not only for automobiles but also for busses and trucks. This lowers the attractiveness of the street and area, which affects investment.



A First Attempt



Uncontrolled and Unattractive

3.5 Public Open Space and Landscaping

Many residents criticize the quality of the design of public open spaces in the core areas. Furthermore, most of the public parks there have been found to be badly maintained or closed for repairs, and public beaches near the core areas are non-existent. The Corniches along King Faysal Highway and Al Fateh Highway in Manama have the potential to be attractive public spaces; however garbage along the water's edge and throughout the park detracts from the enjoyment of these areas. In addition, many Bahraini families chose not to visit certain parks and open spaces due to the presence of bachelor laborers sleeping and congregating there.



Unsuccessful Attempt



Proposal: Physical Planning Directorate

4. Cultural and Social Customs

The issues involved in this project that deal with buildings and the core areas are also greatly influenced by the cultural and social customs of the country. These aspects play a significant role not only in the problems but also in the solutions. Although these issues are mentioned previously, due to their importance, they must be elaborated here.

4.1 Inheritance and Small Plot Size

Many of the traditional buildings are vacant and in danger of collapse. This is often the result of inheritance; there are in fact several owners within the same family who cannot agree on what to do with the building.

The size of an available building plot is often crucial in determining the financial return for the owner. If the property size is too small, the building simply becomes too inefficient in terms of rentable or useable area to the core (staircase, etc.) In addition, today's housing standards are requiring more space per person and family than ever before. Thus, a house size that was adequate 50 years ago no longer meets the needs or expectations of today's families.



Typical Small Plots: Existing and New



4.2 Overcrowding

This issue concerns not only the physical condition of the buildings and the make-up of the ferij as stated previously, but also affects the chances for economic success of the entire project. This issue is of primary importance, economically and socially. Bahraini families will simply not return to these areas unless this issue is addressed. If this problem is not addressed, all efforts to economically regenerate these areas will fail. This issue cannot be overstressed. If these issues of overcrowding and the make-up of those residents are not addressed, there is no chance for success.



Typical Conditions

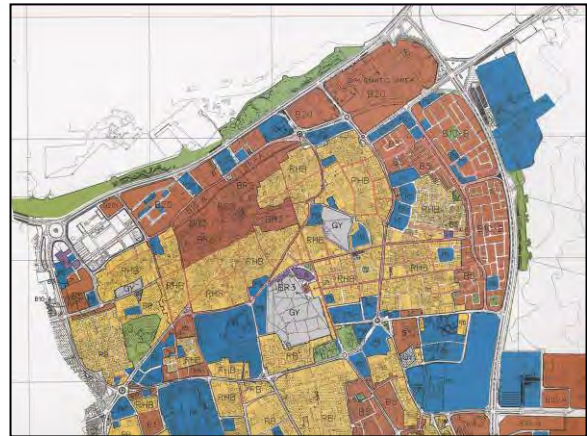
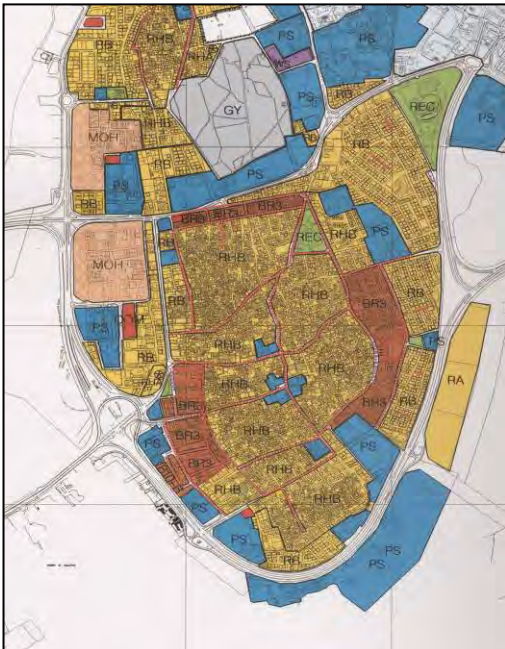


5. Guidelines, Rules and Codes: Tools for Regeneration

A variety of tools are available to help plan and improve the urban environment. These range from guidelines (a set of official design principles which direct the architect/planner, yet allow freedom for creativity), to rules (a set of prescribed guidelines that must be followed without deviation), and to codes (the collection of guidelines and rules supplemented by laws and regulations that may apply) for whole towns and districts down to individual streets and buildings. These codes can control the heights of buildings, density, placement on the property, façade appearance, color of materials, types of materials, signage, street furniture, utility infrastructure, the width and design of roads, landscaping, the design of urban spaces and parks, and even the designation of special zones targeted for economic development and/or conservation. These zones are only successful if effective control is exercised in their implementation. The more exceptions allowed the less success the zone will have.

5.1 Zoning Codes

Zoning codes determine primarily a building's height, density, and usage within a certain designated area. They also indicate types of streets and special areas. Zoning codes have fallen into disfavor over the last few years since they were originally developed to support 1950's planning theories about the separation of uses and the attempt to make the city subordinate to the car. Zoning codes have now come to be seen as too simplistic, they are at most a two dimensional guide to the physical environment. They totally ignore the social and human aspects of neighborhood and community. Evidence of this is the fact that the best cities, towns, and villages were built long before zoning codes were invented. Many cities and towns around the world are now revising their zoning codes to include a more balanced approach. Some are questioning the need for the current type of zoning codes altogether.



Current Zoning Code: Manama

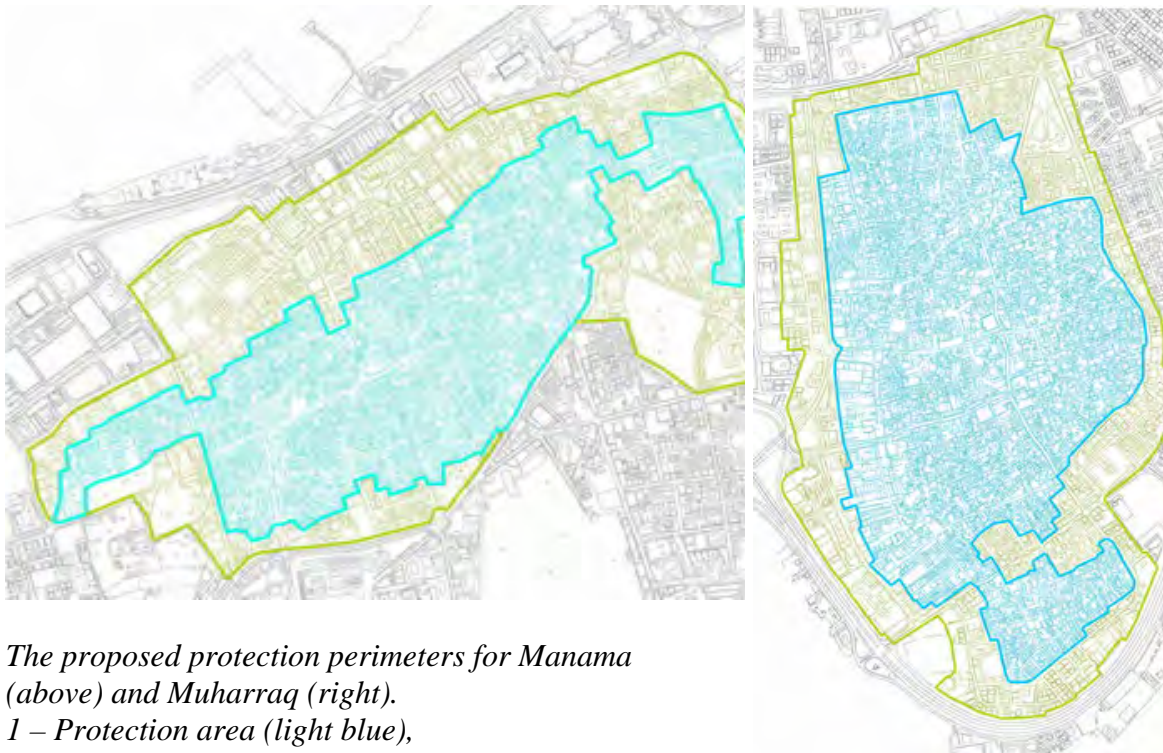
Current Zoning Code: Muharraq

The current zoning codes are from 1998 and do not reflect the incredible changes in the physical and social environment that have taken place within Manama and Muharraq since that time. The current zoning codes and maps are, however, under review; a draft revision has been prepared and has been submitted. At the moment there are no protected/conservation zones planned. However, the Physical Planning Department has been considering creating such zones for the core areas of Muharraq and Manama.

It must be said that the Physical Planning Directorate is aware of the limitations of type of zoning codes currently in use and appears to be open to rethinking and change. The Department has already begun this process themselves which is highly commendable.

5.2 Urban Conservation Zones and Protection Perimeters

Urban Conservation Zones are a common tool for protecting and more importantly economically reviving the core areas of older towns and cities. They are not meant to turn the designated areas into stagnant museums. Instead, they direct investment and development in a creative but controlled manner. Initially some owners are resistant for the regulations within the zones place restrictions on what they may and may not do. However, after a short time, these regulations are seen to be a positive force, unifying all owners' efforts and improvements, the result being that the whole is stronger than the sum of the individual parts.



The proposed protection perimeters for Manama (above) and Muharraq (right).

1 – Protection area (light blue),

2 – Buffer area (light green)

Source: Daniele Pini, Conservation Zone Consultant

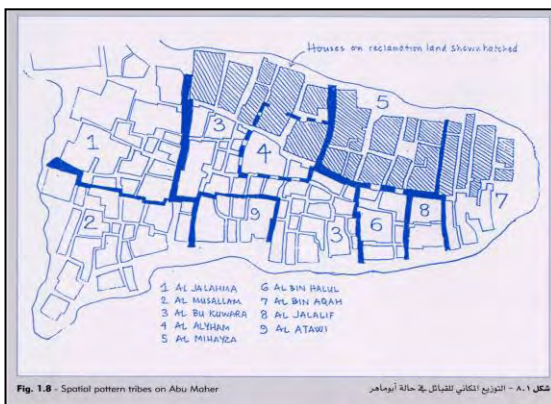
Protection perimeters are designed as a first step towards the creation of urban conservation zones: their goal is the prevention of further interventions and demolitions that would further destroy what remains of the urban fabric. (Please see the report of the Conservation Zone Consultant for an in-depth description of urban Conservation Zones and Protection Perimeters).

The Physical Planning Directorate and others have been considering the creation of Urban Conservation Zones for the core areas of Muharraq and Manama and there is a high level of acceptance within the government as to the need for such conservation zones.

5.3 Urban Design Codes

Many cities and towns are now adopting urban design codes to augment or even replace zoning codes. Urban design codes are usually presented in simple graphic form, easily understandable to owners, developers, and architects alike. They show how a building is to be placed on its property, the set backs, parking, as well as the design of public open space, public utility buildings (sub-stations, etc.) and the street itself. The main difference between urban design codes and zoning codes is that the urban design codes are developed to create an ensemble out of individual parts which harmonize with each other. Zoning codes tend to identify the various components and treat them as separate, individual elements which often lead to disharmony.

(Note: ensembles here are defined as a collection of buildings that through their location, architectural treatment, or massing create a special place or spatial experience. A ferij may contain many similar and/or even different ensembles. Ensembles often act as a catalyst for urban social life and become a focal point or center within a ferij.)



Traditional Urban Development
Source: Yarwood



Non-Traditional Urbanism

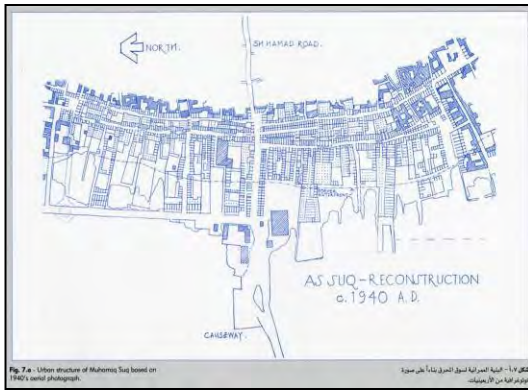


Fig. 7.a - Urban structure of Muharraq Suq based on 1940 aerial photograph.



Traditional Urban Development
Source: John Yarwood

Preliminary Codes; P.P.D.

Urban Design Codes are written in a generic way that is not site specific, it would be impossible to develop codes for each individual site. Instead, they give guidelines that set goals and give directions as to how a particular issue should be resolved.

The Physical Planning Directorate and others have been considering the creation of Urban Design Codes for the core areas of Muharraq and Manama and preliminary codes have already been prepared. These codes mainly deal with issues of density and of how a building is to be placed on its property. These form a good basis for the further development of comprehensive urban design codes for the traditional core areas of Manama and Muharraq.

Comprehensive Urban Design Codes should include the following: the design and location of electricity sub-stations, public toilets, bus stops, gratings, manhole covers, garbage bins, garbage collection areas, street furniture, landscaping, public open spaces, and parking areas. These guidelines need to be developed in cooperation with the relevant agencies and authorities to ensure that any technical and safety requirements are respected.

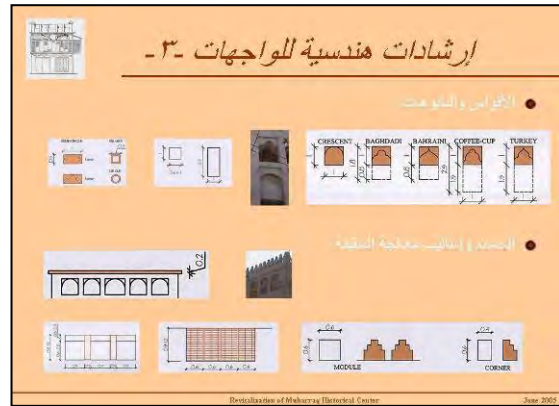
In addition, Urban Design Guidelines should be developed for all new construction within the protected zone areas. These guidelines include how the buildings are to be placed on the property (set-backs), the relationship of the building's edge to the street and to its neighbor (in-fill buildings), the height of the building depending upon the area identified in the conservation plan, etc.

5.4 Architectural Guidelines, Rules and Codes

To augment Urban Design Codes, often Architectural Guidelines, Rules and Codes are prepared. These can be of two types: a) for the area (ferij) as a whole, and b) for specific buildings, ensembles, and streetscapes within a ferij. Architectural Codes affect what most people see: the facades of the buildings. They can include such items as window types and sizes, doors, ornament, signage, perimeter walls, ratio of openings to solid

walls, etc. They can also include materials and colors. These codes can be loose or very restrictive in nature depending upon the situation. The trend is currently for very restrictive codes due to economic reasons; residents and property owners do not want their neighbor doing something which will cause the building and street to become unattractive, leading to a decrease in property values. The more restrictive the codes, the more predictable the final result will be. However, codes can be too restrictive, leading to repetition, and the stifling of creativity and individuality. A careful balance must be struck depending upon the local situation and conditions. If the Islamic tradition is to be followed in that it is necessary to obtain one's neighbor's consent, then less restrictive codes might be adequate and be more conforming to traditional development. The Physical Planning Directorate and others have also been considering the creation of Architectural Design Codes for the core areas of Muharraq and Manama. Preliminary codes have already been prepared by the PPD which support their proposed projects in the traditional core area of Muharraq (see 6.2.1 Old Muharraq Conservation Project). These preliminary codes which cover the proportion of windows, doors, facades, and traditional elements such as balconies and screens are well developed and have been integrated into the proposed comprehensive set of guidelines, rules and code

Preliminary Codes: Physical Planning Directorate





Air Conditioner Screens

Examples of what needs to be coded



Balconies



Improper Mechanical Interventions



Inappropriate Architectural Style

5.5 Proposals for Urban Design and Architectural Guidelines, Rules and Codes

The protected zones consultant has proposed to establish two large protection perimeters for Manama and Muharraq. Within these zones, he has recommended the establishment of appropriate urban planning codes and building regulations which would include land uses that favour the adaptive reuse of traditional and significant buildings and the categories of interventions to be permitted for each type of building and open space.

Based upon the results of the analysis of the urban environment within these proposed zones, specific proposals have been developed to address the identified issues and problems. These take the form of Urban Design and Architectural Guidelines, Rules and Codes. These guidelines, rules and codes have been developed together by the Urban Design and the Coding consultants. Due to the nature of the close inter-relationship of the issues involved, to have developed their proposals separately could have lead to omissions and/or repetition.

5.5.1 Proposals

The following rules and codes were developed to address the following problems/issues. Each includes background information explaining the nature of the problem and procedures for its successful resolution. The rules and codes are supported by photos and sketches, where necessary, for clarification (see Appendix for full details).

Neighborhoods:

- Temporary Screening of Demolished Building Sites and Parking Lots

Parking:

- Medium-Large Capacity, Permanent Parking Structures
- Small Capacity, Permanent Car Parks within the Public Right of Way

Utilities and Public Services:

- Electrical Meters and Connections to the Mains in the Street
- Gas Cylinder Storage at Street Level
- Individual Garbage Bin Locations
- Neighborhood Garbage Collection Points
- Public Utility Installations
Public Utility Mains and Street Lights Mounted on Facades
- Water Meters and Connections to the Mains in the Street

Building Property and Location:

- Consolidation of small plots

Building Elements:

- Balconies
- Doors
- Elevation Composition

- Garages
- Parapets and Roof Details
- Screens for Roof Mounted Technical Devices
- Screens for Wall Mounted Air Conditioning Units
- Setbacks and Courtyards
- Shop Fronts
- Signage: Streets and Shop Fronts
- Shading of Roof Terraces
- Walls and Recesses
- Windows and Shutters

Codes have been developed by other consultants to cover additional urban issues:

- Boundary of original feraj
- Fina: rules for use
- Parking locations: distance from front doors of houses
- Alignment of building edges on streets
- Heights of buildings
- Location of exterior doors and windows
- Party walls and abutting an existing wall

These codes have been identified as the minimum necessary to be implemented in the traditional areas of Manama and Muharraq. Additional codes may be necessary to cover other issues at some time in the future. These could include:

- The design of streets with and without sidewalks including paving materials
- The design of street furniture
- The design of public open spaces, materials and types of plants
- The location and development of larger parking areas on the edge of the core areas (in support of park-and-ride projects, etc.)
- The cooling of streets

Other codes such as occupancy rates are civil codes and must be addressed by the appropriate authorities. It is recommended for the proposed codes to be reviewed and if necessary modified before they are officially adopted.

(Note: Specific codes dealing with the rehabilitation and conservation of traditional buildings have been developed by the restoration consultant. These cover such aspects as the type of permitted interventions and uses, correct and incorrect methods of construction and repairs, and certain issues relating to the preservation of themes and values (the visual identification of the ferij, etc.). These specific codes should take precedence over the general Urban Design and Architectural Guidelines, Rules and Codes.)

Manual of Urban Design, Architecture, and Restoration Codes

2.1.3 Building Elements
Screening of Roof Mounted Technical Devices

Background: Roof mounted air conditioning units, water tanks, gas cylinders, etc. spoil the visual appearance of traditional buildings. In many cases, the building's parapet is not high enough neither to block the pedestrian's view from the street nor from an upper storey window of nearby buildings.

Implementation:

1. Light weight screens are to be constructed which hide roof mounted mechanical installations. This rule applies when no parapet of appropriate height is present to block the view of the roof mounted machinery from street level or from a neighbor's upper storey window. This applies to existing buildings and to new buildings.
2. The screens are to be of timber and the design to be based upon the traditional louvered or open-laminate pattern.
3. The screens are to be mounted on appropriately sized timber posts attached to the roof. Care must be taken so that the attaching of the posts to the roof terrace surface does not cause any damage that may lead to leaks during rain.
4. The screens may be attached to the posts either as lift-out or swinging panel where access is necessary to the equipment. Appropriate distances from the machinery should be taken into account when placing the screens.
5. The height of the screens is to be equal to the highest machine or part thereof. This does not include service ducts. The panels are to be evenly spaced if possible.
6. The screens may be painted a traditional brown, sea blue or sea green, or also traditional colors.







SCREENING OF EQUIPMENT




EXAMPLES OF SELECTED SCREENS




SCREENING EQUAL TO GRADE **SCREENING OF REMOVABLE PANELS**




WITH ACCESS **WITH SHUTTER**

Example Code: Screening of Roof Mounted Technical Devices

Manual of Urban Design, Architecture, and Restoration Codes

2.1.6 Building Elements
Signage

Background: The visual appearance of street signs and commercial signs throughout the traditional streets of Aleppo and Mardin are often inconsistent, visually unattractive, or non-existent. There is also no visual indication that these are special zones of traditional heritage.

Implementation:

1. Street signs within the conservation zone should adopt the brown background color and the same font of white lettering as the current national heritage signs. This is the standard for street signs in many parts of the world in conservation zones and is quickly and easily recognizable to visitors.
2. All new commercial signs on all buildings located along non-commercial roads are to be painted on timber and fixed in. Alternatively, individual letters may be surface mounted on to the façade. No protruding box, back-lit signs are to be permitted. This applies to all buildings, not just to those of traditional design and construction.
3. The size and placement of the signs, along with the design and type of the lighting should respect the visual composition of the façade.
4. Diversity and creativity of signs should be encouraged, but operate in a regulated framework.




FRONT FACIADAGE MOUNTED SIGNS **STREET SIGNS**




BACK FACIADAGE MOUNTED SIGNS **BACK FACIADAGE MOUNTED SIGNS**


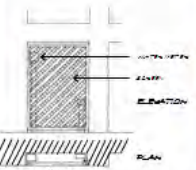

Manual of Urban Design, Architecture, and Restoration Codes

2.1.4 Utilities
Water Meters and Connection to the Main in the Street

Background: Currently, water connections and meters are located on the exterior of many of the traditional buildings. A vertical pipe rises to a height of approximately 1.6 meters with the water meter fixed to the building at this level. This arrangement spoils the visual appearance of the building.

Implementation:

1. The placement of the water meters onto the façade of the building should be done in such a way to be as unobtrusive as possible.
2. No pipes of any type once they enter the building are to be permitted to re-emerge onto the façade; this includes all plumbing. The only exception is rain water down pipes.
3. The water meter is to be recessed within the wall at a suitable location that does not impinge upon the appearance of the façade, and be covered by a wooden screen of a traditional pattern, either louvered or open-laminate, painted traditional brown. The screen can be either a lift-out or swinging for access.
4. The size of the recess and type of meter must be checked with the local utility company as to compliance with their technical requirements.
5. Depending upon the building, it may be necessary to mount the meter to the side of the pier within the recess. Often the walls of the recess are thin space panels and will be damaged if the meter is affixed to them.
6. If it is not technically possible to locate the meter in the recess, then the meter cover and its pipe must be of the same color of the façade or painted a traditional brown.
7. Where technically possible, it would be recommended to place both the water meter in the same recess as the electric display meter.

ELEVATION **PLAN**

Code: Signage

Code: Water Meters

6.0 Current Programs and Projects

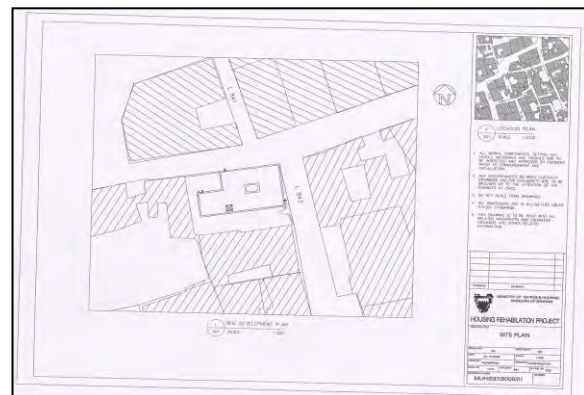
Programs and projects that are currently being planned, waiting budget approval, or which are actually under construction may have positive or a negative effects on the core areas of Muharraq and Manama. The purpose of this section is to identify such programs and projects. It is also the purpose to identify those projects that could affect specific proposals that this program may make. One such example could be a proposal to carry out a specific project (new parking area, new intervention or repair) only to find out that either the land is not available due to another project, or that another project nearby will destroy what we are intending to do (i.e. the proposed multi storey parking garage in the middle of the open space west of Bab Al Bahrain).

It must always be understood that this program is not functioning in a vacuum. The dynamic forces of development are ongoing and cannot be ignored. The regeneration of the core areas of Manama and Muharraq will occur within a fluid state, and any and all new development within and outside the core areas will have an effect on the regeneration.

6.1 Current Programs

6.1.1 Special Project: Housing Rehabilitation Program

This program was created by the HUDC and supervised by the Assistant Undersecretary, Ministry of Works and Housing. This program currently plans to demolish between 5000 and 6000 buildings over the next 10 years and replace them with new buildings. The program is aimed at Bahraini citizens who own their own home. The applicants' income may not exceed a certain amount, and the house must be in such a condition that it is unfit for habitation. The successful applicants are selected by the local Municipality. This program pays the family's rent at a new location during the time of demolition and new construction. The program builds a standard house type which varies in size between 120-150 square meters. Slight adjustments are made to the plan and size of the house depending on the lot size and the size of the family. The architectural style of the new buildings is loosely based on traditional buildings.



6.1.1.1 Initial Findings

- The budget (100-120 million BD) comes directly from the HUDC and not from the Ministry of Works and Housing.
- The project is supervised by the Undersecretary and has its own management which operates independently of the other sections within the Ministry. This was intended to expedite the work by by-passing the normal government bureaucracy.
- The management has its own design team which can respond to individual cases.

6.1.1.2 Proposals

- Need to coordinate if these demolitions affect identified traditional buildings, also if they affect the historic fabric (non-traditional buildings). List of houses and blocks already provided by Housing Department, list of traditional buildings already provided to Housing Department.
- Possible cooperation signaled by the Housing Department that they could use these funds to repair traditional buildings where practical structurally and economically instead of demolishing. Their mandate deals with buildings that are “unfit for habitation”. This does not necessarily mean that the buildings are in a state of collapse and must be demolished.
- Cooperation signaled by the project management that they would like to be involved in the preparation of the new Urban and Architectural Design Guidelines and Codes for the protected areas in order to determine how far their building designs can be adapted to meet these requirements.
- Plans of planned new houses within the Urban Conservation Zones should be reviewed as to their relationship to the surrounding urban space and compliance with the new Urban Design Codes.

6.1.2 Housing Bank Loan Program

The Housing Bank has 40,000 applications for housing loans. The amount of the loan varies according to income, maximum 40,000 BD. This loan is only available once in a person’s lifetime. Interest is 3% a year.

6.1.2.1 Initial Findings

- This program provides a significant amount of funds for first time buyers.

6.1.2.2 Proposals

- Discussions should be held with the Housing Bank to see if and how their program could be modified or extended. Possibilities are that the loans be targeted to the conservation areas and/or to offer a second loan that would only be for property located within the conservation zone. This program is discussed in detail in the report of the economics consultant.

6.1.3 Ministry of Municipalities and Agricultural Affairs

There is a Social Welfare/ Social Services Program for small repairs, run by MOMAA. The Municipality selects applicants based on income. This program is covered in more detail in the report of the economics consultant.

6.2 Current Projects

6.2.1 National Planning Development Strategy for the Kingdom of Bahrain, SOM

The firm of SOM is developing a strategic development plan for the Kingdom of Bahrain. Its purpose is to identify and plan the future growth of the country in an intelligent manner. This includes the physical growth and development of existing and new cities, the management and growth of business and the economy, the analysis of existing resources and plans for their intelligent use and conservation.

6.2.1.1 Initial Findings

- In the initial study phase, SOM has identified Muharraq and Manama as special areas to be further investigated.
- Meetings between SOM and this project have been conducted with the aim of adopting the goals and findings of this project into the masterplan for the historic core areas of Manama and Muharraq).

6.2.1.2 Responses

- A working committee should be established between SOM and the Project Director to coordinate strategy, exchange information, and develop common policies for these areas.
- The Ministry of Information, who is responsible for all antiquities and historical buildings, should also be invited to coordinate their work and studies with this working committee.

6.2.2 Old Muharraq Conservation Project; Physical Planning Directorate

This study identifies four projects located within the core area of Muharraq. These projects include the redesign of the old souq, the area of As Suq, the linkage of the As Suq with the Al Zayed House, as well as the linkage of the Al Zayed House with the Seyadi House area, thus creating a cultural heritage experience.

6.2.2.1 Initial Findings

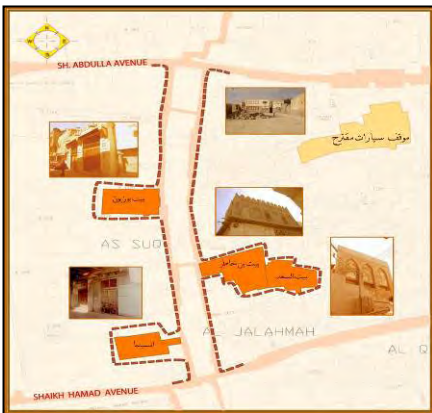
- The Directorate has presented these proposals along with a proposed budget to the HUDC earlier in 2005. The budget has yet to be approved. Earliest realistic date would be for funding starting in 2007. However, this funding would be limited to

the design development of the projects (professional fees, etc.). Actual construction could begin in 2008 at the earliest.

- The Directorate has developed outline architectural and urban design codes that are in line with the principles of the UNDP/MOMAA consultant team.
- The department has expressed great interest in cooperating with the consultants and jointly developing the codes further during the next phase.



Proposals for Old Muharraq



6.2.2.2 Responses

- The proposals form an excellent basis for pilot projects within the area.
- The proposal to link the already restored houses should be carried out as this will form the basis of cultural heritage tourism and can act as a catalyst for the area.
- If identified as pilot projects under the UNDP/MOMAA project, it may be possible to secure funding at an earlier date.
- Representatives of the Directorate should be invited to actively participate in the development of the architectural and urban design codes during the next phase in January.

6.2.3 Bab Al Bahrain- Souq area; Ministry of Works and Housing

This project is designated as a special project managed by the Special Projects Department-Housing Affairs (SPDHA). The SPDHA has hired Gulf House Engineering as the design consultant, who has prepared a study for the first phase. The project is divided into 3 phases, first phase being the Bab Al Bahrain Street, the second the car park area to the north of the gate, and the third phase being the areas left and right of the Bab Al Bahrain Street.

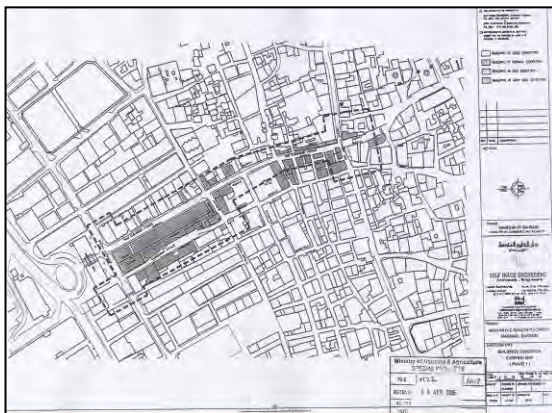
The budget has been defined, but it is unclear if it has been allocated or approved by the parliament or by MOFNE. It is also not defined who would control the budget (MOWH or MOMAA). The SPDHA is responsible for managing the construction process.

Gulf House Engineering have prepared three options for the redesign of Bab Al Bahrain Street: 1) A new façade ca. 1 meter away from the existing facades with a fixed roof as sun shading, 2) a series of “bolt-on” elements and canvas sun shades as an alternative to a new façade, and 3) a free-standing structure similar in nature to the souq in Kuwait.

All three have been found to exceed the budget and each have technical problems. In addition, the design calls for a new open plaza at the junction of Bab Al Bahrain and Sheikh Abdullah Avenue.



Proposals for the Souq Area



Plan of Area



Dubai: Shading Structure

6.2.3.1 Initial Findings:

- The proposed plaza at the junction of Bab Al Bahrain is questionable from an urban design aspect. No precedent or tradition in this area exists.
- The multi-level car park proposed for the open square nearby is also questionable.
- The design aesthetics aim at going up-market; the goal is to compete with the shopping malls in terms of quality, choice, comfort of shopping, and improvement of image.
- The redesign of the government owned shop building includes expanding it to include an atrium to the back, in effect making it a mini-mall.
- There have been various proposed usages for the old post office and police buildings but no budget made available.
- All three of these buildings are owned by the government and have been classified as “historic” under the Antiquities Law of 1995 by the Ministry of Information, Directorate of Culture and National Heritage.

6.2.3.2 Responses

- The proposed plaza idea must be reexamined not only on urban design grounds but on economic and commercial grounds. In any commercial enterprise (shopping malls, etc.) there is always an “anchor” store at each end, with the smaller shops lined up between them. Such an anchor could be a cinema complex, or an in-door mall with an atrium as a public space.
- The multi-level car park proposed for the open square nearby must be rejected. There are plenty of other potential car parking locations nearby which can be developed cheaply and easily.
- The goal of going up-market is to be commended. The area needs to attract young, professional families and this type of shopping experience is needed in this area.
- The redesign of the government owned shop building into a mini-mall is good in principle but the current design is uneconomical and commercially unviable.
- There have been various proposed usages for the old post office and police buildings. The Museum proposal would do little to reinvigorate the area. The proposal as a gemological laboratory is worth pursuing as the buildings would again be a part of a living/working city. The incorporation of the buildings in to the shopping complex is also of interest.
- The study for the area north of the gate towards the Financial Harbour Project must be undertaken (see 6.2.3 below).
- The first two options have major technical problems and are subject to aesthetic and design ethics debates. The idea of creating a false front is dishonest and will not stand the test of time. The “Kuwait Solution” is preferred, although the design presented is primitive. Better and more elegant examples exist in Dubai which is highly successful.

6.2.4 Financial Harbor Project

This mixed-use project is being developed by a private company on reclaimed land along the Corniche. The proposal includes offices, luxury apartments, a hotel, yacht harbor, restaurants, and shops. The project is currently under construction.

6.2.4.1 Initial Findings

- The architectural design has no relation to the Bab Al Bahrain nor to the surrounding area. A collection of green tinted glass structures of various forms and heights is proposed. The architecture is bland and will not be an icon as is Burg Al Arab in Dubai.
- The urban design of the project makes no relationship to the axis of Bab Al Bahrain.
- The project does not address the large expanse of land (currently surface parking lots) lying between it and Bab Al Bahrain.

6.2.4.2 Responses

- A great opportunity exists for the re-planning of the area between the front of Bab Al Bahrain and the Financial Harbor Project. This area is currently extremely unattractive and needs to be redesigned as soon as possible.
- This area should be redesigned as part of the redevelopment of the Souq area project. The architectural and urban design should relate to the Souq area project in order to create an ensemble of value and quality for the gate. The Bab Al Bahrain is Bahrain's symbol to its visitors. The gate should receive the respect it deserves.
- The redesign of the area in front of the gate would also increase the value of cultural tourism.
- The existing parking could be relocated in an underground parking garage, with a new plaza framed by new buildings. These new buildings would be of a size and architectural quality as to mask the unattractive existing neighbors from view.
- An element of some sort (monument, fountain, etc.) should be located on axis with the gate within this area.
- Normally in Europe, the developer of the Financial Harbor Project would have to provide some funding for the design of the public open space. However, if additional buildings are constructed on this site, the owners/developers of these buildings should contribute.

6.2.5 Area in front of Al- Zayed House

There is a large plot of land directly in front of the house stretching to the street at the lower end. Currently it is wasteland used for uncontrolled parking.



6.2.5.1 Initial Findings

- There has been a rejected application for the construction of a boundary wall along the property edge to eliminate the uncontrolled parking.
- The large property is owned by one family.

6.2.5.2 Reponses

- The fact that the entire property is owned by one family will make a well designed development easier.

7.0 Ecological and Sustainable Development

The concept of regenerating the core areas of Muharraq and Manama on an ecological and sustainable basis runs through each and every aspect of the Urban Design and Architectural Guidelines, Rules and Codes, as well as all the other areas of expertise covered by this project. Although not always specifically stated, these issues are at the heart of the proposals. Such issues include, amongst others, transportation, intelligent land use, public open space and sustainable materials and recycling.

- **Transportation:** Transportation is one of the key problems facing the traditional city. The concept of making the city adapt to the car has reached its limits and has already destroyed much of the urban fabric. The strategies and policies developed in this project place the emphasis of the pedestrian over the car; including the development of alternative transportation linkages to the core areas (park and ride systems), the improvement of the level of bus services (resulting in less reliance on individual cars), the locating of parking areas away from the inner core areas

thereby reducing the number of cars in the center (noise, air pollution, etc.), and the locating of schools throughout the core areas (enabling children to walk to school thereby eliminating unnecessary car trips).

- **Intelligent Use of Available Land:** The use of the proposed urban conservation codes will aid in the intelligent use of a scarce resource in Bahrain: **land**. These urban codes identify appropriate usages within the core areas (i.e. no heavy industrial or manufacturing), and encourage building on vacant sites thereby increasing the current density within the urban core. This is known as ‘Smart Growth’: maximizing the usage of existing infrastructure (roads, utilities, etc.) and minimizes the waste of valuable inner city land. “Smart Growth” decreases the pressure to expand the suburbs and with it the associated wastage of valuable land to low density development. Low density development leads to the dependence on the automobile, thus increasing the problems associated with 1) traffic (more roads creates more traffic which generates more noise, congestion and pollution), and 2) infrastructure costs (less density requires longer sewers, utility cables and pipes serving fewer households which means more cost per unit).
- **Public Open Space:** The urban codes include design guidelines for the creation of new, small public open spaces as part of the street network. This will improve the attractiveness of the area and increase the quality of life for the residents (light and air). They also cover the improvement of the public beaches and the pedestrian links from the core areas to them, thereby reducing the number of automobile trips and the associated air and noise pollution. The proposals also encourage the use of native plants and desertscape design to reduce water consumption, a critical resource that will play a much more important role in the development of Bahrain as the country’s population grows.
- **Sustainable Materials and Recycling:** The local tradition of reusing traditional building materials was until recently an economic necessity, people simply could not afford not to. With the rapid economic growth and expansion, this tradition has almost ceased, often traditional buildings were repaired using modern materials such as concrete and steel with disastrous results. The proposals for the repair of traditional buildings developed in this project specifically encourage the salvaging of building materials from traditional houses that are to be demolished, and the use of these recycled traditional materials in the construction of new or in the repair of existing traditional buildings. These proposals will eliminate the waste of scarce, traditional resources such as coral stone and timber.

8.0 Summary

The initial aim of the project was the economic regeneration of the traditional buildings of Muharraq and Manama. It is now clear that this regeneration can only succeed if the whole context is taken into account: the buildings, the street, the ferij (neighborhood), and the town as a whole.

The physical restoration/conservation of the individual buildings is only one aspect of this project. These buildings must be made structurally sound and equipped with all the conveniences of modern life (kitchen, bathrooms, air conditioning, etc.). In order to ensure the physical quality of the buildings, architectural guidelines and rules have been developed to avoid the mistakes of the past and to guide new and future development.

In order to regenerate the towns however, all the aspects of the urban environment must be addressed; from utilities, to parking, to garbage collection. This will involve not only the efficient carrying out of public services, but also the repair of the urban fabric itself. This will necessitate the development of urban design codes and guidelines. These codes will act within the designated urban conservation boundary/zone which designates the area within which these specific measures will apply.

However, such broader issues as inheritance laws and overcrowding cannot be ignored and wished away. These two issues must be addressed head-on for they will have a decisive effect on the success of the project. The economics of the project depends on these two issues being resolved. If they are not solved, the project will definitely fail.

The experience of East Berlin being reunited with West Berlin is an important example. There was widespread enthusiasm to rebuild and upgrade the deteriorated houses and buildings in East Berlin. However, the laws of private property were not clear regarding ownership; the infrastructure was in terrible condition and the government did not send a clear signal as to when the problems would be tackled, and the lack of zoning codes and guidelines tied up any new development to the point where the private sector gave up and went elsewhere. Many important traditional buildings of the Jugendstil period were lost due to this; they continued to deteriorate to the point where they had to be demolished although the public and private sectors wanted to save them.

Time plays a crucial role in this project. Everyday Muharraq and Manama are losing their traditional buildings through demolition and/or collapse. This is the last chance for Bahrain to avoid the mistakes of other Gulf countries. The project must be enacted urgently and deserves the highest priority. Otherwise, there will be nothing left to save.

Enacted as an integrated whole, these guidelines, rules and codes will ensure that the traditional areas as well as the buildings themselves will be revitalized and regenerated with the quality they deserve.

Duane Phillips
Feb. 23, 2006

9.0 Appendix: Urban Design and Architecture Guidelines Rules and Codes

9.1 Introduction: The following guidelines, rules, and codes were developed to address the specific problems and issues. Each includes background information explaining the nature of the problem and procedures for its successful resolution. The rules and codes are supported by photos and sketches, where necessary, for clarification. It may become necessary at some time in the future to revise, amend, or eliminate individual codes, as well as to add additional codes to cover issues not identified here.

Neighborhoods:

- Temporary Screening of Demolished Building Sites and Parking Lots

Parking:

- Medium-Large Capacity, Permanent Parking Structures
- Small Capacity, Permanent Car Parks within the Public Right of Way

Utilities and Public Services:

- Electrical Meters and Connections to the Mains in the Street
- Gas Cylinder Storage at Street Level
- Individual Garbage Bin Locations
- Neighborhood Garbage Collection Points
- Public Utility Installations
- Public Utility Mains and Street Lights Mounted on Facades
- Water Meters and Connections to the Mains in the Street

Building Property and Location:

- Consolidation of small plots

Building Elements:

- Balconies
- Doors
- Elevation Composition
- Garages
- Parapets and Roof Details
- Screens for Roof Mounted Technical Devices
- Screens for Wall Mounted Air Conditioning Units
- Shop Fronts
- Signage: Streets and Shop Fronts
- Shading of Roof Terraces
- Walls and Recesses
- Windows and Shutters

Manual of Urban Design, Architecture, and Restoration Codes

Neighborhoods:

Temporary Screening of Demolished Building Sites and Parking Lots

Background: Currently, after demolition, many sites are left vacant for long periods of time before new construction commences. These sites tend to gather rubbish, abandoned vehicles, or are used as ad-hoc car parks. This condition not only destroys the urban fabric, but degrades the overall visual quality of the area.

Implementation:

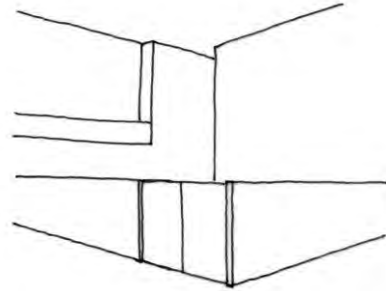
1. For sites where permission for demolition has been granted, the provisions of this guideline will not take effect if actual construction of a building begins within one month of demolition.
2. For sites that are currently vacant, or where new construction has not commenced within the time period as described above, until such time as new buildings are constructed on the site, walls or screens, 3 meters in height, are to be constructed along the street edges of the property to mask the property from view.
3. Walls are to be of block work or pre-cast concrete panels with the joints filled. In either case, the entire length of the wall facing towards the street must be covered with render painted in a color to match its surroundings. In order to reduce costs, the interior face need not be covered.
4. If screens are to be constructed, they may have to be of non-flammable or fire-retardant materials. The local authorities should be consulted as to any safety regulations. Preferably, they should be constructed of treated timber, painted brown.
5. Screens are to have traditional louver or lattice work pattern. The screens are to be mounted on appropriately sized timber posts which are fixed to an appropriate foundation or anchor as necessary.
6. An opening for vehicle access may not be wider than 3 meters, maximum two such openings per site. Where possible, a minimum of 3 meters between these openings should be maintained.
7. Gates may be installed at the openings, and be constructed of timber or metal, may be solid or open, and should be of a traditional door pattern, painted brown.
8. Where possible, provision should be made to allow vines to grow up the wall or screen to enhance the visual appearance and avoid graffiti.
9. The provisions here in no way prevent the use of the property as a temporary parking lot or some other revenue generating use deemed appropriate by the local authorities.



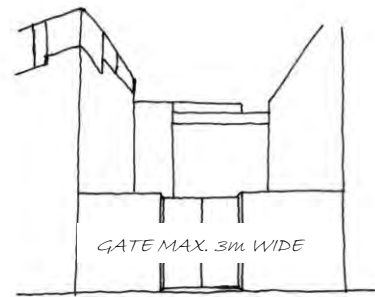
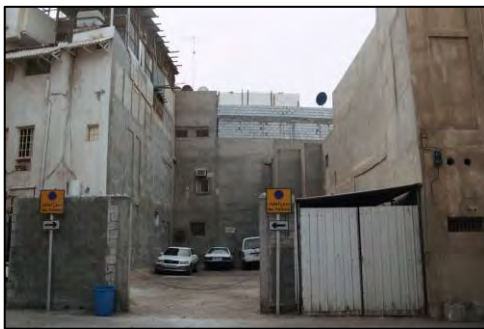
EXISTING CONDITIONS



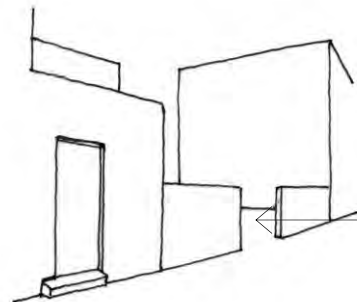
PROPOSED SOLUTIONS



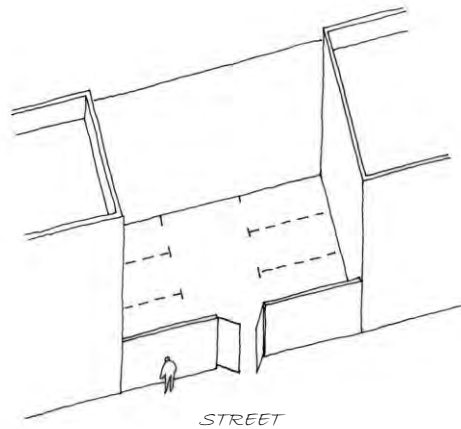
BOUNDARY WALLS WITH SWINGING GATE



BOUNDARY WALLS WITH SWINGING GATE



BOUNDARY WALLS WITHOUT GATE



Manual of Urban Design, Architecture, and Restoration Codes

Parking:

Medium-Large Capacity, Permanent Parking Structures

Background: Currently, many sites of demolished buildings are left vacant, accumulate rubbish, and often used as ad-hoc parking lots. This condition not only destroys the urban fabric, but degrades the overall visual quality of the area. For a variety of reasons, these sites may not generate enough income for the owners to cover the construction and maintenance of new buildings. In many cases, the owners earn more income through renting parking spaces on the site to nearby residents.

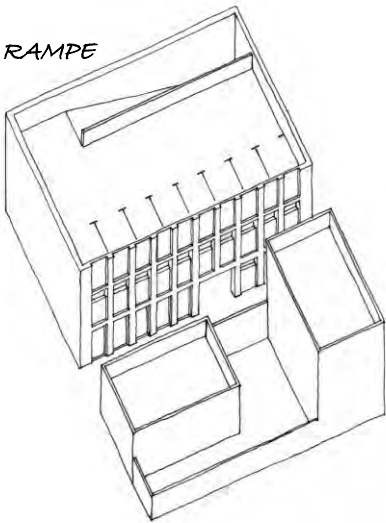
Implementation:

1. Where deemed appropriate by the conservation plan, larger capacity car parks should be constructed. These sites may be in private or public ownership.
2. The number of storeys is to be judged on a case by case basis, taking into account the heights of neighboring buildings, visual sight lines, and the amount of traffic the adjacent streets can adequately support.
3. If the site is large enough, a basement parking level must be provided.
4. If it has been determined that only one above-ground storey may be constructed, this storey can be enclosed with walls and roofed over, or alternatively, be constructed without a roof but enclosed by walls or screens 3 meters in height, to be constructed along the street edges of the property. In this case, sun shading devices may be erected for the vehicles, preferably of light weight materials and canvas, the design to be appropriate to the site, the maximum height not to exceed 3 meters at any point.
5. If it has been determined that more than one above ground storey may be constructed, then the ground floor only may alternatively be used for another commercial purpose such as a supermarket if deemed suitable for the area and the specific site.
6. Ventilation openings must meet the requirements of the local building codes. These openings, if located in the side walls, should take the form of open screens that are designed according to a traditional pattern. If the structure is of more than one above-ground storey, these openings should be located above eye level if possible to preserve the privacy of the inhabitants of the neighboring buildings.
7. If parking is to be located on the roof level, this level must be provided with a parapet of at least 2 meters in height and contain no openings. Sun shades for the vehicles may be provided, but their height may not exceed 2 meters at any point.
8. The exterior finish of the structure must resemble render, with any joints filled. The exterior color to be appropriate to its neighboring buildings.

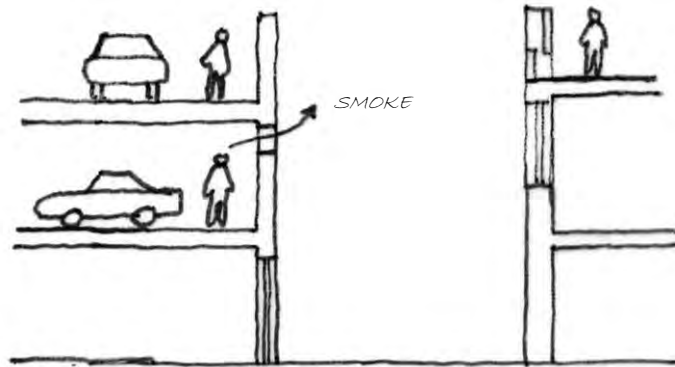


NEW PARKING STRUCTURE

RAMPE



EXISTING BUILDINGS



SMOKE AND EXHAUST VENT OPENINGS PLACED AT HIGH LEVEL TO AVOID VIEWS FROM PARKING LEVEL DOWN ONTO NEIGHBOR

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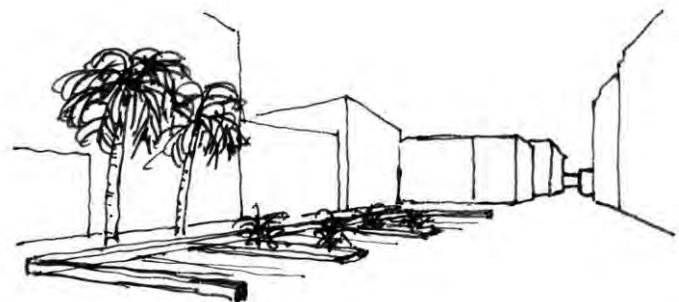
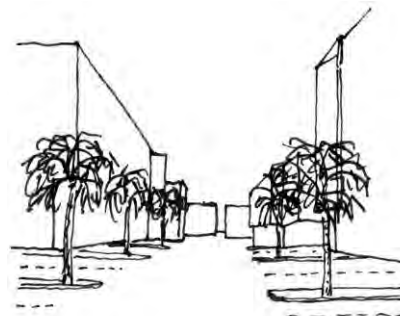
Parking:

Small Capacity, Permanent Car Parks within the Public Right of Way

Background: Currently, the design of parking spaces within the street is aesthetically unpleasant, often haphazard, and in many instances encroaches upon the pedestrian right of way including, where existing, the sidewalks. Often no alternative car parking spaces are available within a reasonable walking distance to residents' front doors. In many instances, the urban fabric is of irregular pattern, while the street is of a constant width. The irregular space between the two could be used for additional car parking spaces and/or combined with a public open space.

Implementation:

1. In many instances, the urban fabric is of irregular pattern, while the street is of a constant width. The irregular space between the two could be used for additional car parking spaces and/or combined with a public open space.
2. Where deemed appropriate by the conservation plan, smaller capacity car parks should be constructed. These sites should use the specific geometry of their individual site in determining the number of parking spaces that can be reasonably provided.
3. Where possible, landscaping should be provided. This may take the form of a single tree or desert-scape plantings requiring little water or maintenance.
4. The responsible authorities should be consulted as to any technical requirements regarding the design of such car parking spaces within the public right-of-way.



Manual of Urban Design, Architecture, and Restoration Codes

Utilities and Public Services:

Utilities: Electric Meters and Connections to the Mains in the Street

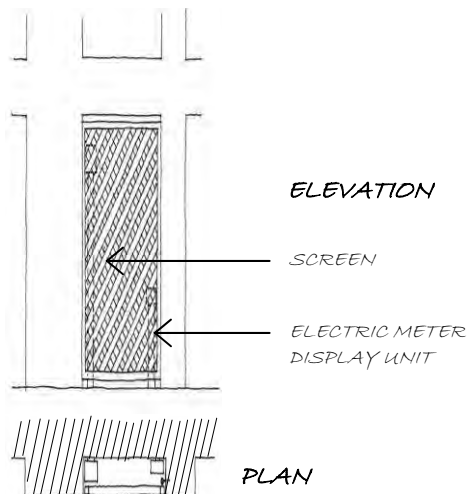
Background: Currently, electrical mains and meters are located within the buildings for reasons of safety. In apartment and office buildings, easy access for reading the meters is provided through the common areas. However, in the case of private, traditional houses, it is necessary to enter the house, impinging on the private realm. Also, it is necessary that a member of the family be at home to allow access.

Implementation:

1. The placement of utilities on the façade of the building should be done in such a way to be as unobtrusive as possible. When more than one wire enters the building at the same location, these wires should be bundled together, preferably enclosed in a rigid conduit, the conduit to be the same color as the facade.
2. No wires of any type once they enter the building are to be permitted to re-emerge onto the façade; this includes electrics, cables for television, etc.
3. Provision for a meter that can be read from the street should be encouraged in the case of private houses. This meter is to be recessed within the wall at a suitable location that does not impinge upon the appearance of the façade, and be covered by a wooden screen of a traditional pattern, either louvered or open latticework, painted traditional brown. The screen can be either a lift-out or swinging for access.
4. The size of the recess and type of meter must be checked with the local utility company as to compliance with their technical requirements. There are meter types which are split, the actual connections are within the building, but the meter display is located elsewhere.
5. Depending upon the building, it may be necessary to mount the meter to the side of the pier within the recess. Often the walls of the recess are thin stone panels and will be damaged if the meter is affixed to them.
6. Where technically possible, it would be recommended to place both the display portion of the meter in the same recess as the water meter.



EXISTING



ELEVATION

SCREEN

ELECTRIC METER
DISPLAY UNIT

PLAN

STREET



SOLUTION

Manual of Urban Design, Architecture, and Restoration Codes

Utilities and Public Services: Gas Cylinder Storage at Street Level

Background: Metal, lockable storage bins for portable gas cylinders are a common feature adjacent to the main façade of the buildings or along the side. These often spoil the visual appearance of the traditional buildings.

Implementation:

1. Where found to be legal, the storage of gas cylinders facing the street or to the sides of the buildings should be done in such a way to be as unobtrusive and respect the traditional structural grid as much as possible.
2. The current metal bins should be replaced with bins constructed of block work covered with render, or concrete with a render appearance, color to match the exterior walls of the building.
3. The top of the storage bin is to contain no openings.
4. The front of the bin is to have a painted brown metal perforated door on hinges. To ensure safety, the door must be lockable.
5. Any pipe connections should be located directly behind the bins into the building and not surface mounted running along the exterior façade.
6. Where possible, the location of the storage bins should instead be built into exterior property boundary walls so that the door is flush with the outer face of the wall.
7. All new buildings must have storage bins that are either flush with the exterior building or boundary wall, or be located within the building, or on the property itself.
8. The design must be approved by the proper authorities as to compliance with their technical requirements.



EXISTING: PROTRUDING



EXISTING: FLUSH WITH WALL

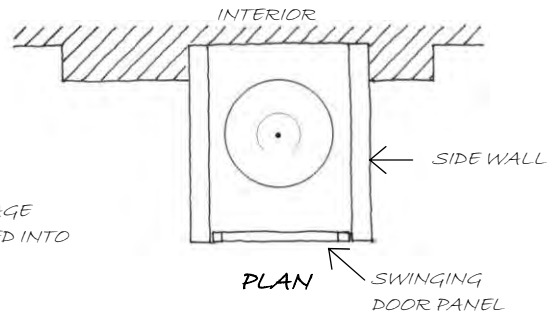
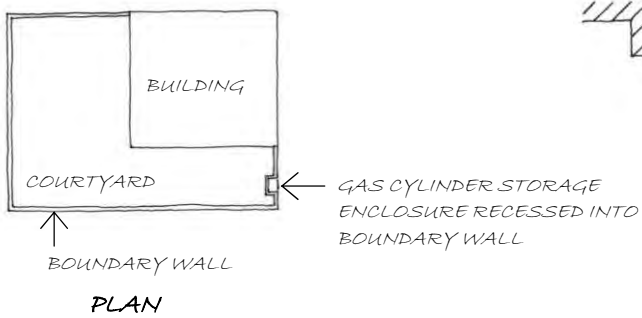
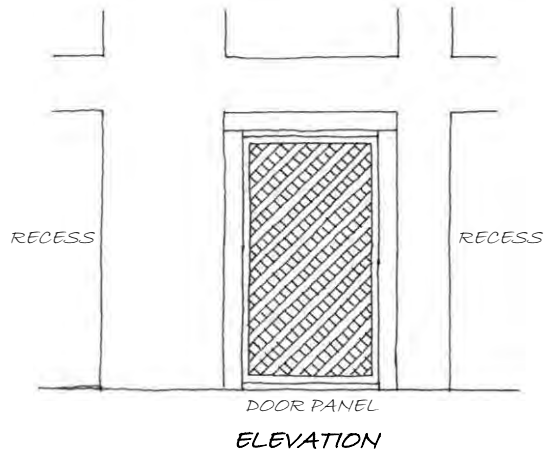
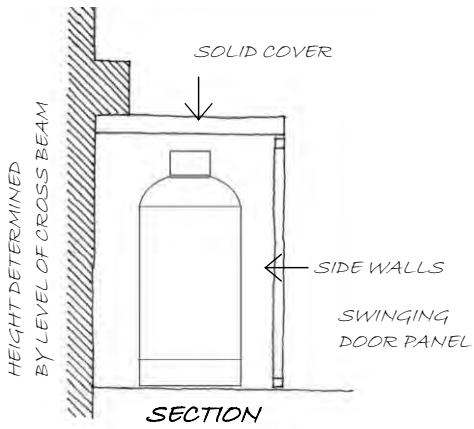


EXISTING: FLUSH WITH WALL



EXISTING: PROTRUDING

PROPOSED SOLUTIONS



Manual of Urban Design, Architecture, and Restoration Codes

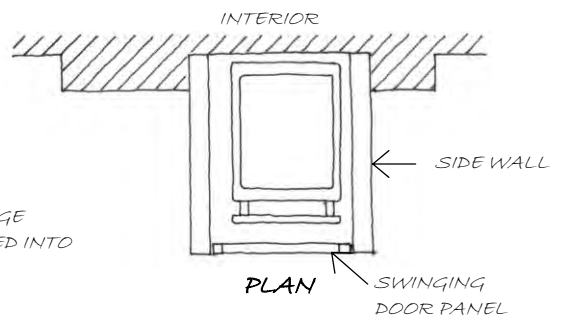
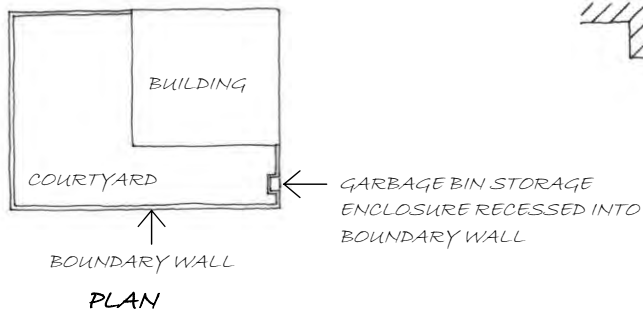
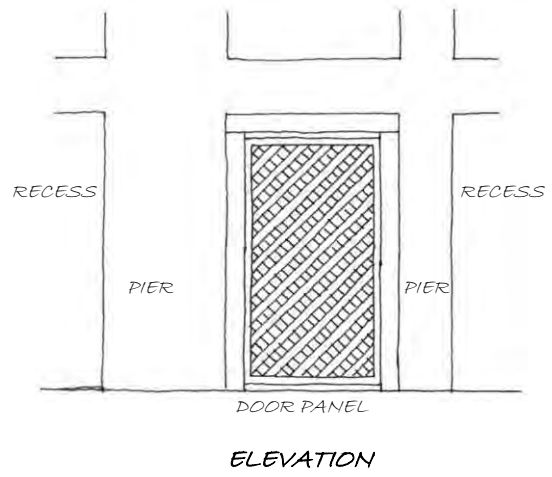
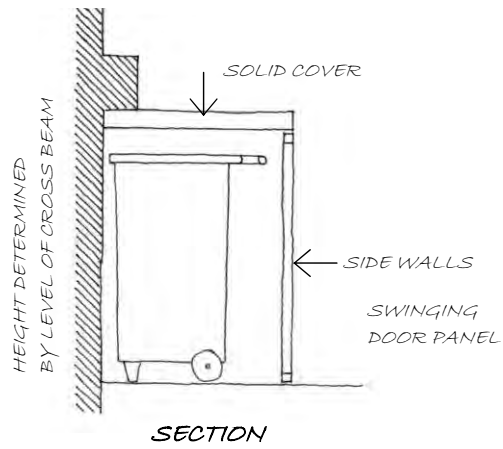
Utilities and Public Services: Individual Garbage Bin Locations

Background: The streets are generally not clean due to uncollected or not properly stored garbage, this is caused by the fact that the bins are too few in number and are of too limited capacity. The bins are unevenly distributed and often separated by great distances. The placement of the bins is often haphazard leading them to be placed directly beneath or adjacent to windows, thus creating unhealthy conditions.

Implementation:

1. Suitable locations in front of existing buildings along the street should be identified for the permanent installation of garbage bins. The number and distances between them should be calculated upon the basis of the number of residents and types of building uses.
2. Storage boxes containing the garbage bins are to be placed in such a manner to be unobtrusive to the visual appearance of the façade, preferably located within the structural grid recess. These boxes can be of a permanent nature: constructed out of block work covered with render, or concrete with a render appearance, color to match the exterior walls of the building. The top of the storage box is to contain no openings. The front of the box is to have a swinging door constructed of timber to a traditional pattern of louvers or open lattice work painted brown, or be of a decorated brown metal panel. The garbage bin can be hung onto the inside of the swinging door for ease of access, or the bin may also stand on the ground within the enclosure. In either case, the garbage bins are to be of the type that meets the technical requirements of the agency or firm responsible for garbage collection.
3. Where possible, the location of the garbage bins should instead be built into exterior property boundary walls so that the door is flush with the outer face of the wall.
4. All new buildings must have garbage bin storage areas that are either flush with the exterior building or boundary wall, or be located within the building, or on the property itself.





Manual of Urban Design, Architecture, and Restoration Codes

Utilities and Public Services: Neighborhood Garbage Collection Points

Background: The streets are generally not clean due to uncollected or not properly stored garbage, this is caused by the fact that the bins are too few in number and are of too limited capacity. In addition, the bins are unevenly distributed and often separated by great distances. Furthermore, large capacity bins with wheels often impinge upon the street and pose a danger to pedestrians and to vehicles.

Implementation:

1. Suitable permanent locations need to be identified for additional garbage bins of suitable capacity. Such locations should be on public property.
2. Such locations can be integrated within parking lots and/or public open spaces.
3. The number of bins to be accommodated depends upon the size of the available space and that space's primary usage.
4. The bins should collectively be enclosed by open screen walls or fences of 1.75 meters height on three sides.
5. If constructed of timber, these screen fences should have a traditional pattern of louvered or open latticework, mounted on appropriately sized timber posts. All timber elements is to be painted a traditional brown tone.
6. If constructed of masonry or concrete, these walls are to have a smooth render appearance and be painted a suitable sand color to match the nearby buildings. Provision should be made to allow vines to grow up the wall to enhance the visual appearance and avoid graffiti.
7. The opening in the wall or fence should be located, if possible, so as to minimize the view from the street into the enclosure.

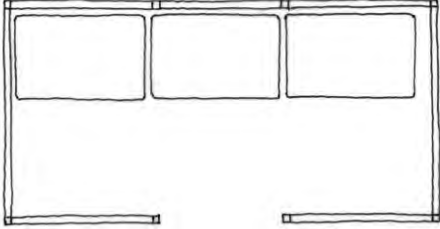


UNATTRACTIVE AND DANGEROUS



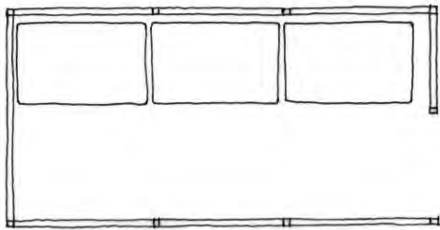
UNACCEPTABLE

PROPOSED SOLUTIONS



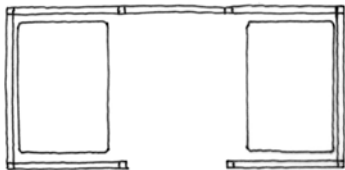
3 UNIT TYPE WITH CENTER OPENING

ACTUAL SIZE OF SCREENED AREA TO BE DETERMINED ON SITE



3 UNIT TYPE WITH SIDE OPENING

ACTUAL SIZE OF SCREENED AREA TO BE DETERMINED ON SITE



2 UNIT TYPE

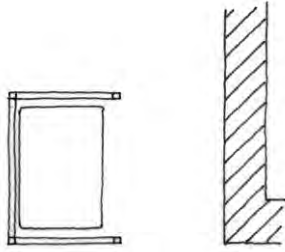
ACTUAL SIZE OF SCREENED AREA TO BE DETERMINED ON SITE

EXISTING BUILDING

SINGLE UNIT TYPE CA. 1.20m

*PLACEMENT TO MINIMIZE PERSPECTIVE VIEW
VIEW OF CONTAINERS*

*OPENING PLACED TO REAR OR SIDE DEPENDING UPON INDIVIDUAL
SITE AND CIRCUMSTANCES*



Manual of Urban Design, Architecture, and Restoration Codes

Utilities and Public Services: Public Utility Installations

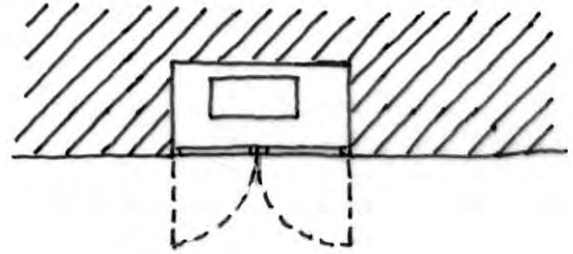
Background: Various utility installations have been built throughout the traditional areas with no thought to design and placement within the urban setting. Often these installations are visually unappealing and are placed in a location that impedes future development and the repair of the urban fabric.

Implementation:

1. Where such installations are not contained within a built structure:
 - 1) Light weight screens are to be constructed of timber and the design is to be based upon the traditional louvered or open latticework pattern.
 - 2) The screens are to be mounted on appropriately sized timber posts which are fixed to an appropriate foundation or anchor as necessary.
 - 3) The screens may be attached to the posts either as lift-out or swinging panel where access is necessary to the equipment. Appropriate distances from the machinery should be taken into account when placing the screens.
 - 4) The height of the screens is to be equal to the highest machine or part thereof, minimum 2.5 meters. The panels are to be evenly spaced if possible.
 - 5) As an alternative, masonry walls without a roof may be built around the installation. The height of the walls is to be equal to the highest machine or part thereof, minimum 2.5 meters. A gate or door may be provided for access, the door is to be constructed of timber and the design is to be based upon the traditional louvered or open latticework pattern
 - 6) Screens and doors are to be painted a traditional brown tone.
2. Where such installations are within a built structure:
 - 1) Trellises of open lattice work design are to be mounted on the walls of such installations where technically allowed, no ventilation or other necessary openings may be covered unless by permission of the utility company.
 - 2) The screens are to be painted a traditional brown color.
 - 3) Provision should be made to allow vines to grow up the wall to enhance the visual appearance and avoid graffiti.

3. Where such installations are located between two buildings:

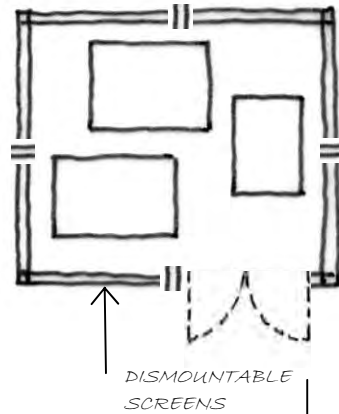
- 1) A timber screen or masonry wall connecting the two buildings is to be erected with a gate or door providing access. All design and material guidelines described above apply.



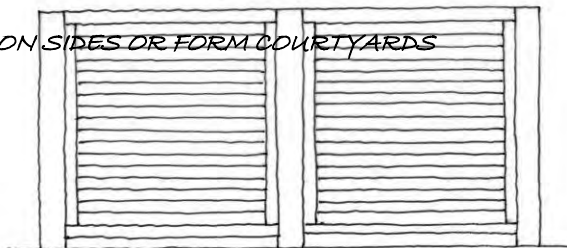
EXISTING UTILITY INSTALLATION BETWEEN TWO BUILDINGS: ADD SCREENS MIN. 3M. HIGH



SCREENS ERECTED AROUND UTILITY INSTALLATION



SCREENS MOUNTED ON SIDES OR FORM COURTYARDS



EXAMPLE OF LOUVERED SCREENS

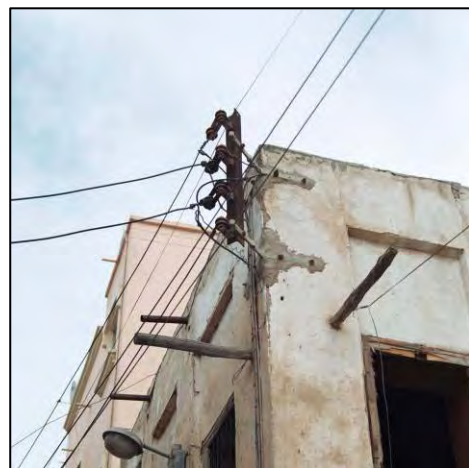
Manual of Urban Design, Architecture, and Restoration Codes

Utilities and Public Services: Public Utility Mains and Street Lights Mounted on Facades

Background: Electrical mains and telephone lines are often surface mounted on the facades of the buildings taking no regard of the composition of the facade thus spoiling the visual appearance of the building.

Implementation:

1. Utilities should be located under the street as is the practice in most urban areas.
2. If the placement of public utilities on the façade of the building cannot be avoided, then the placement should be done in such a way to be as unobtrusive as possible. When more than one wire runs along the building, these wires are to be bundled together, enclosed in a conduit running in a straight line without bowing or bending. This applies to any type of utility. This conduit is to be the same color as the façade. This is the responsibility of the responsible utility authority, not the owner of the building.
3. No wires of any type once they enter the building are to be permitted to re-emerge onto the façade.
4. If streetlights are mounted onto the facades, the lights should be of the same type, design and size, mounted in locations that are most unobtrusive, respecting the composition of the façade. An appropriate design should be selected after consultation with the relevant authority and used throughout the protected areas.



Manual of Urban Design, Architecture, and Restoration Codes

Utilities and Public Services:

Water Meters and Connections to the Mains in the Street

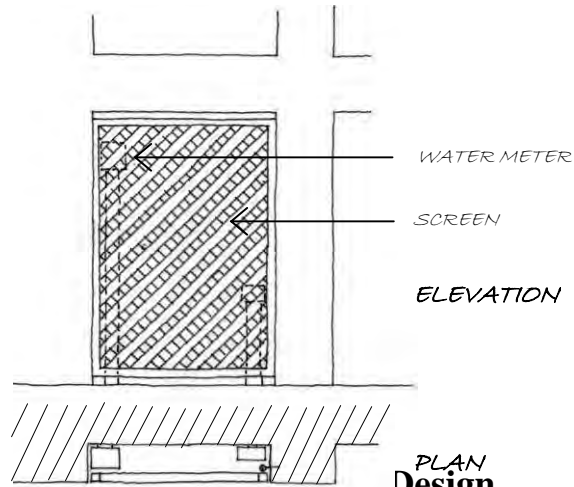
Background: Currently, water connections and meters are located on the exterior of many of the traditional buildings. A vertical pipe rises to a height of approximately 1.5 meters with the water meter fixed to the building at this level. This arrangement spoils the visual appearance of the building.

Implementation:

1. The placement of the water meters onto the façade of the building should be done in such a way to be as unobtrusive as possible.
2. No pipes of any type once they enter the building are to be permitted to re-emerge onto the façade; this includes all plumbing. The only exception is rain water down pipes.
3. The water meter is to be recessed within the wall at a suitable location that does not impinge upon the appearance of the façade, and be covered by a wooden screen of a traditional pattern, either louvered or open latticework, painted traditional brown. The screen can be either a lift-out or swinging for access.
4. The size of the recess and type of meter must be checked with the local utility company as to compliance with their technical requirements.
5. Depending upon the building, it may be necessary to mount the meter to the side of the pier within the recess. Often the walls of the recess are thin stone panels and will be damaged if the meter is affixed to them.
6. If it is not technically possible to locate the meter in the recess, then the meter cover and its pipe must be of the same color of the façade or painted a traditional brown.
7. Where technically possible, it would be recommended to place both the water meter in the same recess as the electric display meter.



EXISTING



PLAN Design, Architecture, and Restoration Codes



SOLUTION

Building Property and Location:
Consolidation of Small Plots

Background: The sizes of the individual properties are in many cases too small, making it often uneconomic to construct new buildings due to their limited sizes. This has led to many properties being left vacant.

Implementation:

1. In the case where two or more adjacent vacant properties exist, the owners may agree to sell or acquire the adjacent property or properties and consolidate them into one larger property under one or joint ownership. The owner(s) may then construct a new building upon the site as allowed under the conservation codes. The composition of the facades of the new building must conform to the architectural guidelines approved for the conservation zones. Care should be taken to ensure that the composition of the facades does not become overly long.
2. In the case where the owner of a traditional building is able to acquire his neighbor's vacant property, he should be allowed to extend his existing building. If this extension is constructed using traditional methods, then the total appearance of the existing and the extension may be that of either one or two buildings. If the extension is constructed of non-traditional materials, then the façade appearance must be of two buildings.



106



PLAN

STREET



NEIGHBORING BUILDING



NEIGHBORING BUILDING



EXISTING SITUATIONS

EXISTING TRADITIONAL BUILDING

VACANT LOT



NEIGHBORING BUILDING

NEIGHBORING BUILDING

EXISTING TRADITIONAL BUILDING

NON-TRADITIONAL MATERIALS



*EXISTING TRADITIONAL BUILDING WITH EXTENSION
IN TRADITIONAL MATERIALS*

Manual of Urban Design, Architecture, and Restoration Codes

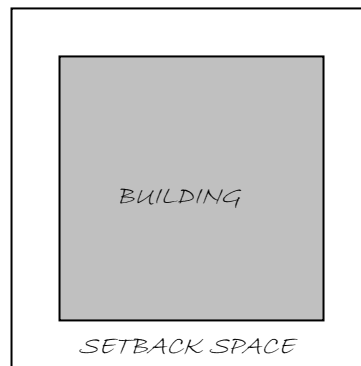
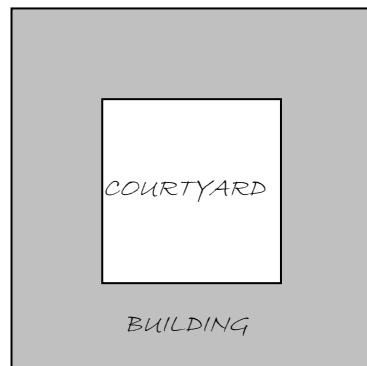
Building Property and Location: Setbacks and Courtyards

Background: Most traditional buildings and/or perimeter boundary walls were constructed on the property without set backs. Thus, the focus of the house was away from the street towards the interior courtyard. This courtyard served as circulation space as well as the main source of ventilation. The arrangement of the rooms was along the property edge, thus creating a large usable space, unlike today's villas which are placed in the middle of the property with set-backs all around which results in narrow strips of useless spaces along the edges. The courtyard house is also more economical than the villa type in terms of materials: the exterior walls of the courtyard type act as the boundary walls themselves, unlike the villa type where the owner must build not only the house but all the boundary walls as well.

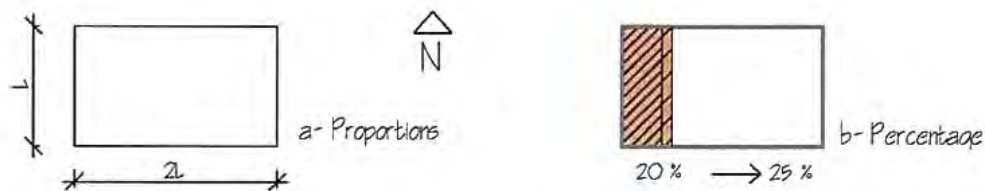


Implementation: Set Backs:

1. Buildings and their perimeter walls must be constructed along the edges of the property lines, no setbacks for either the house or the boundary walls are permitted.
2. The facades of the building that face the courtyard are not considered as setbacks since the boundary wall encloses the space instead of the building.



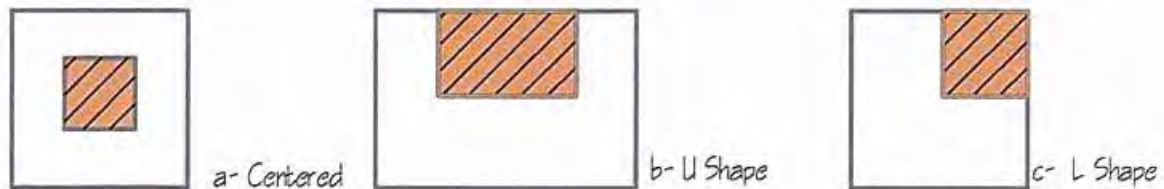
Implementation: Courtyards: Traditionally the percentage of space occupied by the courtyard was between 20% and 50% of the property, with a combination of the building and the boundary wall enclosing it. This percentage is recommended due to the requirements of light and ventilation of the rooms.



SOURCE FOR TEXT AND DRAWINGS: ASSISTANT AGENCY FOR PLANNING

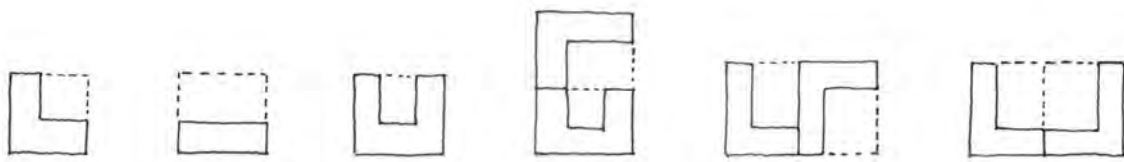
Courtyards can take a variety of forms resulting out of the building's shape:

- The building takes up the entire property; the courtyard is centered within the building.
- The building is U-shaped, leaving a square courtyard between the three building edges and the boundary wall.
- The building is L-shaped, creating a square courtyard in a corner bounded on two sides by the building and on two sides by the boundary wall.



SOURCE FOR DRAWINGS: ASSISTANT AGENCY FOR PLANNING

Courtyards are easily adaptable, especially when two smaller properties are consolidated into one. Often, an owner will purchase the property of his neighbor in order to increase the size of his house. By linking the courtyards together, this expansion is easily carried out without major changes in the buildings themselves. Such expansion is not possible with the modern villa type.



TYPICAL EXAMPLES FOR EXPANSION OF PROPERTIES

Courtyards are environmentally advantageous; they allow large trees to grow, providing shade to the courtyard and house, thus reducing air conditioning costs. In addition, the quality of air is improved and also serves to enhance the visual appearance of the street.



Courtyard house types form the basis of the urban plan in the traditional areas of Muharraq and Manama. In order to repair the urban fabric, this traditional building type should continue to be the basis of construction in these areas. This type of building is the most efficient in terms of useable land, and forms the tight-knit urban fabric that is human scale. This building form aids in the development of a cohesive neighborhood, not only in terms of the built form but in human interaction as well.



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COURTYARD HOUSES CREATE THE TRADITIONAL URBAN FABRIC IN MUHARRAQ

Building Elements: Balconies

Background: Balconies are a traditional element of facades; they help enliven the appearance of the building through its three-dimensionality, as well as having a practical use as a shaded, visually protected external sitting or play area. On many traditional buildings, these balconies have fallen into disuse, disrepair or have been demolished. Often, the only evidence of their former existence is timber beams projecting from the façade. On new buildings, balconies are often provided, but the design is of an inappropriate style, offers no visual protection, and is primarily used as places to dry laundry, thus spoiling the visual appearance of the buildings.



Implementation:

1. It is to be encouraged to repair existing balconies, and to replace them where they have been removed. In the case of traditional buildings, any existing balconies should be repaired in accordance with the original design and materials. Care should be taken that the materials are sound and that the supporting beams are adequate and safe. It is recommended that an inspection be carried out by a qualified engineer before repair works commence. This applies not only to the balcony but to the supporting walls as well.



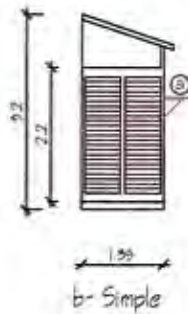
2. *WRAP AROUND CORNER* design facades of new *DECORATIVE TYPE* balconies of suitable size in relation to the building and the street. The design of new balconies must follow the design rules described below. The sizing of the structural elements and treatment of the materials must meet all technical requirements and safety standards.



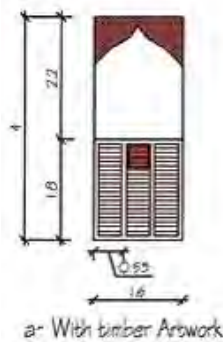
Design Guidelines:

Balconies are of two general types: 1) projecting from the façade and 2) internal.

1. Timber balconies attached to the façade can be broadly categorized in two types: simple or decorative. Both these types may run the length of the main façade, or run around the corner.
 - a) Simple Type: It is modest in its construction and detailing, a simple timber pergola acts as a sunshade. The vertical sides are constructed of timber slat shutters (Mashrabia) which usually contain a small window hinged on top which opens 90 degrees to allow views and communication to the street. The balcony is usually supported by simple timber beams projecting from the façade.

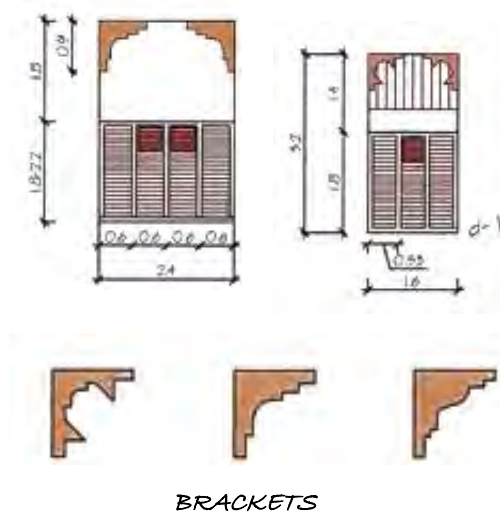


- b) Decorative Type: The dimensions of the *WINDOWS IN SCREENS* are generous than other type, and were usually placed over the main entrance. The timber pergola was highly decorated, and the balcony was sometimes supported by an arched stone frame.



DECORATIVE TYPE

- Internal balconies do not protrude from the façade; instead they are located within the building enclosure on the external roof surface of a lower floor. The roof and its beams continue overhead, but the space is not enclosed by external walls. Instead, privacy and safety are provided by the same type of slat shutters (as found on projecting balconies). The roof beams are often supported from the wall edge and piers by Brackets (Rukniyat) of different styles and levels of detail. In order to provide additional sun shading, additional timber shutters may be installed behind the brackets at high level.



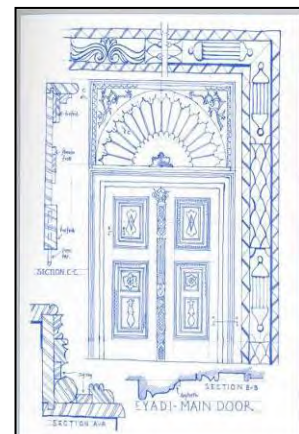
ADDITIONAL SHUTTERS ABOVE SCREEN

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Building Elements: Doors

Background: Doors are an important element of the façade, their design and materials often give the building a sense of identity. Many of the doors of traditional buildings are in a state of disrepair, or have in fact been removed and reused in newly constructed villas in the suburbs as a symbol of the family tradition and heritage.



Implementation:

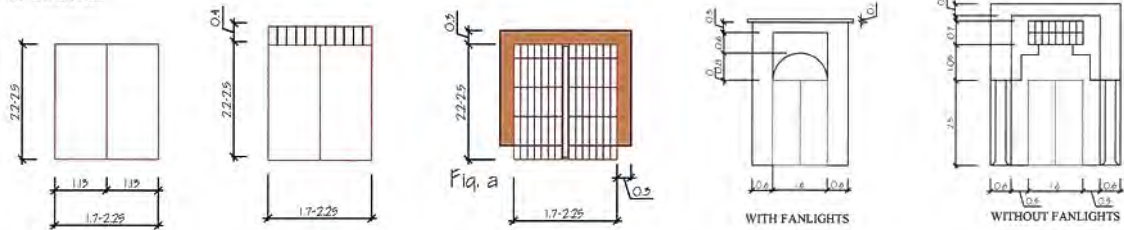
3. It is to be encouraged to repair existing doors using traditional materials and methods, this includes ironmongery. Where the original doors have been removed, doors similar in design, material, and color to the original should be installed.
4. Doors to new buildings and alterations to existing buildings must follow the design rules described below.



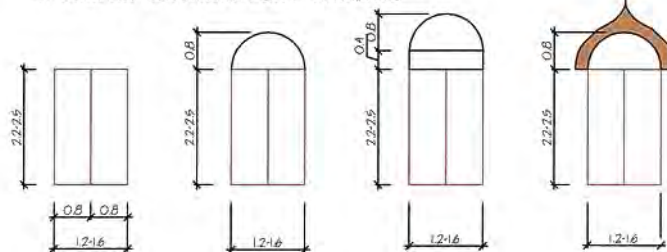
Design Guidelines:

Doors to buildings are to be constructed of timber, preferably oak. No non-timber doors or frames are allowed. The design may be of panels or broad timber slats in a vertical format. Ironmongery should be of a traditional design, painted black. No glazing insets are allowed. Doors may, however, be combined with overhead fanlights.

2. LARGE

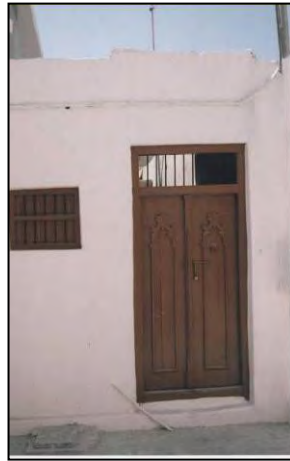


1. SIMPLE SUITABLE FOR FANLIGHTS





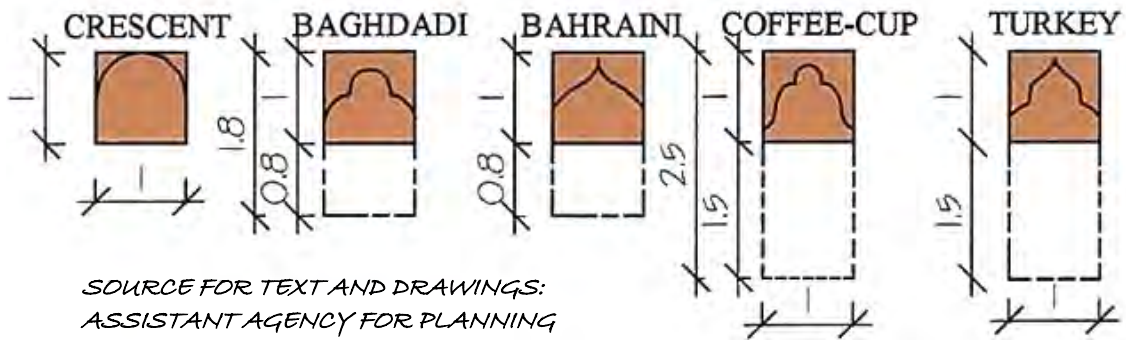
*SOURCE FOR TEXT AND DRAWINGS:
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Design Rules: Decoration

In order to relieve the rigid structural expression of the façade, various methods of ornamentation were developed; some having only a decorative use, others in addition to their visual appeal had a technical function.

1. Decoration on the façade often occurred within external recesses. This decoration took the form of plaster or gypsum arches of various designs and often appeared over doorways:



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**Building Elements:
Elevation Composition**

Background: The traditional buildings in Manama and Muharraq were mostly constructed of materials found locally or nearby. Certain materials, in particular timber, were imported from elsewhere. The master builders of that time created a system of construction techniques recognizing the inherent strengths and weaknesses of the

materials, their availability, and suitability for the climate and social customs of this region.

This system is composed of elements that are easily recognizable. However, their usage, placement, and composition are never repetitious; each building is unique to its setting and its requirements. The combination of these elements into a well mannered composition that responds to the owner's needs and the immediate surroundings is testament to the skill of the master builders. These individual compositions, by responding to their neighboring buildings, formed a harmonious whole, the result which is to be seen in the traditional core areas of Manama and Muharraq.

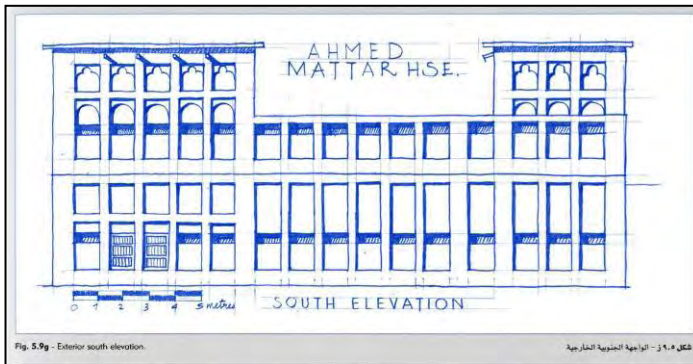
Objective: This system of composing elements to create buildings that respond to their usage, materials, surroundings, and to the climate can and should still be used in these core areas. This system can be applied to traditional construction methods and techniques, as well as to modern materials and techniques, to existing buildings and to new buildings, from houses to commercial structures. This system is flexible and responsive; it is as modern as any western system, but is deeply rooted in Bahraini tradition and society. When used properly, this system will allow the new to blend in seamlessly with the existing, enhancing the concept of local identity and pride.

The System: The system is composed of two parts: 1) the individual elements and their proportions, and 2) the method of arrangement of the individual elements into a harmonious composition.

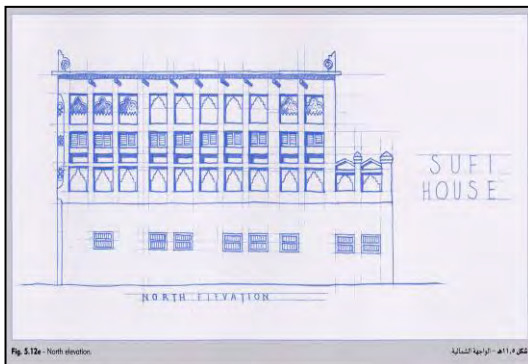
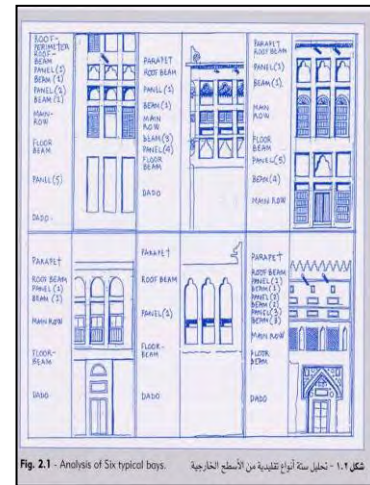
1. The Individual Elements: these consist of the following broad categories: Balconies, Doors, Garages, Parapets, Screens, Shop Fronts, Shutters, Signage, Windows, and Walls. These individual elements are based on a system of proportions originating out of the necessary construction dimensions of the materials. Their arrangement is based on the inherent proportions of the structural system, the location of rooms behind the façade, and the placement of windows and doors in response to their neighbors. Guidelines and codes have been developed for each of these elements which should be used in combination with these guidelines for their arrangement and composition on the façade.
2. The Method of Arrangement: The traditional system is based on the following concept: each element of the building is expressed individually; there is no attempt to create a coherent external architecture. The result is that the elevation becomes an expression of the individual elements which through their placement make the building readable as to what is going on inside behind the walls.

Structural Grid: Holding the elements together is an underlying structural grid system which may or may not be expressed and was based on the strengths of the materials. This system was composed of the load bearing piers and beams, and infill areas

between them consisting of panels, windows, badgir, etc. organized into a strict orthogonal grid. The piers were commonly 70cm wide x 70 cm deep at the corners, with minor piers of 35 cm wide by 70 cm deep interspersed. The beams at floor levels were usually up to 70 cm high. Minor cross beams, located between the floor levels, could be 10 cm – 25 cm in height. The spacing between the piers was commonly 1 meter wide, but the height between floors could vary significantly. Room heights were up to 4 meters; this allowed badger to be placed at low levels bringing cooling air in to the room, forcing the warm air to rise. Often, decorative panels were inserted in the walls at high level to allow the warm air to escape.



SOURCE: JOHN YARWOOD



Within the infill areas, a variety of elements are to be found, ranging from windows and doors, to badgir, to decorated gypsum panels, to simple recessed panels with or without decorative arches, etc. These elements are best documented by the following table:

MERLONS														
BRACKETS														
ARCH FORMS														
VOIDS														
RECESSED PANELS														
INCISED PANELS														
MOULDINGS														
DOORS														
WINDOWS														

Fig. 2.3 - A lexicon of realisations of elevation features.

شكل ٢.٢ - مسرد بملامح الواجهات

SOURCE: JOHN YARWOOD

Additional elements such as projecting balconies and internal balconies give a building a three dimensional quality. These balconies are also placed with respect to the grid system; their height and length are determined by the dimensions between the beams and columns. Thus, the strict grid system was relieved of its harshness and rigidity through functional elements which were often highly decorative.

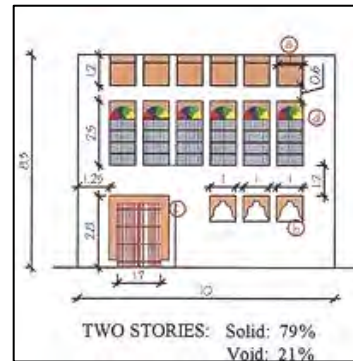


When closely observed, it is to be seen that there is a variety of elements located within the infill panels. It is very rare that the panels are identical across the façade; this is due to the fact that different rooms and functions are occurring behind those panels. Different

buildings also have different room heights; affecting the proportions of the panels and the number of elements placed within them. Thus, no two façades are identical; each maintains its interest and individuality.



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Thus, proportions and examples for the individual elements as well as for the structural grid system can be given, but a set of elevation patterns cannot be developed since this system is designed to respond to the requirements of the individual site.

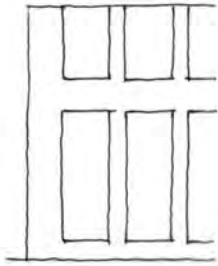
The Arrangement and Composition of the Elevation Today: Due to the introduction of air conditioning, the function of many of the traditional elements such as the badgir has been lost. Windows now have glass to keep the cool air in, but the internal room heights in traditional buildings, once purposely generous in order to create cross ventilation and to guide the warm air upwards, are now a disadvantage, making the cooling of such internal room volumes expensive.

Modern standards have reduced room heights from anywhere between 2.50 meters to 3.00 meters generally. This is advantageous not only for the cooling of the space, but saves on construction costs as well, making houses more affordable.

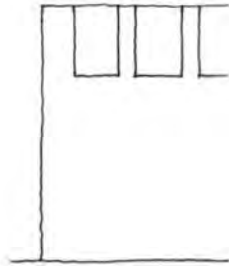
This change in room heights will be reflected in the proportions of the structural grid system for new buildings. However, the system is still ideally suited for modern construction methods and materials. Reinforced concrete and block work construction both use the pier and infill concept. In addition, pre-fabricated units are well suited to such an orthogonal grid system.

The general heights of traditional buildings are 10 – 11 meters for a two storey building including its parapet on the roof. This height is the equivalent today of a three storey building.

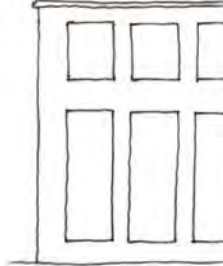
The following sketches show the variety of traditional buildings, ranging from one and two storey structures both residential and commercial, to a new three storey building with today's reduced floor to floor heights:



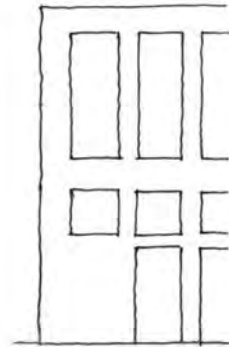
TWO STOREY
TRADITIONAL



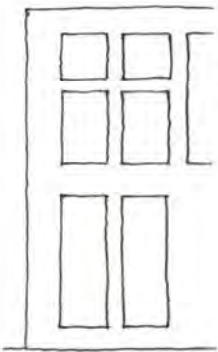
ONE STOREY
TRADITIONAL
W/ROOF TERRACE



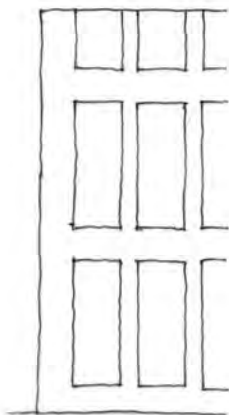
ONE STOREY
TRADITIONAL
W/ROOF TERRACE



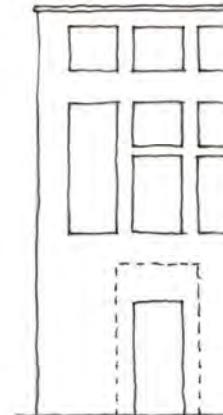
TWO STOREY
TRADITIONAL
NO ROOF TERRACE



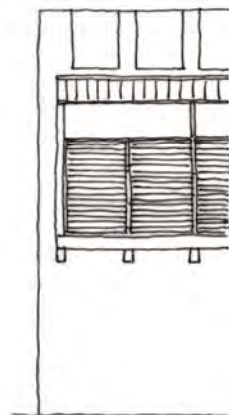
TWO STOREY
TRADITIONAL
W/ROOF TERRACE



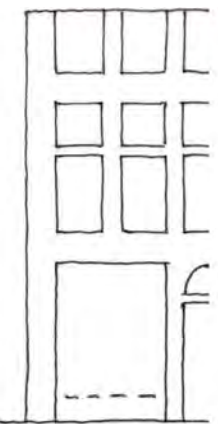
TWO STOREY
TRADITIONAL
W/ROOF TERRACE



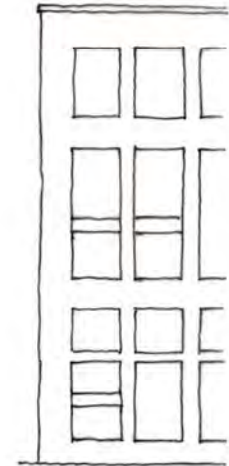
TWO STOREY
TRADITIONAL
W/ROOF TERRACE



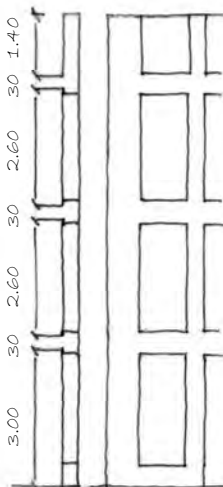
TWO STOREY
TRADITIONAL
W/BALCONY



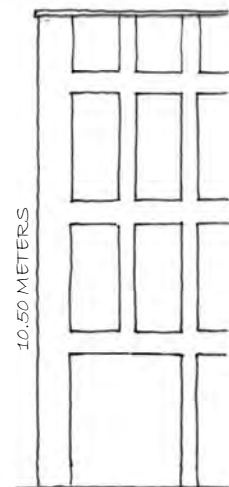
TWO STOREY
TRADITIONAL MIXED-USE
W/ROOF TERRACE



THREE STOREY
TRADITIONAL NO
ROOF TERRACE



THREE STOREY
NEW RESIDENTIAL
W/ROOF TERRACE



THREE STOREY
NEW MIXED-USE
W/ROOF TERRACE

These sketches demonstrate that by using the traditional orthogonal grid system, new buildings can be designed to blend in seamlessly with the existing traditional buildings, while being economic to build and operate.

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Building Elements: Garages and Courtyard Parking

Background: There is a high demand for parking spaces within the traditional core areas. However, the existing passages are often not wide enough for vehicular traffic, and no provision for parking on the individual property was made since the buildings were constructed before the advent of the automobile.

Implementation: In order to meet the demand of parking either on or near to a resident's dwelling, parking spaces on that resident's individual property should be allowed where the size and location of the street is deemed adequate for vehicular access. These parking spaces may take the form of a garage for a single car, or parking within the courtyard, accessed from a single point of entry. This applies for existing as well as new buildings.

1. Garage:

- a) A garage for a single car may be constructed within the building itself or attached behind the property boundary wall with its door flush with the front of the building/wall.
- b) The garage may be of any width, but the height of the garage must be in proportion to the ground floor façade.
- c) The garage may have only one door, maximum 3 meters wide. The height of the garage door must be in proportion to the other doors and windows of the façade. The door is to resemble traditional two leaf shop front doors, constructed of timber with broad planks arranged vertically. The door leafs may swing either in or out. However if they swing outwards, no danger may ensue for passing pedestrians or vehicles.



DOUBLE WIDTH DOOR PROHIBITED



DOUBLE LEAF DOOR TO GARAGE

- d) Alternatively, the garage door may be of a roller shutter type, constructed of thin timber slays arranged horizontally. This roller shutter may not be mounted on the external surface of the façade, instead they must be built into the lintel or mounted on the inside wall of the garage.

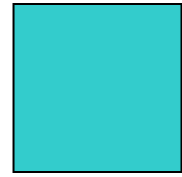
- e) The colors of such doors and roller shutters are to be a traditional brown, sea-green, or sea-blue.



Sea-



Traditional



Sea-

2. Courtyard Parking:

- a) Vehicles may be parked within the courtyard in an appropriate manner.
- b) Vehicle access to the courtyard is allowed through a single gate, maximum 3 meters wide placed in a suitable location in the boundary wall. The height of this wall is to be a minimum of 3 meters. The height of the gate may also be 3 meters and without a lintel. In this case the gate is to resemble traditional two leaf shop front doors, constructed of timber with broad planks arranged vertically. The door leafs may swing either in or out, however if they swing outwards no danger may ensue for passing pedestrians or vehicles. If the height of the opening is less than 3 meters, then a lintel is necessary. In this case, the gate can either be of the shop front type or the roller shutter type as described above, and painted a traditional brown, sea-green, or sea-blue.



DOUBLE LEAF DOOR TO COURTYARD PARKING

Manual of Urban Design, Architecture, and Restoration Codes

Building Elements Parapets and Roof Details:

Background: Parapets protected the building's inhabitants from view, especially during very hot weather when they would sleep out on the roof terrace. A certain type of parapet named Badgir was constructed with offset panels separated by a gap which captured and directed any breeze down to the roof terrace floor where the people would be sitting or sleeping, a natural form of air conditioning requiring no power or mechanical equipment. Today, with the advent of air conditioning, no one will return to sleeping out on the terrace. However, parapets still serve useful purposes in regards to visual privacy when the terraces are used for non-sleeping uses, safety for children and adults, as well as visually blocking the view of roof mounted technical devices such as water tanks, air conditioning units, etc.,

Implementation:

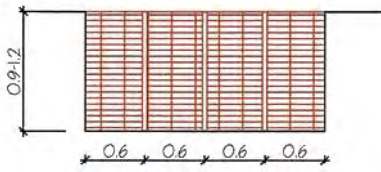
1. It is to be encouraged to repair existing parapets using traditional materials and methods. Where they have been removed, parapets similar in design, material, and color to the original should be installed.
2. Parapets of new buildings and of existing buildings that require alterations must follow the design rules described below.

Design Rules: Parapets

Parapets are of three types: 1) solid panels between masonry piers, 2) timber screens between masonry piers, and 3) Badgir.

1. Solid Panel: This type consists of smooth, plain, thin panels set between piers. The piers are spaced in accordance with the structural grid of the floors below, typically at 0.9 – 1.2 meter intervals with a height of between 0.9 and 1.2 meters above the surface of the roof terrace. The panel's interior face is flush with the interior face of the pier, the difference in the thickness of the panel and pier creating a deep reveal on the street elevation. The top edge of the panels is flush with the piers. The panel is the same color as the pier and exterior façade.





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ASSISTANT AGENCY FOR PLANNING*



3. Badgir: Badgir are similar to the solid panel type except that the panel is split in two horizontally. The upper panel is usually flush with the inside face of the masonry piers, the lower panel is placed forward of the upper panel so that an air gap of approximately 15 centimeters exists between them. The panels' height overlaps one another by approximately 15centimeters.



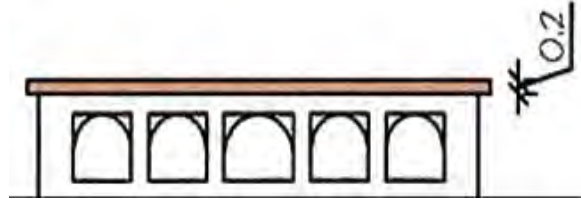
Typical Roof Terrace Badgirs



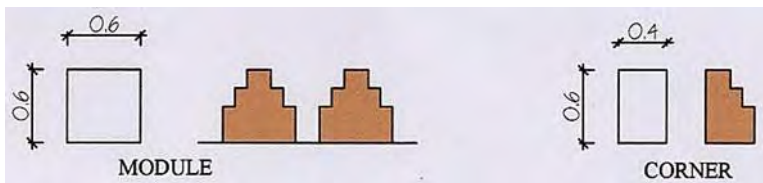
Design Rules: Roof Details

Parapets developed several detailed features, the most common being a coping with or without Merlons.

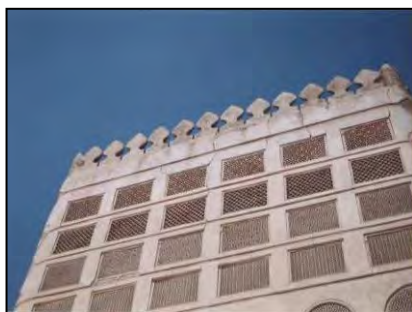
1. Coping: lintels that are as wide as the piers are often used to span the tops of the panels and piers of a pediment, creating a coping which gives the pediment a uniform appearance. Due to the reveal of the panels, this creates a recess towards the exterior façade. This recessed panel may be decorated with plasterwork arches of a variety of traditional patterns.



2. Decorative elements known as Merlons or Hamaem are commonly found on top of the parapets of traditional buildings. These have various traditional patterns ranging from simple squares to curved crests. They are located at the corners, and on more prominent buildings, run the length of the façade.



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Building Elements

Screening of Roof Mounted Technical Devices:

Background: Roof mounted air conditioning units, water tanks, gas cylinders, etc. spoil the visual appearance of traditional buildings. In many cases, the building's parapet is not high enough neither to block the pedestrian's view from the street nor from an upper storey window of nearby buildings.

Implementation:

4. Light weight screens are to be constructed which hide roof mounted mechanical installations. This rule applies when no parapet of appropriate height is present to block the view of the roof mounted machinery from street level or from a neighbor's upper storey window. This applies to existing buildings and to new buildings.
5. The screens are to be of timber and the design to be based upon the traditional louvered or open latticework pattern.
6. The screens are to be mounted on appropriately sized timber posts attached to the roof. Care must be taken so that the attaching of the posts to the roof terrace surface does not cause any damage that may lead to leaks during rain.
7. The screens may be attached to the posts either as lift-out or swinging panel where access is necessary to the equipment. Appropriate distances from the machinery should be taken into account when placing the screens.
8. The height of the screens is to be equal to the highest machine or part thereof. This does not include satellite dishes. The panels are to be evenly spaced if possible.
9. The screens may be painted a traditional brown, sea blue or sea green are also traditional colors.



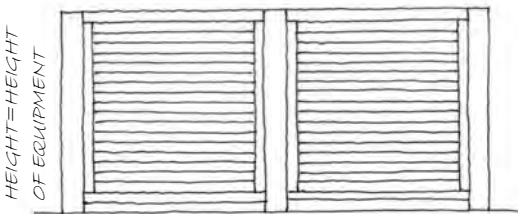
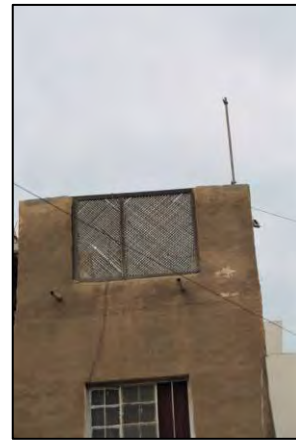
EXISTING CONDITIONS



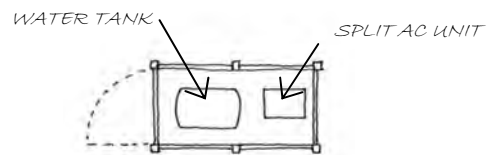
PRAPET HIDE EQUIPMENT



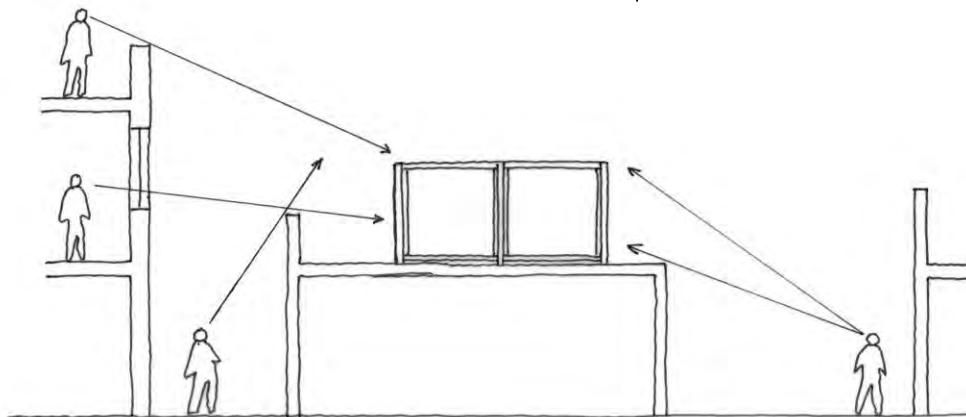
EXAMPLES OF EXISTING SCREENS



SCREENS EVENLY SPACED



SWING OR DEMOUNTABLE PANELS



WITH PARAPET

WITHOUT PARAPET

Manual of Urban Design, Architecture, and Restoration Codes

Building Elements:

Screening and Placement of Wall Mounted Air Conditioning Units

Background: The installation of wall mounted air conditioning units onto the facades of the buildings is often below 2.00 meters above ground level, thus causing excess heat generation within the street and poses a physical danger to passers-by. When no existing window is present, walls have had simple holes punched out. Where windows do exist, no protection of the bottom sill has been provided. In both cases, the wall materials are not suited to the vibration of the machines and thus tend to crack and fall apart. In addition, condense water often runs down into the walls causing further damage. The placement of the units as well as the design of the unit itself often take no regard of the composition of the façade and thus spoils the visual appearance of the building.

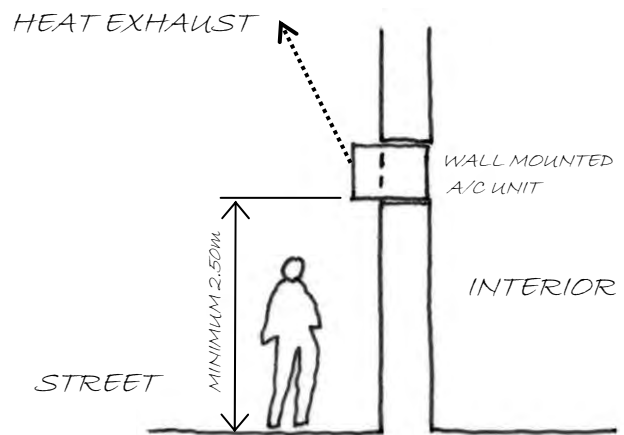
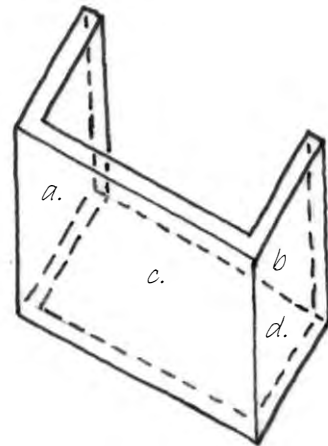
Implementation:

1. The placement of wall mounted air conditioning units onto the façade of the building should be done in such a way to be as unobtrusive as possible. The existing structural grid pattern shall be used as a guideline for placement. The bottom of the air conditioning unit shall not be located below 2.5 meters above street level.
2. The units shall be placed behind a screen constructed of timber in a latticework or other traditional pattern. This screen is to have two sides, a front, and a bottom. The bottom of the screen may be slightly below the 2.5 meter level.
3. The screens are to be painted a traditional brown.
4. All appropriate protective measures are to be taken to prevent damage to the walls constructed of traditional materials. This includes protecting the window sills from vibration damage as well as the wall from condense water emanating from the air conditioner.
5. If the air conditioner is located within a structural recess, a flat screen that fills the entire recess may be substituted. However, this screen may not protrude beyond the recess. The screen must meet the design standards described above.





- a. SIDE
- b. SIDE
- c. FRONT
- d. BOTTOM



SPLITS ARE ALSO TO BE SCREENED



NON ACCEPTABLE PATTERN

Manual of Urban Design, Architecture, and Restoration Codes

Building Elements: Shop Fronts

Background: Shop fronts are an important element of the façade; their design and proportion give the building a sense of identity and serve to attract customers to the businesses located within the building. Many of the shop fronts of traditional buildings are in a state of disrepair, often have been altered, and are visually unappealing. The shutters used on the shop fronts are often not of traditional design and lead further to the unattractiveness of the building and street.

Implementation:

5. It is to be encouraged to repair existing shop fronts; this includes using traditional materials and methods for doors and windows including ironmongery. Where the original doors have been removed, doors similar in design, material, and color to the original should be installed. Where the proportions of the shop front opening have been unsuitably altered, this should be corrected.
6. Doors to new buildings must follow the design rules described below.



Design Guidelines:

1. Shop fronts to buildings should be in proportion to the other doors and windows of the façade, and respect the structural grid system. Shop front windows may not exceed 2 structural bay widths (maximum 3 meters). The shop front door may be placed within these two bays, or placed in the next bay separated from the shop front window by either a major or minor wall pier. In either case, the overall opening in the wall for the shop front window must be either square or have a vertical format.
2. Doors, door frames, and window frames are to be constructed of timber. No non-timber doors or door/window frames are allowed. Ironmongery should be of a traditional design, painted black. Large glazing insets are allowed in doors, but glass doors are prohibited.

3. Doors and windows may have shutters. The shutters are to resemble traditional hinged and/or folding suq shutters, constructed of timber with broad planks arranged vertically. The door leafs should fold back against themselves so as not to protrude into the Fina. No glazed insets are allowed. However, open timber lattice work or other traditional patterns may be inserted to allow passersby to view the goods on display during non-business hours.



SOURCE: JOHN YARWOOD

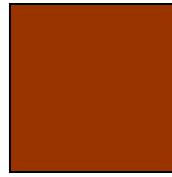
4. Alternatively, the shutters may be of a roller shutter type, constructed of thin timber slays arranged horizontally. This roller shutter may not be mounted on the external surface of the façade, instead they must be built into the lintel or mounted on the inside wall of the garage. Metal, aluminum and plastic roller shutters are not permitted.



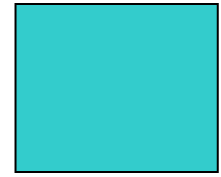
5. The colors of such doors and roller shutters are to be a traditional brown, sea-green, or sea-blue.



Sea-green



Traditional



Sea-blue

6. Iron screens in a traditional decorative pattern may also be used as window and door shutters. These are to have a vertical format, and may fold against themselves sideways along a metal track. This track must be flush with the lintel and floor; no surface mounted tracks are permitted. Iron screens are to be painted black, traditional brown, sea-green, or sea-blue.

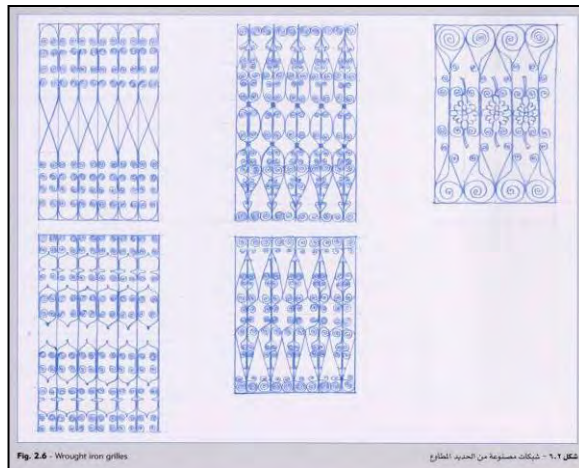


Fig. 2.6 - Wrought iron grilles

شكل ٢.٦ - شبكات مصنوعة من الحديد المطاوع

SOURCE: JOHN YARWOOD

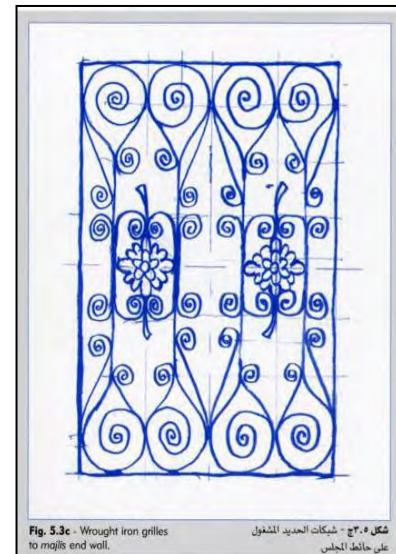


Fig. 5.3c - Wrought iron grilles to majo's end wall.

شكل ٥.٣.ج - شبكات الحديد المشغول على حائط الجبس

IRON SCREENS

Manual of Urban Design, Architecture, and Restoration Codes

Building Elements: Signage

Background: The visual appearance of street signs and commercial signs throughout the traditional areas of Muharraq and Manama are often inconsistent, visually unattractive, or non-existent. There is also no visual indication that these are special zones of traditional heritage.

Implementation:

1. Street signs within the conservation zone should adopt the brown background color and the same font of white lettering as the current national heritage signs. This is the standard for street signs in many parts of the world in conservation zones and is quickly and easily recognizable to visitors.
2. All new commercial signs on all buildings located along non-commercial roads are to be painted on timber and front lit. Alternatively, individual letters may be surface mounted on to the façade. No protruding box, back-lit signs are to be permitted. This applies to all buildings, not just to those of traditional design and construction.
3. The size and placement of the signs, along with the design and type of the lighting should respect the visual composition of the façade.
4. Diversity and creativity of signs should be encouraged, but operate in a regulated framework.



FRONT LIT SURFACE MOUNTED SIGNS



STREET SIGNS



BACK LIT SIGNS PROHIBITED

Manual of Urban Design, Architecture, and Restoration Codes

Building Elements: Shading of Roof Terraces

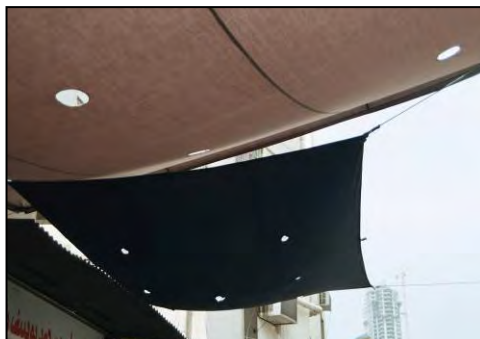
Background: Often light metal or other materials have been used to construct structures on roof terraces to provide shade. This has in many cases taken no regard of the composition of the façade and has led to the spoiling of the visual appearance of the building.

Implementation:

1. Shading devices may be used on the roof terraces. These may take the form of suspended canopies made of canvas or any other suitable fabric. These canopies may be hung from existing rooms on the roof terrace, or from timber posts of an appropriate dimension fixed to the roof terrace. Care must be taken so that the attaching of the posts to the roof terrace surface does not cause any damage that may lead to leaks during rain. The posts are to be painted a traditional brown color. The color of the fabric may be of any solid color, no patterns are allowed. Small openings within the fabric are allowed in order to lessen the wind pressure exerted
2. Metal or plastic roof coverings used to shade a roof terrace are prohibited, and if exist, must be removed.



Metal Roof Structures Spoil Appearance



Canvas Awnings

Manual of Urban Design, Architecture, and Restoration Codes

Building Elements: Walls

Background: Walls transfer the load of the building to the foundation. In order to be economical with building materials, traditional buildings evolved from using thick solid walls to a skeleton grid system employing major and minor piers spaced at even intervals, tied together with beams at various levels with thin recessed panels filling the spaces in-between. Sometimes these panels were split to create Badgir, allowing breezes to enter the rooms behind.

This structural grid system was often left to express itself honestly, other times, particularly at the ground level; the panels were placed towards the front of the pier to create a flush exterior face, while being recessed on the upper levels.

Windows were substituted for the panels where needed, mostly in the upper floors due to issues of privacy, usually filling the entire space between pier and beam.

The play of solid to void and of flush to recess give these traditional buildings a three-dimensional quality through their massing and the effects of light and shadow.



Implementation:

3. On buildings of traditional construction, it is to be encouraged to repair existing walls using traditional materials and methods where they have been found to be damaged, or altered through the use of non-traditional materials.
4. Walls of new buildings and alterations to existing buildings must follow the design rules described below in order to create a harmonious relationship within the protected areas.



Design Rules: Walls

Walls consist of the structural piers and beams. Between these elements, panels are placed either flush with the exterior, flush with the interior (creating recesses towards the exterior), or positioned in-between. Walls (piers, beams and panels) of new buildings may be of traditional coral stone, or of modern materials such as block work, reinforced concrete, or even pre-cast concrete panels. The exterior must have a smooth render finish of a suitable type and depth to avoid cracking due to different thermal properties between the wall material and the render; this includes joints between concrete panels. The render is to be painted white or a suitable earth tone that blends in with the neighboring buildings.



Design Rules: Panels

Panels may be of three types: 1) undecorated, or 2) Badgir.

1. Undecorated: These panels are to have a smooth render finish.



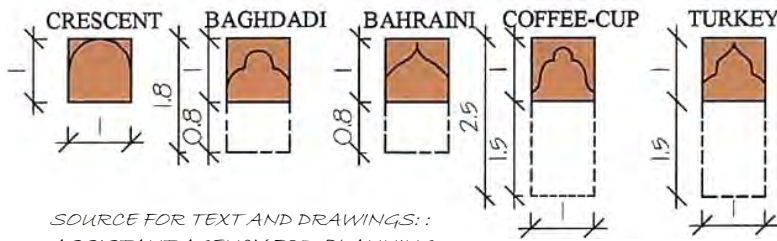
2. Badgir: Similar to those on roof terraces, Badgir were often used in the ground level and upper levels instead of windows for reasons of privacy but still allowing the room to receive cooling breezes. Badgir are similar to undecorated panels except that the panel is split in two horizontally. The upper panel is flush with the inside face of the masonry piers, the lower panel is placed forward of the upper panel so that an air gap of approximatelycentimeters exists between them. **The panels' height overlaps one another by approximately ... centimeters.** Timber slats which could be opened or closed depending upon the weather were usually installed on the inside of the air gap between the panels.



Design Rules: Decoration

In order to relieve the rigid structural expression of the façade, various methods of ornamentation were developed; some having only a decorative use, others in addition to their visual appeal had a technical function.

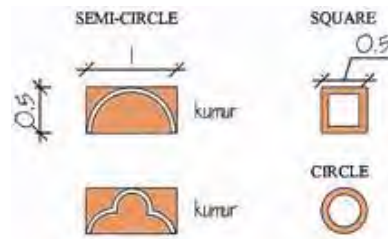
2. Decoration on the façade often occurred within external recesses. This decoration took the form of plaster or gypsum arches of various designs:



SOURCE FOR TEXT AND DRAWINGS: : ASSISTANT AGENCY FOR PLANNING.



3. Another decorative element is carved plaster or gypsum panels recessed into the wall at various locations. Often, these panels were inserted at high level into a thin wall, allowing air to pass through their intricate design and enter the room behind. Their use is encouraged, and may be constructed out of any suitable material resembling plaster or gypsum.



SOURCE FOR TEXT AND DRAWINGS: ASSISTANT AGENCY FOR PLANNING.



Manual of Urban Design, Architecture, and Restoration Codes

Building Elements: Windows and Shutters

Background: Windows and their shutters are important elements of the façade, their design and proportions determine the rhythm and appearance of the building. Many of the windows and shutters of traditional buildings are in a state of disrepair, altered by the insertion of wall mounted air conditioning units, or have in fact been removed and the openings filled in with non-traditional materials.



Implementation:

5. It is to be encouraged to repair existing windows and shutters using traditional materials and methods, this includes ironmongery. Where they have been removed, windows and shutters similar in design, material, and color to the original should be installed. Formerly windows were without glass. With modern air conditioning, it is acceptable to insert clear glass in the window to prevent the escape of cool air.

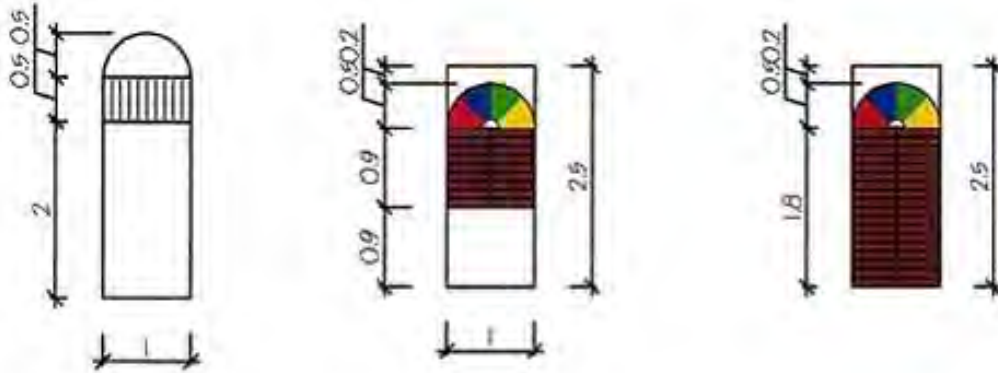


6. Windows and shutters to new buildings and alterations to existing buildings must follow the design rules described below.

Design Guidelines: Windows

Windows are of two types: 1) normal and 2) fan lights.

1. Windows are to be constructed of timber and painted/stained a traditional brown color. Non-timber window frames are prohibited. The proportion of window openings must be either square or vertical; typically the height is two times the width. A deep reveal to provide shade is recommended.



2. Windows may be combined with overhead semi-circular fanlights.



3. Fan Lights may be placed above doors and windows, and are to be semi-circular in form. Fan lights may contain clear or colored glass; traditional glass colors are red, yellow, green, and blue. Traditional types of fan lights are described below:



SOURCE FOR TEXT AND DRAWINGS: ASSISTANT AGENCY FOR PLANNING

Design Guidelines: Window Shutters

Window shutters provided visual privacy as well as protection from direct sunlight. They may be constructed of timber; painted or stained the same color as the window frames. They may be simple horizontal louvers, or may be of a decorative pattern. Timber shutters are to be fixed to the interior of the window reveal.

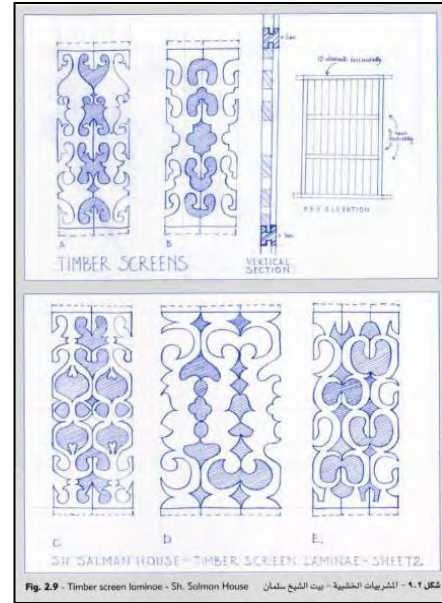
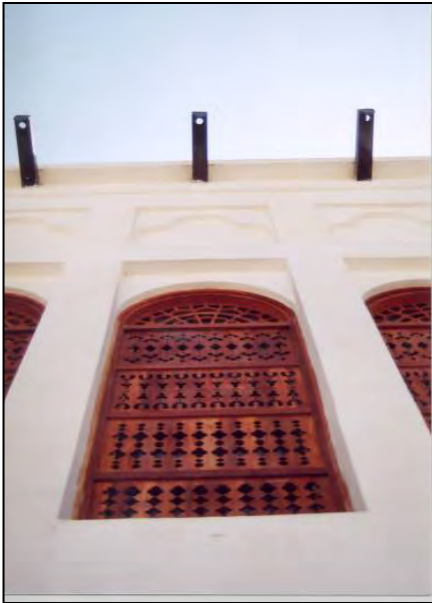
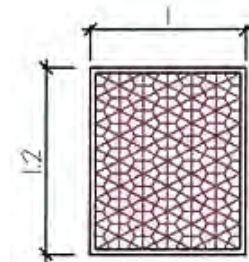


Fig. 2.9 - Timber screen laminae - Sh. Salman House

SOURCE: JOHN YARWOOD



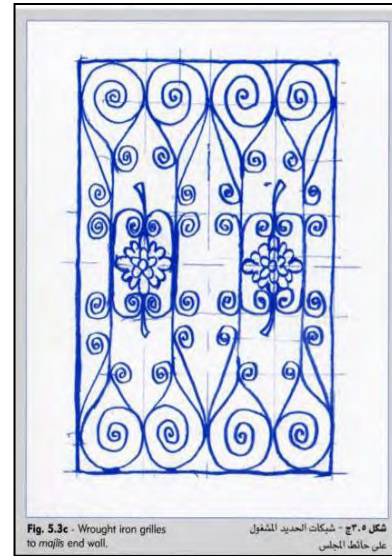
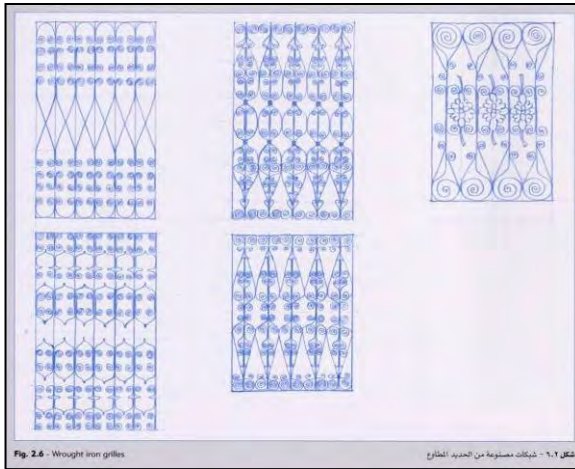
a TIMBER

SOURCE FOR DRAWINGS:
ASSISTANT AGENCY FOR PLANNING



Design Guidelines: Ironwork Window Screens

Iron window screens provide protection from entry from lower floors, and prevent children from accidentally falling out of upper storey windows. Such screens may be of iron to a decorative traditional pattern or simple bars in a vertical format, painted black. Ironwork screens are to be fixed to the exterior reveal and be flush with the exterior façade. Ironwork screens can be combined with timber shutters as illustrated.



SOURCE: JOHN YARWOOD



IRON WORK COMBINED WITH TIMBER SHUTTER



NON TRADITIONAL STYLE PROHIBITED



United Nations
Development Program



Kingdom of Bahrain



Ministry of Municipalities
and Agriculture Affairs

مشروع

بناء القدرات لتحسين الإدارة الحضرية
(الحفاظ على المناطق والمباني التراثية)
المرحلة الأولى: الاستراتيجيات والسياسات

**Capacity-Building for Enhancement
Of Urban Governance**
(Conservation Urban and Architectural Heritage)
Stage One: Strategies & Policies

Control, Management, and Coding Report
Prof. Besim S. Hakim,
(FAICP, AIA)

February 2006

Control, Management, and Coding Report

Besim S. Hakim, FAICP, AIA

The approach for control, management and coding for built environment in the traditional sectors of Muharraq and Manama suggested by this consultant is based on creating a contemporary version of the traditional system that created those areas in the first place. The following insight is useful for understanding the underlying mechanism that generated traditional towns, like Muharraq and Manama, in comparison to towns that were planned and built since around the mid-20th century in Bahrain. The latter were based on a static plan in the form of a blueprint, commonly known as a “master plan”, that describes what needs to be done. Whereas a generative program, such as the one proposed here for the revitalization of Muharraq and Manama, describe implementation as a process and includes instructions on how to do so. In essence a generative process tells us what to *do*, what *actions* to take, step by step, to build or revitalize buildings, rather than detailed drawings that tell us what the *end*-result is supposed to be. Such a generative process was a part of the production process of traditional Bahraini society.

Therefore, to truly revitalize and preserve the cultural integrity of the historic sectors of Muharraq and Manama we must create the conditions that will allow a generative process to function and thrive.* The proposed generative program is to incorporate a number of elements as indicated below. The first alternative is to be viewed as the preferred of the three alternatives proposed in this report. It is the ideal program.

* The analogy can be made to the way a human embryo is formed. Here is a quote from Lewis Wolpert’s *Principles of Development*, 1997, page 21:

“All the information for embryonic development is contained within a fertilized egg. So how is this information interpreted to give rise to an embryo? One possibility is that the structure of the organism is somehow encoded as a descriptive program in the genome, which contains a program of instructions for making the organism – a generative program.

Consider origami, the art of paper folding. By folding a piece of paper in various directions, it is quite easy to make a paper hat or a bird from a single sheet. To describe in any detail the final form of the paper with the complex relationships between its parts is really very difficult, and not of much help in explaining how to achieve it. Much more useful and easier to formulate are instructions on how to fold the paper. The reason for this is that simple instructions about folding have complex spatial consequences. In development, gene action similarly sets in motion a sequence of events that can bring about profound changes in the embryo. One can thus think of the genetic information in the fertilized egg as equivalent to the folding instructions in origami: both contain a generative program for making a particular structure.”

Control and Management: Steps for implementing the ideal program.

A most important aspect is the question of local control. The traditional system, which created those towns, was based on local rights and responsibilities as they were governed by certain principles derived from Islamic law.

Step One: is to delineate the boundary for what is agreed upon as the original approximate areas of the traditional sectors for these towns to the time when the “blueprint/master plan” system began to be used as it is evident in the gridiron pattern which began to be added as an expansion tool to the traditional fabric. The dates might be slightly different for each town. The suggested conservation boundaries for the two towns are attached (Figure 1).

Step Two: is to delineate the approximate boundaries for the numerous Feraj (plural of Ferij) in the two towns. This can be done by selecting one of the following two methods:

- (i) Based on very recent realities on the site, i.e. find out the current owners of land and buildings. Establish manageable sized Feraj based on that profile. This might be influenced by the boundaries of the traditional Feraj and by the situation of current streets and access paths, or
- (ii) Based on the traditional boundaries of Feraj, with some adjustments in response to realities on the ground. This might not be realistic based on the current ownership patterns.

Two maps are attached (Figures 2a, 2b, and 2c) that show the boundaries of the traditional Feraj (plural of Ferij). The boundaries of the Feraj in the two maps can be reconciled by on-site investigations and a survey of older Bahrainis who have a recollection of those boundaries.

Once a reasonable delineation of Feraj is agreed upon, then:

Step Three: the Bahraini property and building owners within each Ferij, should select (or elect if feasible) a representative (the common term for such a person in some Arab countries is Mukhtar, i.e. “the selected one”, which is the term I will be using henceforth). The Bahraini population living in the heritage areas and the property owners, if they are different, must select this Mukhtar. Temporary foreign workers should not be involved in this process. The collective body of all Mukhtars becomes the Council of Mukhtars, who can occasionally meet to deal with macro issues affecting the whole designated traditional area of Muharraq or Manama. Such macro problems might relate to transportation, parking, transit, etc. The Council of Mukhtars might select 2 or 3 individuals to represent the whole Council to the various sectors and agencies of the government of the Kingdom of Bahrain.

Step Four: Appoint a Muhakkim (Arbitrator) who is proficient in Islamic jurisprudence, particularly as it pertains to issues and problems of urbanization and building activities as it used to be practiced in the past, and he/she should be open minded to make interpretations and create solutions that deal with contemporary realities which are a result of using new technologies and building materials that necessitates the obsolescence of some traditional practices. The Council of Mukhtars select this Muhakkim, a budget for his salary is established and his office should be located within the traditional district. One or more technical assistant(s), who are proficient with traditional urban design principles and processes, should also be appointed to assist the office of the Muhakkim in undertaking their work to the highest standards.

Once this management framework/system is established, it will then be possible to implement the following components of the mechanism that will maintain the character of the traditional sectors across time without sliding into a system that will fossilize the built environment. The components are:

1- Ethical/Legal Norms: articulate in simple clear language the ethical and legal norms that would govern building activities within the traditional sectors of Muharraq and Manama. In addition the Rights and Responsibilities of property owners and inhabitants (excluding foreign guest workers) should also be clearly documented and communicated to the public.

The Ethical/Legal norms comprise a framework for undertaking the duties of the Muhakkim. They are to be operationally linked and influenced by the following:

2- General planning and space organizing rules: such as heights of buildings, abutting neighboring walls, how to avoid overlooking into the private domains of adjacent neighbors by the appropriate location of doors and windows, and by ensuring that the height and design of roof terraces do not allow overlooking.

3- Reviving the traditional Urf (customs) of design and construction: by intelligently incorporating the use of modern materials and technologies. This will create a revived Urf (customs) that will also embody design solutions that incorporate guidelines, rules and codes that address:

- (i) Solutions and related configurations that incorporate social and cultural considerations, and
- (ii) Design features and related innovative solutions that will maintain the spirit of traditional aesthetics and sense of place.

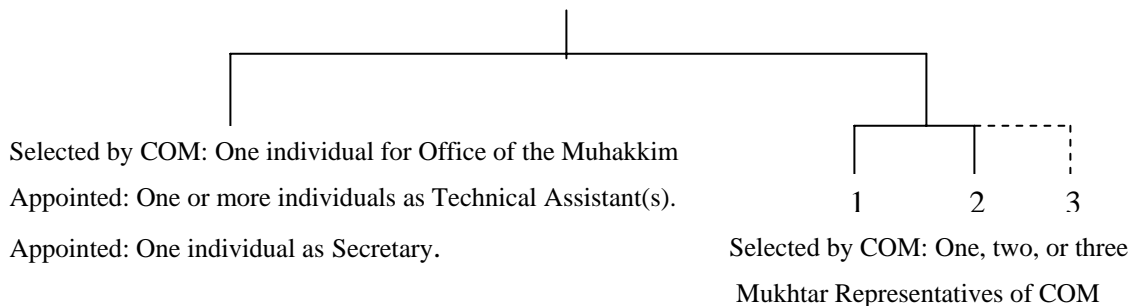
* * *

The following summarizes how the Council of Mukhtars (COM) will relate to the above three components of the proposed mechanism:

Control and Management Structure: the Ideal Program

Council of Mukhtars (COM)

[One Mukhtar from each Ferij (neighborhood) is elected by owners of properties once every four years]



COM and Muhakkim are governed by stipulations of the the Ethical/Legal Norms:

1- الأصل في الأشياء الإباحة وحرية التصرف بالملك، بدون التنافس والمباهاة في البنين.

The basis for action is the freedom to act, without using buildings for show off and arrogance.

*This is an important right that if properly followed can be instrumental for innovative solutions. Those potential solutions will be constrained by avoiding damages to others, especially adjacent neighbors. This ethical norm is a part of the concept of **Beauty without arrogance** that relates to aesthetic issues, in line with people's attitude in the past regarding matters of design and their respect for local customs, or Urf. This insured harmony and mutual respect in building design. Islamic ethics abhors showing off one's wealth in building design. This important norm is unfortunately forgotten in the contemporary era in Bahrain and elsewhere, and its introduction in the traditional sectors will provide an example to follow.*

2- النية الحسنة أساس القرار السليم.

Good intentions are the basis for sound decisions.

It will be relatively easy to determine if a certain decision is based on good or bad intentions. Adjacent neighbors will be the first to know and will be encouraged to report their findings to the local judge, or other appointed authority for these matters.

3- لا ضرر ولا ضرار، وان حدث أكثر من ضرر فيجب إرتكاب أخف الضررين عند الضرورة.

Avoid harm to others and oneself, and if two damages occur then, and only if necessary, implement the lesser of the two.

4- ضرورة التعاون والاحترام المتبادل بين الناس واحترام البناء الأقدم والتعامل معه.

Necessity of interdependence and cooperation between people, and to respect the rights of older established buildings.

This is a most important principle to follow. It is an essential basis for encouraging a dynamic system of decision-making and related construction acts to take place. It is the secret of the dynamic built form that results which makes every street and location unique in character.

5- المحافظة على أعراض الناس واحترام خصوصياتهم.

Respect the privacy of the private domain of others, particularly avoiding the creation of direct visual corridors.

6- تطبيق مبدأ "لا تبخسوا الناس أشياءهم".

Changes or uses that would debase the social and economic integrity of adjacent or nearby properties must be prevented.

7- احترام العرف السائد، ومهما تجدد في العرف أعتبر ومهما سقط أنتقض.

People's customs must be respected and followed, however time might change those customs and new solutions will be needed.

The rules and codes will incorporate traditional local customs and it will also add new elements that are a result of new technologies, building materials, and methods of construction. Those will become a part of the contemporary Urf or customs of Muharraq and Manama. With the passage of time and the experience gained by using them, it might be necessary to make improvements and changes.

COM and Muhakkim's Primary responsibility is to ensure:

1- Private and Public Rights are fairly and equitably exercised.

Public Rights	الحقوق العامة	Private Rights	الحقوق الخاصة
	1- حق الطريق		1- حق الارتفاق
Rights of the street.		Right for abutting and servitude.	
	2- حقوق المساجد		2- حق الخصوصية والمحافظة عليها
Rights of mosques .		Privacy rights and its protection.	
	3- حقوق الأسواق		3- حقوق مالك البناء الأقدم
Rights of the Suq.		Rights of original or earlier usage.	
	4- حقوق المرافق العامة: كل منها لها حقوقها الخاصة مثلا المدارس والمستوصفات.		4- حق الانتفاع الكامل للملك ويشمل زيادة المساحة مثلا بناء الساباط وتعلي البناء ضمن ضوابط الارتفاع.
Rights of public facilities and buildings.		Rights of full utilization of one's property that include the right to increase useable areas such as building a Sabat or increasing the height of the building within stipulated restrictions on height.	
			5- حق استعمال الملك أو جزء منه للرزق.
		Right of using part or all of one's property for income.	
			6- حقوق الجيران والمحافظة على حدود أملاكهم.
		Respect the property boundaries of adjacent neighbors.	
			7- حق الشفعة للجار.
		Right of pre-emption of an adjacent property.	
			8- حق الوقف.
		Right of Waqf.	
			9- حقوق المواريث وتأثيرها على تقسيم الملك.
		Right of inheritance by taking in to consideration its impact on divisions of property.	

2- Private and Public Responsibilities are properly allocated and implemented.

Public Responsibilities	المسؤوليات العامة	Private Responsibilities	المسؤوليات الخاصة
	1- المحافظة على المصلحة العامة.		1- الاستفادة من الفناء الخارجي.
Protecting rights of the public.		Utilization of exterior Fina.	
	2- الطرق العامة.		2- المحافظة على نظافة الفناء الخارجي.
Public streets.		Keeping Fina areas clean.	
	3- المجاري الرئيسية.		3- إدامة وتصليح المجاري الفرعية الخاصة.
Main sewer lines.		Maintenance and repair of private sewer lines.	
	4- المياه.		4- إعلام السلطة بأي خلل يضر العامة، مثلا الحائط المائل.
Water.		Informing local authority of any danger that might be eminent to the public, such as a leaning wall.	
	5- الكهرباء.		5- إعلام السلطة بأي تعدي من الجيران.
Electricity.		Informing local authority of any transgression from neighbor(s).	
	6- القمامة.		6- المحافظة على السكينة والسلام بين الجيران.
Garbage disposal.		Maintaining condition that foster tranquility between neighbors.	
	7- سلامة الناس في الطرق والفضاءات العامة.		7- تيسير شروط الوقف.
Safety in streets and open spaces.		Facilitating the implementation of Waqf stipulations.	
	8- المحافظة على كيان العرف السائد.		
Protecting the integrity of local customs.			
	9- القضاء بين الناس وحل النزاعات.		
Resolutions to problems arising between property owners.			

3- Oversee the proper implementation of the rules and codes by providing technical assistant and equitable solutions to cases arising from disputes.

What are the ingredients for the guidelines, rules and codes that are compatible with the traditional fabric and that will maintain its character and sense of place, and how should those be derived? The following are two sources:

(i) Solutions and related configurations that incorporate social and cultural considerations. These will be based on urban and architectural design issues or patterns. This consultant has identified a range of issues/patterns that are operational at the town,

Ferij, and building levels. The usage of the traditional vocabulary of elements at these levels of the built environment of Muharraq and Manama is encouraged. Those issues/patterns that have become obsolete due to changes in technology and the daily rhythm of life will not be used.

(ii) Design features and related innovative solutions that will maintain the spirit of traditional aesthetics and sense of place.

In Bahrain studies were conducted since the late 1970s about the design and planning elements of traditional Bahraini architecture. Most of these studies concentrated on housing. So there is adequate information for determining the essential features of this architecture. These will be used as a basis for developing codes that are designed to maintain the traditional aesthetics and related sense of place. Codes for traditional aesthetics will tend to be prescriptive in nature, whereas the rules developed for preserving the sense of place will be open-ended and responsive to local conditions and the inventiveness of the property owners. With the passage of time a revived local Urf would emerge that would embody innovative solutions compatible with the realities of the contemporary era.

* * *

The following are the legal text for the proposed three alternatives:

Legal text for **Alternative One**: The ideal program
Mukhtareen System and Regulations

To revitalize the traditional historic sectors of Muharraq and Manama by re-use, conservation, and maintaining the sense of place of the town's fabric, it will be necessary to establish the Mukhtareen system and its regulations. This would require legislation according to the stipulation in Law number 17 for the year 2002 and Law number 28 for the year 2005 related to regulations for the districts (Muhafadhat) in the Kingdom of Bahrain. The current stipulations do not cover the Mukhtareen system, although it used to do so according to Law number 16 for the year 1996. Therefore it is necessary to re-establish the Mukhtareen system for the designated conservation areas according to the following program:

Part One

Article (1): Stipulations for selecting the Mukhtar:

- 1.1- Bahraini owners and residents in each Ferij shall elect one Mukhtar for each Ferij.
- 1.2- The Mukhtar should be a Bahraini male or female citizen whose parents were Bahraini.
- 1.3- His/her age should be between forty and seventy years according to the Gregorian year.
- 1.4- He/she should be proficient in reading and writing in the Arabic language.
- 1.5- He/she should be a resident of the Ferij to which he/she would represent.
- 1.6- He/she should be in good health to fulfill his duties.
- 1.7- He/she should have a good reputation and known to be of good conduct and is known to possess a sense of wisdom and fairness.
- 1.8- He/she should not have previously been under a legal judgment for a crime.
- 1.9- He/she should not have been previously dismissed from a public position.

- 1.10- Selection of the Mukhtar to occur every four years.

Part Two

Article (2): The Duties of the Mukhtar:

- 2.1- Should solve disputes between residents of his Ferij in an amicable fashion.
- 2.2- Should establish an atmosphere within his Ferij that fosters cooperation and good will between residents of the Ferij.
- 2.3- Should organize and be actively involved in public functions that will create the opportunity for residents of the Ferij to meet and interact with each other.
- 2.4- Organize to collect contributions from residents of the Ferij to those less fortunate residents in time of need.
- 2.5- Coordinate the collection of statistical data related to various aspects of the Ferij in response to requests from the government for research purposes.
- 2.6- Accompany the police who require to investigate and question any resident of the Ferij, so that the resident would feel more secure in his/her presence.
- 2.7- Report to the Council of Mukhtars (COM), that represents all the Feraj within the traditional areas designated for revitalization, requests and concerns from the residents of his/her Ferij.

Part Three

Article (3): Council of Mukhtars (COM): Within each of the designated areas of Muharraq and Manama there shall be established a Council of Mukhtars according to the following stipulations:

- 3.1- Each COM is composed of all the Mukhtars that are elected from all the Feraj according to Article (1) in Part One.
- 3.2- Each COM will elect from its members during their first official meeting a Management Committee composed of a Head and Deputy Head and (Ameen lil-Sir).
- 3.3- Elected Mukhtars are for a period of four years. New elections are to be conducted at the end of the fourth year.
- 3.4- The Management Committee of each COM is responsible for management of the COM, preparations for meetings, and coordination between its members.
- 3.5- The Management Committee shall represent each COM to various government agencies and non-governmental entities.

Part Four

Article (4): General Stipulations:

- 4.1- The Mukhtar cannot be appointed to any government position while he/she is holding the elected position of Mukhtar.
- 4.2- The COM must review the application for resignation of any Mukhtar within two weeks of its date.
- 4.3- The COM must relinquish the office of any Mukhtar who no longer satisfies any of the stipulations of Article (1) of these regulations.
- 4.4- If any Mukhtar ceases to act in his/her capacity for any reason, a new election must be conducted in the affected Ferij within 30 days from the date the Mukhtar ends his/her duties.

Muhakkim (Arbitrator) System and Regulations

Each Council of Mukhtars for Muharraq and Manama shall select a qualified person to undertake the duties of the Muhakkim (Arbitrator) in each of the designated areas of those towns according to the following stipulations:

Article (1): Stipulations for the Muhakkim (Arbitrator):

- 1.1- He/she should be a Bahraini citizen from Bahraini parents.
- 1.2- The Arbitrator's age shall be between 45 and 70 years.
- 1.3- He/she should not have been under a court judgment for any type of offence that is of a moral nature.
- 1.4- He/she should not have been previously dismissed for any reason from any public office.
- 1.5- He/she should have a bachelors degree or its equivalent in law or Islamic Shariá and experience in legal position(s).
- 1.6- He/she should be known to be well mannered and have a good reputation in good judgment and fairness, and have an understanding of the processes that shaped the traditional urban fabric according to Islamic law.

Article (2): Selection of the Muhakkim (Arbitrator):

- 2.1- The Arbitrator is selected by the COM by a majority vote.
- 2.2- The position of Arbitrator is renewable every four years. In the event that the COM does not wish to renew and extend the appointment of the Arbitrator, then it should be the result of the wishes of two-thirds of the members of COM.

Article (3): Duties of the Muhakkim (Arbitrator):

- 3.1- He/she shall help the architects/urban designers at his office to find solutions for urban and building problems that will confront his office.
- 3.2- Provide opinions and advice to the COM for various types of problems that his office might encounter.
- 3.3- He shall provide to the COM typical and workable solutions to problems that tend to be replicated, so as to avoid their occurrence.
- 3.4- He/she shall have a permanent office in the traditional historic area to which he belongs.

Article (4): The norms and principles that govern the duties of the Muhakkim (Arbitrator):

- 4.1- The basis for action is the freedom to act, without using buildings for show off and arrogance. The owner is free to utilize his building in a manner that will not contradict any of the stipulations in this legislation.
- 4.2- Good intentions should be the basis for decisions by the owner as it affects his property, and such decisions should not create damages onto others.
- 4.3- Avoid harm to others and oneself, and if two damages occur then, and only if necessary, implement the lesser of the two.
- 4.4- Necessity of interdependence and cooperation between people, and to respect the rights of older established buildings.
- 4.5- Respect the privacy of the private domain of others, particularly avoiding the creation of direct visual corridors.

- 4.6- Changes or uses that would debase the social and economic integrity of adjacent or nearby properties must be prevented.
- 4.7- When there is no clear source in the Shari'a for a specific problem, then it is necessary to consider following people's customs, however time might change those customs and new solutions will be needed.

Article (5): Public and Private Rights that should be considered:

5.1- Public Rights:

- 5.1a- Rights of the Street: The street is a public right of way which should be accessible to all and should be used without creating damages to others or creating obstacles for its use.
- 5.1b- Rights of mosques: Respect the overall space of the mosque, and surrounding uses should be compatible with its religious significance.
- 5.1c- Rights of the Suq: Access and Egress to the Suq should be facilitated for the public and for merchants and shopkeepers. The Suq should be protected from the severe summer heat and cold winter days so as to make the shopping experience pleasant and attractive.
- 5.1d- Rights of public facilities and buildings such as schools and clinics so that they can function in the best possible manner.

5.2- Private Rights:

- 5.2a- Right for abutting and servitude: The obligation of the owner of a property to provide a utility to the owner of another property, such as:
Right of abutting a neighboring existing building; Right of providing access for rainwater to reach another property from an adjacent property; Right for allowing excess rainwater from the rooftop of one property through another's so as to find its way to an agreed destination; Right of Servitude, i.e. accessing one's property, which does not have direct access to the public right of way, through another's property.
- 5.2b- Privacy rights and its protection.
- 5.2c- Rights of original and earlier usage.
- 5.2d- Rights of full utilization of one's property that includes the right to increase useable areas such as building a Sabat or increasing the height of the building within stipulated restrictions on height.
- 5.2e- Right of using part or all of one's property for income.
- 5.2f- Respect the property boundaries of adjacent neighbors.
- 5.2g- Rights of properties under the Waqf.
- 5.2h- Right of inheritance by taking into consideration its impact on divisions of property.
- 5.2i- Right of benefiting from the exterior Fina that borders the exterior walls of a building.

Article (6): Public and Private Responsibilities:

6.1- Public Responsibilities:

- 6.1a- Protecting rights of the public.
- 6.1b- Public streets.
- 6.1c- Main sewer lines.
- 6.1d- Water and its distribution.

- 6.1e- Electricity and its distribution.
- 6.1f- Garbage disposal.
- 6.1g- Safety in streets and open spaces.
- 6.1h- Protecting the integrity of the local Urf (customs).
- 6.2- Private Responsibilities:
- 6.2a- Keeping the exterior Fina clean.
- 6.2b- Maintenance and repair of private sewer lines.
- 6.2c- Informing local authority of any danger that might be eminent to the public, such as a leaning wall that might fall.
- 6.2d- Informing local authority of any transgression from neighbor(s).
- 6.2e- Maintaining conditions that foster tranquility and peace among neighbors.

* * *

**Legal text for Alternative Two: The Possible Program
The Muhakkim with Members of Municipal Council**

The HUDC shall establish the system for the Muhakkim in each of the two heritage areas of Muharraq and Manama according to the program for the revitalization of both towns.

Article (1): Stipulations of the Muhakkim:

- 1.1- He/she should be a Bahraini citizen from Bahraini parents.
- 1.2- His/her age should be between 45 and 70 years old.
- 1.3- He/she should not have been implicated in a crime of honor or imprisoned for such a crime.
- 1.4- He/she should not have been fired from any public position.
- 1.5- He/she should possess a degree in law or in Islamic Shariá, and should have practical experience in law.
- 1.6- He/she should have a good reputation and especially known for good wisdom and fairness.

Article (2): Duties of the Muhakkim: See Article (3) in Alternative 1 above.

Article (3): The norms and principles that govern the duties of the Muhakkim:

See Article (4) in Alternative 1 above.

Article (4): Public and Private Rights that should be considered:

See Article (5) in Alternative 1 above.

Article (5): Public and Private Responsibilities: See Article (6) in Alternative 1 above.

Article (6): Relations of the Muhakkim with members of the Municipal Council.

- 6.1- The Muhakkim shall coordinate with members of the Municipal Council that represent the districts within the designated heritage areas of Muharraq and Manama according to the maps that indicate the borders for those districts (Figure 3).
- 6.2- In the event disagreements occur between the Muhakkim and members of the Municipal Council, the matter shall then be deferred to the Municipal Council of the town in question.

* * *

Legal text for **Alternative Three**: The Program that is easiest to implement
The Muhakkim is a member of the Technical Body
(al-Jihaz al-Fenni)

The Municipal Council that incorporates the heritage areas of Muharraq or Manama shall nominate a Bahraini who is a resident of the heritage area to be a Muhakkim within the designated heritage area according to the following stipulations:

Article (1): The stipulations that should be present in the nominee:

- 1.1- He/she should be a Bahraini from Bahraini parents.
- 1.2- His/her age should be between 45 and 70 years old.
- 1.3- He/she should not have been convicted of a crime of honor.
- 1.4- He/she should not have been fired from a public position.
- 1.5- He/she should hold at least a Bachelors level degree in Law or Islamic Shari'a.
- 1.6- He/she should have a good reputation and known to possess the wisdom and fairness in dealing with various matters, and should have knowledge in the processes that created the traditional built environment.

Article (2): A decision for appointing the Muhakkim should be issued for him/her to be a member of the HUDC's Technical Body (al-Jihaz al-Fenni). His/her salary and other benefits should be established according to the rules of the Technical Body.

Article (3): Duties of the Muhakkim:

The Muhakkim should cooperate and work with the various members of the HUDC's Technical Committees that deal with urban issues in the designated heritage areas of Muharraq and Manama.

Article (4): The Muhakkim should perform his duties within the framework of the following Ethical/Legal norms: See Article (4) in Alternative 1 above.

Article (5): The Muhakkim should insure that the Public and Private Rights are properly followed: See Article (5) in Alternative 1 above.

Article (6): The Muhakkim should ensure that Public and Private Responsibilities are fairly followed and implemented: See Article (6) in Alternative 1 above.

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Urban and architectural design issues or patterns.

Those in bold type will be developed for this report:

Patterns at the **Town Level** and their associated rules and standards where applicable:

- 1- Original town, Muharraq or Manama, its approximate boundary and its Harim.
- 2- Cemeteries: location of original and current locations.
- 3- Musalla: open space for Eid prayers.
- 4 - Nuclei of each Ferij: location of original mosques and tribal meeting places.
- 5- Call to prayer distances (without microphones).
- 6- Boundary of original Feraj: approximate line based on the period**
- 7- Streets: original streets and current pattern.
- 8- Infrastructure: original and current lines.
- 9- Garbage collection system: original and current.
- 10- Linkages between urbanized areas and the sea.
- 11- Suq: linkages to rest of town and the sea.
- 12- Distribution of trades and merchandise in the Suq: original and current.**

Patterns at the **Neighborhood (Ferij) level** and their associated rules and standards where applicable:

- 13- Vehicular access and parking: current and scenario(s) for better distribution.
- 14 - Parking locations: distance from front doors.**
- 15- System for transporting groceries from parking to front doors.**
- 16- Cooling streets to encourage people to use them in the summer months.**
- 17 - Fire truck and ambulance access.**
- 18- Interface between pedestrian paths and vehicular access.
- 19 - Paths and goals.
- 20- Guides for pedestrian wayfinding.
- 21- Visual cues: entry to traditional sectors.**
- 22- Schools: locations and linkages.
- 23- Vacant lands and formation of typical cluster.**
- 24 - Consolidation of two or more properties.**
- 25 - Formation of typical cluster (combined with #23).
- 26 - Density.

Patterns at the **Building Level** and their associated rules and standards where applicable:

- 27- No setbacks: building to the edge of the street.**
- 28 - Alignment of street edges.**
- 29 - Heights of buildings.**
- 30- Roof terraces and Badgirs.**
- 31- Pigeon towers.
- 32- Location of exterior doors, i.e. doors that access to the street.**
- 33- Location of exterior windows, i.e. windows on facades facing the street.**
- 34 - Infrastructure elements: water, electricity, phone, internet, TV, wastewater discharge, air conditioning units on exterior walls facing the street. Issues of interface and connections to the building.**
- 35 - Codes for design of building elevations facing streets.**
- 36 - Use of traditional building materials.
- 37- Abutting an existing wall.**
- 38- Design and construction features of party walls.
- 39 - Fire safety and escape routes.
- 40 - Rules for appropriate utilization of the Fina, including rules for building a Sabat and for keeping the Fina clean.**



United Nations
Development Program



Kingdom of Bahrain



Ministry of Municipalities
and Agriculture Affairs

مشروع

بناء القدرات لتحسين الإدارة الحضرية
(الحفاظ على المناطق والمباني التراثية)
المرحلة الأولى: الاستراتيجيات والسياسات

**Capacity-Building for Enhancement
Of Urban Governance**
(Conservation Urban and Architectural Heritage)
Stage One: Strategies & Policies

**Conservation/ Restoration Consultant
Alaa el-Habashi**

February 2006

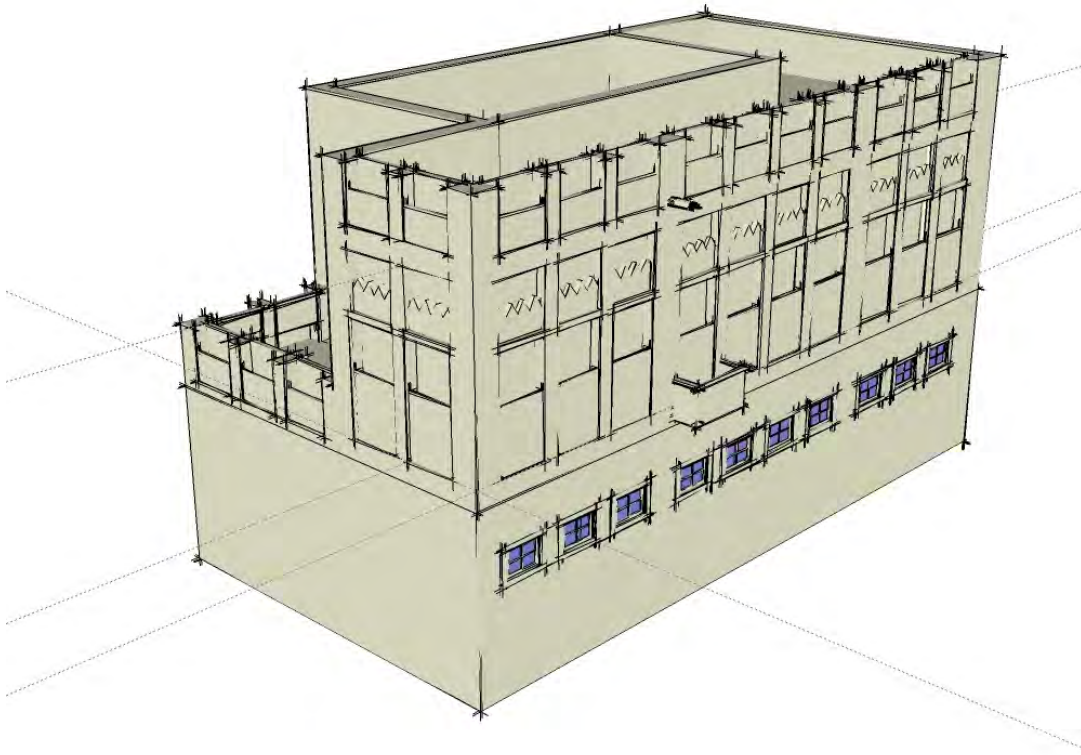
Capacity Building for Enhancement of Urban Governance

Preservation Principles and Strategies

For the Significant Buildings of

Manama and Muharraq

Bahrain



Submitted to:

Ministry of Municipalities Affairs and Agriculture
UNDP, Bahrain,

by:

Alaa el-Habashi

Conservation/restoration Consultant

(Sketches are made in "SKETCHUP" software by Rami el-Shakri)

February 2006

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 - 2.3.8. Conservation and maintenance of historic trees
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- 4. Traditional buildings: elements, materials, techniques and terminology**
 - 4.1. Building Types
 - 4.2. Architectural and decorative elements
 - 4.3. Traditional construction and finishing techniques
 - 4.4. Traditional building materials
 - 4.5. Spaces in a traditional Bahraini house
 - 4.6. Carpentry Works (Doors and Windows)
- 5. Annotated Bibliography**
 - 5.1. Bashmi, 2000
 - 5.2. Majed, 1987
 - 5.3. Manama Urban Renewal Project, 1987
 - 5.4. Moore, 2004-5
 - 5.5. Muraikhi, 1997

- 5.6. Kazerooni, 2002
 - 5.7. Shu'ab, 1995
 - 5.8. Wali, 1990
 - 5.9. Wheatcroft, 1988
 - 5.10. Yarwood, Traditional Building Construction, 1999
 - 5.11. Yarwood, Arts & The Islamic World
 - 5.12. Yarrwood, 2005
- 6. Site Visits**
- 6.1. In Manama
 - 6.1.1. The Minaret of the Mosque of al-Fadil
 - 6.1.2. Bayt al-Shaykh Mohammad Bin Salman, Manama
 - 6.1.3. Ruins of the water house of the Shaykha Nora Bin Salman
 - 6.1.4. House of Jasim al-Qusayr
 - 6.1.5. Bayt Khalaf
 - 6.1.6. Bayt Bani Rida
 - 6.1.7. Bayt at the corner of Bani Radi House
 - 6.1.8. Madrasa Abu Bakr
 - 6.1.9. La Fontaine Restaurant
 - 6.1.10. Mezzaluna Restaurant
 - 6.2. In Muharraq
 - 6.2.1. Bayt al-Siyyadi
 - 6.2.2. House purchased and renovated of al-Sabah Family
 - 6.2.3. House of Ibn 'Issa
 - 6.2.4. House restored by Lebanese/French Group
 - 6.2.5. Majlis and House
 - 6.2.6. Bayt Muhammad Bin Faris (Sut Music House)
 - 6.2.7. Abdallah al-Zayid Press Heritage House
 - 6.2.8. Shaykh Salman House
 - 6.2.9. Bayt Matar, Muharraq
- 7. Important selected contacts**
- 8. Appendix: Movie on a CD that demonstrates Principles/Strategies for specific technical interventions**

1. Executive Summary

In order to preserve the historic and significant built fabric within the historic zones in the cities of Manama and Muharraq, I am proposing three sets of principles and strategies. The first is shaped according to the different types of intervention permitted to various categories of significant buildings. The building categories are extracted from the results of the prospective survey (whose details are presented in the reports of the Zoning and of the IT consultants). The aim of the first set of principles/strategies is to establish a long-term administrative framework that would assist the authorities to control and guide the preservation activities in the significant buildings of the two cities. The second set offers selected technical measures and generic specifications that should be followed in specific type of localized interventions that are currently common. The hope in this second set of principles/strategies is to avoid some common practices and interventions that proved to producing negative effects on the historic fabric. The second set of principles/strategies, therefore, offer technical alternatives that would provide, from one hand, results similar to the ones wished by the users, and, from the other hand, suit the historic fabric of the significant building. The third set of principles is shaped to deal with the built fabric in the scale of the two cities in relation to each other, and in relation to their various historic phases. This set is concerned to link the built fabric that is about to be preserved through the first two sets of principles/strategies with the memory and the meanings of their existence. The third set is therefore an important tool to establish the link between the tangible and the intangible significant aspects, and to establish a comprehensive representation of the two in the parameters of the two historic cities.

The preservation of the significant built fabric of the cities of Manama and Muharraq shall be sought through a wide range of Policies/Strategies, hence the number of those policies and strategies (2.1.1-2.1.8; 2.2.1-2.2.19; 2.3.1-2.3.8) proposed here. More of these policies and strategies could be developed if detailed specifications are required. The purpose behind proposing a number of approaches is to emphasize on the scale of the project which deals with two historic zones in the most recognized cities in Bahrain. Therefore, the prospective preserved buildings, elements, and memories are all gathered through a certain philosophical preservation line, but manifested through a variety of solutions, shapes, materials and thoughts. The cities, including its historic zones shall not look monotonous after preserving their buildings, but vivid with ideas that are well culturally rooted and compatible with the history of the place. The mix of uses, activities, shapes of spaces, uneven street, building styles, conservation approaches, is what will make the historic Manama and Muharraq interesting.

In addition to the proposed set of policies and strategies, this report suggest a series of pilot project, whose implementation would demonstrate the value of the approach, and would also help in assessing the suggested techniques and philosophies.

The report also includes a useful library for traditional building materials and techniques. This section could be the basis of a more in-depth study on the issue, and consequently the prospective revitalization of traditional building crafts which will be an important pillar that will support this project.

An review of all the consulted literature was an important tool to shape the understanding and the ideas formulated in this report. It is for that reason, that an annotated bibliography for all the consulted published materials is included in the report, highlighting in each the topics that are related to conservation/rehabilitation of significant buildings.

Finally, a list of all the site visits conducted under this project during its November 1005 and January 2006 missions, and the contacts I was able to gather is included in this report. It is important for the reader to know how the ideas presented here are formulated throughout a selection of visited buildings and sites, and the discussions with selected personnel and organizations. There might be other sites, buildings never visited during my two working missions to Bahrain, and other related professional and organizations that the limited time of my site investigation did not allow me to get to. If this is the case there might be some holes and/or incompleteness in the investigation and the discussion which needs to be accounted for while reading and/or implementing any of the ideas and information presented in this report.

2. Three levels of principles/strategies

2.1. *Principles/strategies according to types of interventions identified from survey*

The first set of principles/strategies proposed for the preservation of significant buildings in the Manama and Muharraq are shaped according to the results of the prospective survey. This set is the one that will be widely used as it targets a large percentage of significant buildings. It is targeting those buildings which are classified in the survey as significant, and which were further investigated by surveyors to check on specific qualities, such as the set of historic architectural elements, the courtyard and its status, the use of the upper floor, the recent transformation that the building witnessed, and an assessment on the compatibility of the current use with the historic fabric. More importantly, the detailed investigation of the survey indicates the level of significance assigned for each building, i.e. high, medium and low, which is a parameter that describes how important is the building from various viewpoints such as its urban status, its architectural quality, its conditions, the impact the user of the building have in its surrounding neighborhood, and others.

The set of principles/strategies entails type of intervention required to target different cases. The cases are identified by two main criteria:

1) Results extracted from the survey's analysis, through its GIS system. The cases are as following:

- High significant building in good condition
- High significant building in bad condition
- Medium significant building in good condition
- Medium significant building in bad condition
- Low significant building in good condition
- Low significant building in bad condition
- Vacant lots with significant historic remains

It should be explained here that “good condition” includes “Good” and “Ordinary” of the survey sheet, and that “bad condition” includes “Bad” and “Ruin.” The purpose of merging those fields here is to minimize the mistakes that the surveyors would make since the judgment is to a large extent subjective, and based a quick evaluation (but of course would help in the zoning and planning issues). Similarly, the buildings which are identified as “high” and “medium” significance will be considered here as “high significance,” as oppose to the ones identified as “low significance.” The reason is to narrow down any mistake that the surveyors may do in confusing a highly significant building with a “medium significance.” It is mandatory to conduct detailed condition survey in many, if not all, of the buildings which are listed as significant in order to identify their detailed level of significance and their exact level of condition before assigning a proposed interventions.

2) Permitted intervention identified for buildings and for vacant plots

This is a field that will be set according to many parameters such as the master plan, the zoning, the codes, and others. The legal aspects, the social impact, and the economic

values of the intervention will also have important say in determining the type of intervention required. In order to simplify the matter, it would be enough to deal with two types of intervention that cover all other levels.

Buildings

The two tables below summarize the different levels permitted to significant buildings according to their identified conditions and the significance. It should be noted that “conservation” is not applicable as a permitted intervention in the cases of low significance buildings. The reason for that is to respect the general approach in this project, which is to generally promote rehabilitation, and to strengthen the possibility to re-use the large number of significant buildings that are located within the cities of Manama and Muharraq, in order to stress on the notion of a “living” city, and to emphasize on the role each of those buildings could play in the development of the local community. It is for that reason that only a very little percentage shall be permitted for conservation projects because conservation tends to cease most of the possible uses and create a type of “museum buildings.” Buildings which are subjects for conservation projects shall, therefore, be carefully selected so that they would complement with a comprehensive zoning, and planning policies/strategies.

CONSERVATION

Conditions\Significance	High Significance	Low Significance
Good Condition	● (1)	NA
Bad Condition	● (2)	NA

REHABILITATION

Conditions\Significance	High Significance	Low Significance
Good Condition	● (3)	● (5)
Bad Condition	● (4)	● (6)

Vacant Plots

As for the vacant properties, the prospective survey is designed to point to those that are holding significant fabric, i.e. remains of a historic wall or remains of a doorway integrated into a newly built fence or a historic tree that was once in an internal courtyard, and others. Two levels of preservation intervention could be permitted in those cases. The first is a total or partial reconstruction of the significant building in the case where zoning and planning principles points to an infill. The second is the conservation of the existing historic remain in the landscape design of the open air area suggested by the zoning/planning principles.

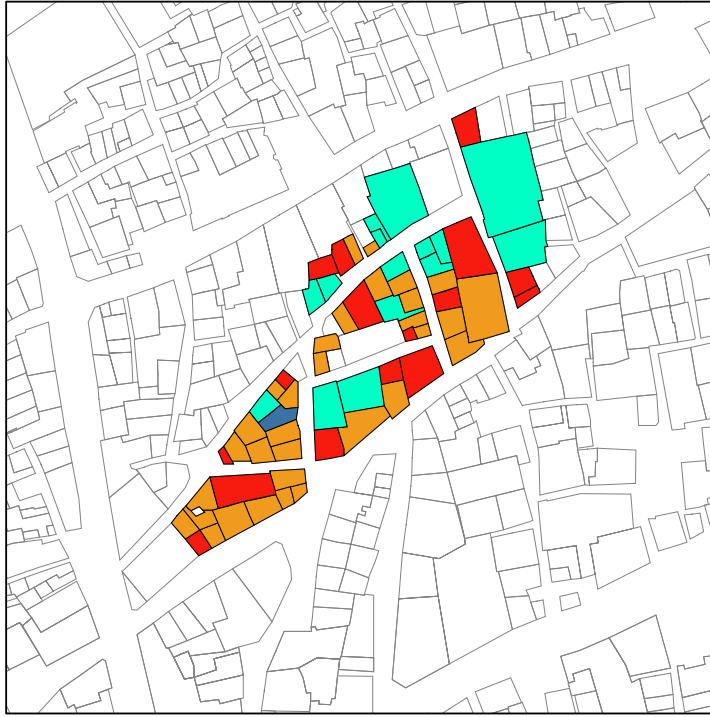
The Survey and Type of Permitted intervention

In order to demonstrate how this strategy could be applied, an area in Manama is selected as an example. This area, which was selected without any preset criteria, was surveyed following to the survey sheet that was specifically designed for this project. More details on how the survey sheet was designed, checked and applied are available in the report on the Zoning, and the one of Information Technology. According to the surveying procedures, the information collected are entered in a GIS system that was designed by

the IT consultant. The maps below are the selected results of the survey that would benefit to identify the conservation level permitted for each significant building in the surveyed area. The maps used in this case are the ones that show the conditions of the buildings and the level of significance identified for each.

Field Survey
Building Condition

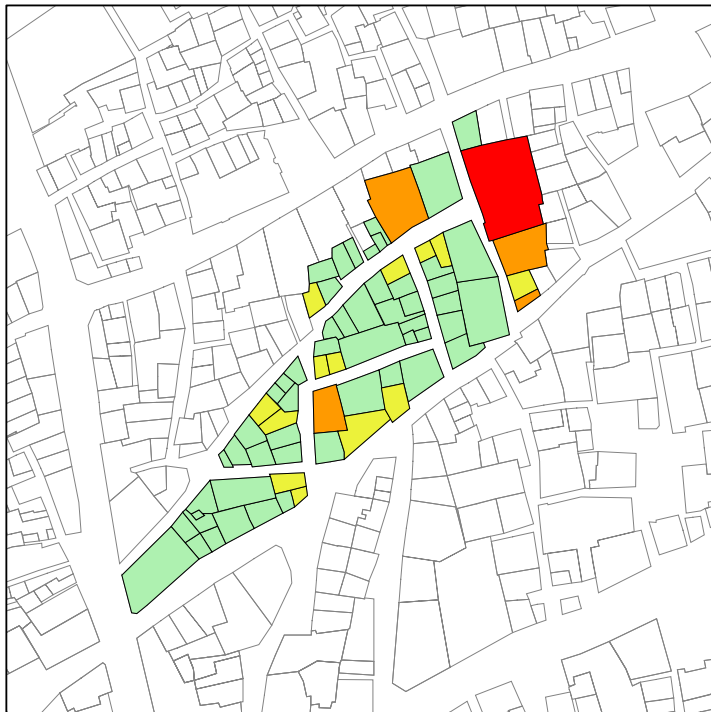
- Good
- Ordinary
- Bad
- Ruin



Following the procedures explained above, the buildings which were identified as being “good” and “ordinary” (red & orange) fall in the “good condition” category here. “Bad” and “ruined” (green & blue) buildings fall in the category of “bad condition” category.






Field Survey
Level of Significance

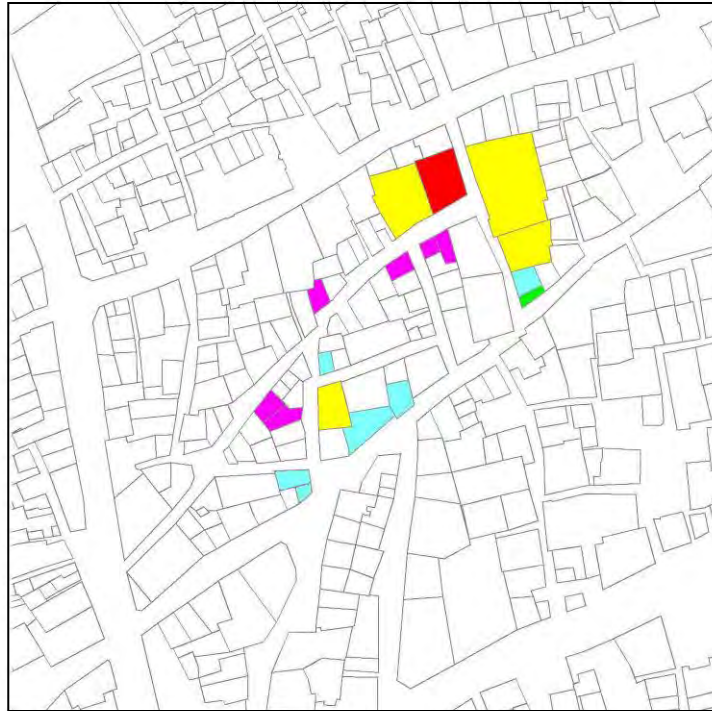
- High
- Medium
- Low
- None



This map points to the significant buildings identified by red, orange and yellow. The ones which are indicated by red and orange are considered “highly significant buildings”, and those in yellow color are considered “low significance.”

Field Survey
Significance/Condition

	High/Bad
	High/Good
	Low/Bad
	Low/Good
	Vacant property with significant remains



The map above indicates the high significant buildings which are either in good or bad conditions, and the low significant buildings which are either in good or bad conditions. There is only one vacant lot within this survey area where significant historic remains were found. This survey area contains all five possible scenarios that were explained in the above tables, and which are represented in the map below.

The data below are some statistics which could be drawn from the sample survey. These data will be helpful, but certainly not accurately reliable, to point to the magnitude of the intervention of each of principles/strategies that are explained below.

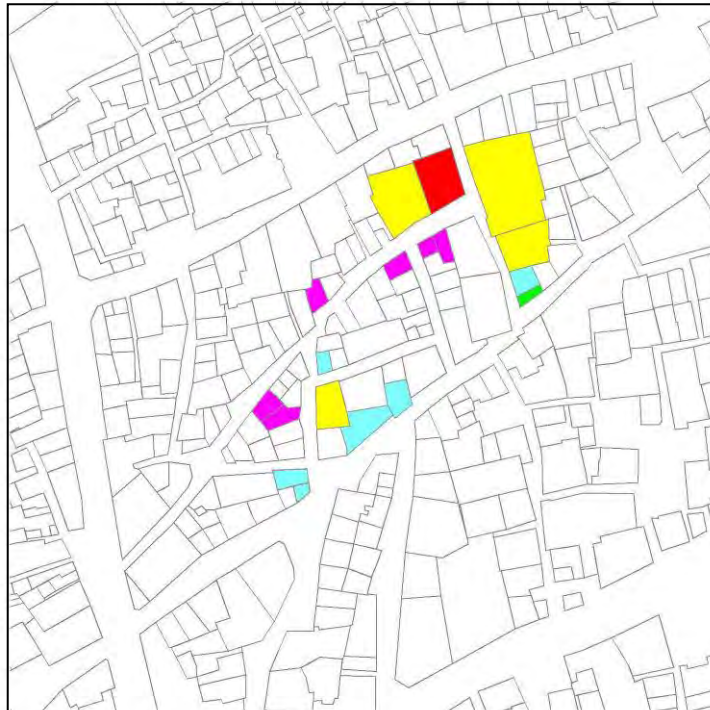
- A total of 71 buildings/vacant plots were surveyed
- 15 buildings/vacant plots were identified as significant (approximately 20%)
- 5 buildings were identified as highly significant buildings (approximately 7%), 4 of which (approximately 5.5%) are in bad condition, and only 1 in good condition (approximately 1.5%)
- 1 vacant plot was identified as holding significant elements (approximately 1.5%)
- 12 buildings were identified as low significance buildings (approximately 17%), 4 of which are 6 in bad condition (approximately 8.5%), and 6 are in good condition (approximately 8.5%).

Permitted Interventions:
Conservation/Rehabilitation

- Conserv. 2 or Rehab. 4
- Conserv. 1 or Rehab. 3
- Rehab. 6
- Rehab. 5
- Conserv. 8 or Rehab. 7

Note:

Numbers 1-8 refer to policies/strategies explained below.



The map above indicates the permitted interventions for each significant buildings and the vacant plots which contain a significant element. According to the tables presented above, each of those 5 categories is assigned one or two permitted interventions. It should be noted that only one intervention (rehabilitation) is permitted for the buildings which are in low significance, but those which are in bad condition have a policy/strategy that is different than those that were found in good condition (see points 2.1.5, and 2.1.6 below). This approach is intended in order to strengthen the general approach of the project which seeks a revitalization of the historic zones of Manama and Muharraq while preserving its significance buildings. In the cases of high significant buildings and vacant plots with significant elements, alternatives of principles/strategies are permitted, and a selection between such alternatives is according to the zoning regulations identified to the area (see Report on “*Urban Conservation Zones in Manama and Muharraq,*” by Daniele Pini).

From this sample, the following statistics concerning the conservation/rehabilitation of significant buildings could be inferred:

- 5.5% of the buildings in the survey area are high significance in bad condition and require either conservation or rehabilitation following Policies/Strategies No. 2.1.2, or 2.1.4.
- 1.5% of the buildings in the survey area are high significance in good condition and require either conservation or rehabilitation following Policies/Strategies No. 2.1.1 and 2.1.3.
- 8.5 % of the buildings in the survey area are low significance in bad condition and require rehabilitation following Policy/Strategy No. 2.1.6.
- 8.5% of the buildings in the survey area are low significance in good condition and require rehabilitation following Policy/Strategy No. 2.1.5.

- 1.5% of the buildings in the survey area are vacant plots that are containing significant elements and require either conservation following Policy/Strategy No. 2.1.8, or reconstruction/rehabilitation following Policy/Strategy No. 2.1.7.



Example of the type of intervention permitted for buildings surrounding a little piazza in the survey area. Note that the numbers refer to the 2.1. set of Policy/Strategy explained below.

Policies/Strategies

The following section of the report presents the Policies/Strategies that are shaped according to types of interventions identified from the survey.

2.1.1. Conservation of highly significant buildings in good condition

Background

A Policy/Strategy that is considered as an alternative to No. 2.1.3. The selection of either one depends on the zoning regulations identified to the area where the building in subject falls. According to the statistical numbers inferred from the sample survey, the buildings where this Policy/Strategy could be applied represents approximately 1.5% of the total number of the existing numbers of Buildings in Manama and in Muharraq.

This Policy/Strategy entails the conservation of the historic fabric, and all architectural and decorative elements, focused archaeology to reveal concealed significant historic layers, and a minimum restoration to complete structural members and/or decorative aspects. An example of the type of buildings that fall into this category are the buildings indicated by the green color in the above map.

Implementation

- Documenting existing architectural and decorative fabric, and save produced documents in the project archive suggested in this report. Documents shall include written materials, photographs, sales and ownership deeds, comprehensive measured drawings, and the like.
- Conducting a condition survey of each architectural element separately in order to formulate an understanding of the deterioration phenomena and their causes. Developing recommendations for remedies.
- Conducting analyses on specific deterioration factors; i.e. structural and soil analysis for uneven foundation settlement, material laboratory analysis for material disintegration or color fading and others. Developing recommendations for remedies.
- Identifying all recent interventions and/or modifications that are harming the significant fabric, and restoring original state if possible.
- Identifying applicable Principles/Strategies from the list of specific technical interventions of the following section of this report (2.2.1.-2.2.19).
- Identifying a use for the building that would be compatible with the zoning regulations and would allow maximum preservation and regular maintenance of the historic fabric, and would limit modifications and restorations. Studying the required utilities and facilities that would support the new use assigned for the building. Examples of type of uses permitted for such buildings are those that are directed towards cultural activities.
- Evaluating and approving proposed recommendations and/or Principles/Strategies, and implementing approved ones in accordance with the set re-use program.
- Documenting the process of implementation, and the final product, and save produced documents in the project archive.
- Developing and implementing a maintenance plan for all architectural elements, building and decorative materials. Periodical assessment of the maintenance plan is required to assure its validity, and to prevent harm to the building.

Reference

Refer to the Zoning Report in order to identify whether this Policy/Strategy (conservation) or the one No. 2.1.3 (rehabilitation) would be applicable to a given case.

2.1.2. Conservation of highly significant buildings in bad condition

Background

A Policy/Strategy that is considered as an alternative to No. 2.1.4. The selection of either one depends on the zoning regulations identified to the area where the building in subject falls. According to the statistical numbers inferred from the sample survey, the buildings where this Policy/Strategy could be applied represents approximately 5.5% of the total number of the existing numbers of Buildings in Manama and in Muharraq.

This Policy/Strategy entails the conservation of the historic fabric, and all architectural and decorative elements, comprehensive archaeology to reveal concealed significant historic layers, architectural elements, and a minimum reversible restoration to complete structural members and/or decorative aspects. Examples of the type of buildings that fall into this category are the buildings indicated by the yellow in the survey map, the ruins of the water house shown below, and of Sheikh Hamad's House (Yarwood,*al-Muharraq*, 44).



Ruins of the water house of Sheikha Nora bin Salman, Manama



House in the survey area, Manama

Implementation

- Documenting existing architectural and decorative fabric, and save produced documents in the project archive suggested in this report. Documents shall include written materials, photographs, drawings, legal documents, and the like.
- Conducting a condition survey of each architectural element separately in order to formulate an understanding of the deterioration phenomena and their causes. Developing recommendations for remedies.
- Conducting focused and pragmatic excavation to complete a comprehensive understanding of the existing structural and its utilities' systems.
- Removing modern incompatible additions, and partially restoring the architectural elements in order to explain their role in the building.
- Identifying applicable Principles/Strategies from the list of specific technical interventions of the following section of this report (2.2.1.-2.2.19).
- Consolidation existing architectural and decorative fabrics.

- Developing a proper representation of key elements in revealed systems. Through such representations, historic information would be delivered to visitors, and in some cases information panels shall be considered.
- Include the final representation of the building into a cultural circle by transforming it either into a exhibition for a certain cultural theme, or considering it for as an open house for specific periodical time.

Reference

Refer to the Zoning and Legal reports to select between this Policy/Strategy or the one No. 2.1.4 (rehabilitation), and the legal supportive framework to deal with the property.

2.1.3. Rehabilitation of highly significant buildings in good condition

Background

A Policy/Strategy that is considered as an alternative to No. 2.1.1. The selection of either one depends on the zoning regulations identified to the area where the building in subject falls. According to the statistical numbers inferred from the sample survey, the buildings where this Policy/Strategy could be applied represents approximately 1.5% of the total number of the existing numbers of Buildings in Manama and in Muharraq.

This Policy/Strategy entails the conservation of the historic fabric, and all architectural and decorative elements, focused archaeology to reveal concealed significant historic layers, and the employments of these elements with limited scope modification that supports a rehabilitation project. An example of the type of buildings that fall into this category are the buildings indicated by the green color in the above map.

Implementation

- Documenting existing architectural and decorative fabric, and save produced documents in the project archive. Documents shall include written materials, photographs, drawings, sales and ownership deeds, and the like.
- Conducting a condition survey in order to understand the deterioration phenomena and their causes. Developing recommendations for remedies.
- Conducting analyses on specific deterioration factors; i.e. structural and soil analysis for uneven foundation settlement, material laboratory analysis for material disintegration or color fading and others. Developing recommendations for remedies.
- Identifying all recent interventions and/or modifications that are harming the significant fabric, and restoring original state if possible, or substituting harmful modifications with ones that are compatible with the historic fabric.
- Identifying applicable Principles/Strategies from the list of specific technical interventions of the following section of this report (2.2.1.-2.2.19).
- Identifying a use for the building that would be compatible with the zoning regulations, would minimize modifications, and would emphasize on the maintenance of the historic fabric. Studying the required utilities and facilities that would support the newly assigned use. A wide range of uses are permitted to rehabilitate those buildings. Only those uses which are not compatible with the historic fabric and its general interior spaces would be disregarded.
- Permitting interior and exterior modifications that are minimum in relation to the surrounding historic fabric, and, by and large, reversible without producing harm.
- Evaluating and approving proposed recommendations and/or Principles/Strategies, and implementing approved ones in accordance with the set re-use program.
- Documenting the process of implementation, and the final product, and save produced documents in the project archive.
- Developing and implementing a maintenance plan for all architectural and decorative elements, and periodically assessing the validity of the maintenance plan.
- Considering an open house for specific periodical time.

Reference

Refer to the Zoning Report in order to identify whether this Policy/Strategy (conservation) or the one No. 2.1.1 (conservation) would be applicable to a given case.

2.1.4. Rehabilitation of highly significant buildings in bad condition

Background

A Policy/Strategy that is considered as an alternative to No. 2.1.2. The selection of either one depends on the zoning regulations identified to the area where the building falls. According to the statistical numbers inferred from the sample survey, the buildings where this Policy/Strategy could be applied represents approximately 5.5% of the total number of the existing numbers of Buildings in Manama and in Muharraq.

This Policy/Strategy entails the conservation of the selected historic fabric, and architectural and decorative elements, focused archaeology to reveal examples of significant historic layers, a reversible restoration to complete structural members and/or decorative aspects, and minimum changes and modifications that would sustain a rehabilitation program. Examples of the type of buildings that fall into this category are the buildings indicated by the yellow in the survey map above.

Implementation

- Documenting existing architectural and decorative fabric, and save produced documents in the project archive suggested in this report. Documents shall include written materials, photographs, drawings, legal documents, and the like.
- Conducting a condition survey of each architectural element separately in order to formulate an understanding of the deterioration phenomena and their causes. Developing recommendations for remedies.
- Conducting focused excavation to draw an understanding of the existing structure.
- Removing modern incompatible additions, and partially restoring the architectural elements in order to explain their role in the building.
- Identifying, and implementing applicable Principles/Strategies from the list of specific technical interventions of the following section of this report (2.2.1.-2.2.19).
- Consolidation existing architectural and decorative fabrics.
- Representing samples of the key architectural and decorative elements, through which witnesses of historic phases would be revealed.
- Identifying a use for the building that would be compatible with the zoning regulations, would minimize modifications, and would emphasize on the maintenance of the historic fabric. Studying the required utilities and facilities that would support the newly assigned use. A wide range of uses are permitted to rehabilitate those buildings in the condition if they are compatible with the historic fabric and its general interior spaces.
- Allowing limited reconstruction, modifications, and renovation to meet with the newly assigned use. Interventions shall be reversible, and preferably minimum.
- Documenting the process of implementation, and the final product, and save produced documents in the project archive.
- Developing and implementing a maintenance plan for all architectural and decorative elements, and periodically assessing the validity of the maintenance plan.
- Considering an open house for specific periodical time.

Reference

Refer to the Zoning and Legal reports to select between this Policy/Strategy or the one No. 2.1.4 (rehabilitation), and the legal supportive framework to deal with the property.

2.1.5. Rehabilitation of low significant buildings in good condition

Background

According to the statistical numbers deduced from the sample survey, the buildings where this Policy/Strategy could be applied, low significant in good condition, represents approximately 8.5% of the total number of the existing numbers of Buildings in Manama and in Muharraq. They are basically those buildings which contain significant architectural elements, kept in a fairly good condition, and do not exhibit major structural failures. This Policy/Strategy entails preserving those buildings in their entirety, conserving selected historic fabric, and architectural and decorative elements, removing all harming additions, conducting focused archaeology to reveal examples of significant historic layers, implementing reversible restoration to complete structural members and/or decorative aspects, and minimum changes and modifications that would sustain a rehabilitation program. This Policy/Strategy also incites for ameliorating the position of the buildings in the surrounding environment. Examples of the type of buildings that fall into this category are the buildings indicated by the blue in the survey map above.

Implementation

- Preserving the buildings in their entirety.
- Documenting existing architectural and decorative fabric, and save produced documents in the project archive. Documents shall include written materials, photographs, drawings, sales and ownership deeds, and the like.
- Conducting a condition survey in order to understand the deterioration phenomena and their causes. Developing recommendations for remedies.
- Identifying applicable Principles/Strategies from the list of specific technical interventions of the following section of this report (2.2.1.-2.2.19).
- Identifying all recent interventions and/or modifications that are harming the significant fabric, removing them and restoring original state if possible, or substituting harmful modifications with more compatible ones.
- Identifying a use for the building that would be compatible with the zoning regulations, would minimize modifications, and would emphasize on the maintenance of the historic fabric. Studying the required utilities and facilities that would support the newly assigned use. A wide range of uses are permitted to rehabilitate those buildings. Only those uses which are not compatible with the historic fabric and its general interior spaces would be disregarded.
- Permitting interior modifications, and to have them, by and large, reversible without producing structural modification or harm.
- Documenting the process of implementation, and the final product, and save produced documents in the project archive.
- Developing and implementing a maintenance plan for all architectural and decorative elements, and periodically assessing the validity of the maintenance plan.

Reference

Refer legal and economic reports to select a framework through which the preservation and the rehabilitation of this type of buildings could be implemented and sustained.

2.1.6. Rehabilitation of low significant buildings in bad condition

Background

According to the statistical numbers deduced from the sample survey, the buildings where this Policy/Strategy could be applied, low significant in bad condition, represents approximately 8.5% of the total number of the existing numbers of Buildings in Manama and in Muharraq. They are basically those buildings which contain significant architectural elements, but exhibiting structural problems, partially collapses, or they are ruined. This Policy/Strategy entails preserving selected elements of these buildings, not necessarily complete elements, conserving selected architectural fabric or decorative elements, removing all harming additions, implementing reversible restoration to complete structural members and/or decorative aspects, and considering suitable modern additions according to urban, zoning, and building regulations. All designated intervention shall sustain a long-term rehabilitation program. This Policy/Strategy also incites for ameliorating the position of the buildings in its surrounding environment. Examples of the type of buildings that fall into this category are the buildings indicated by the violet in the survey map above.

Implementation

- Preserving selected historic elements in the buildings.
- Documenting existing architectural and decorative fabric, and save produced documents in the project archive. Documents shall include written materials, photographs, drawings, sales and ownership deeds, and the like.
- Identifying applicable Principles/Strategies from the list of specific technical interventions of the following section of this report (2.2.1.-2.2.19).
- Identifying all recent interventions and/or modifications that are harming the historic fabric recognized for preservation, removing them and partially restoring original state, or substituting harmful modifications with more compatible ones.
- Developing an architectural design where the designated elements are incorporated and highlighted. The design shall be inspired by the historic parameters, but not necessarily imitating it, or following its lines.
- Identifying a use for the building that would be compatible with the zoning regulations. Studying the required utilities and facilities that would support the newly assigned use. A wide range of uses are permitted to rehabilitate those buildings according to zoning regulation. Only those which could harm the preserved historic elements that would be disregarded.
- Documenting the process of implementation, and the final product, and save produced documents in the project archive.
- Developing and implementing a maintenance plan for all architectural and decorative elements, and periodically assessing the validity of the maintenance plan.

Reference

Refer legal and economic reports to select a framework through which the preservation and the rehabilitation of this type of buildings could be implemented and sustained.

2.1.7. Total or partial reconstruction of demolished significant building

Background

According to the statistical numbers deduced from the sample survey, the vacant plots where this Policy/Strategy could be applied represents approximately 1.5% of the total number of the existing numbers of Buildings in Manama and in Muharraq. They are basically those empty property which contain some significant architectural elements such as an old entrance gate, remains of a wall, traces of the courtyard, and the like, and they hold special historic value that would interest the street, the neighborhood, the city or even the country. One other parameter to identify such cases is to have enough historic documents (exterior and interior photographs, historic deeds, drawings or sketches, and the like) that would help in the prospective reconstruction. This Policy/Strategy aims to revive a certain memory that would enrich the cultural environment of the cities of Manama and Muharraq through the reconstruction of a specific demolished or collapsed building. Examples of the type of buildings that could fall into this category are the buildings indicated by the red in the survey map above.

Implementation

- Documenting existing architectural and/or decorative architectural elements in the vacant plot, and save produced documents in the project archive. Documents shall include written materials, photographs, drawings, ownership deeds, and the like.
- Conducting comprehensive excavations to reveal foundations that could have been preserved in place after the demolition, and surveying them properly.
- Conducting a historic research through which the architecture of the demolished or the collapsed building could be deduced, and some of its elements could be retrieved, i.e. an old doorway that was taken from a demolished building to be employed elsewhere.
- Developing a reconstruction scheme based on findings and incorporating existing and retrieved remains and elements. The scheme shall be inspired by the historic parameters, but not necessarily imitating it, or following its lines.
- Distinguishing newly introduced architectural fabric from the ones preserved in place and the elements that were retrieved and reintroduced.
- Identifying applicable Principles/Strategies from the list of specific technical interventions of the following section of this report (2.2.1.-2.2.19).
- Identifying a use for the building that would be compatible with the zoning regulations, and that would strengthen the idea of reviving a certain memory through reconstruction. An example of such approach is the house of Sheikh Hamad bin Faris in Muharraq, although the approach and the implementation there are quite different from the ones proposed here. In Sheikh Hamad bin Faris, newly introduced architectural fabric overwhelmed the existing fabric.
- Studying and implementing the required utilities and facilities that would support the newly assigned use.
- Documenting the process of implementation, and the final product, and save produced documents in the project archive.
- Developing and implementing a maintenance plan for all architectural and decorative elements, and periodically assessing the validity of the maintenance plan.



House of Shaykh Hammad bin Faris before and after intervention. This is an example of this Policy/Strategy (total or partial reconstruction of a demolished significant building. However, the approach is in the reconstruction is different. Many of the historic architectural elements and building materials could have been preserved in place, and reincorporated in the new scheme.

Reference

Refer zoning, legal and economic reports to select a framework through which the preservation and the rehabilitation of this type of buildings could be implemented and sustained.

2.1.8. Conservation of significant element(s) integrated in a landscape design

Background

According to the statistical numbers deduced from the sample survey, the vacant plots where this Policy/Strategy could be applied represents approximately 1.5% of the total number of the existing numbers of Buildings in Manama and in Muharraq. They are basically those empty property which contain some significant architectural elements such as an old entrance gate, remains of a wall, traces of the courtyard, and the like, and they hold special historic value that would interest the street, the neighborhood, the city or even the country. One other parameter to identify such cases is the zoning regulations mandates to keep this plot empty, with no building infill, in order to provide a certain function in the urban environment, such as parking, garden, open air piazza, and the like. This Policy/Strategy aims to revive a certain memory that would enrich the cultural environment of the cities of Manama and Muharraq through the preservation of the significant historic elements that still exist in place. Examples of the type of buildings that could fall into this category are the buildings indicated by the red in the survey map above.

Implementation

- Documenting existing architectural and/or decorative architectural elements in the vacant plot, and save produced documents in the project archive. Documents shall include written materials, photographs, drawings, ownership deeds, and the like.
- Conducting focused excavations to reveal foundations that could relates the existing architectural elements with the once standing historic building.
- Conducting a historic research through which the architecture of the demolished or the collapsed building could be deduced, and some of its elements could be retrieved, i.e. an old doorway that was taken from a demolished building to be employed elsewhere.
- Conserving the existing elements in place, and seeking means to abstractly relating them to the building they once belonged to.
- Developing a landscape scheme that would incorporate the conserved elements in the new function of the place, whether it being parking, garden, urban piazza, and the like. It s preferable that the landscape scheme would be inspired by the conserved elements, and would highlight them into their new composition.
- Designing measures that would prevent harming the conserved and exhibited elements. For examples, to prevent water to reach to the preserved historic elements, to prevent users of the space to write graffiti on the preserved elements, and to prevent exposing such elements to crashes and impacts.
- Identifying applicable Principles/Strategies from the list of specific technical interventions of the following section of this report (2.2.1.-2.2.19).
- Identifying a use for the vacant plot that would be compatible with the zoning regulations, and that would strengthen the representation of the conserved open air elements.
- Studying and implementing the required utilities and facilities that would support the newly assigned use for the vacant plot.

- Documenting the process of implementation, and the final product, and save produced documents in the project archive.
- Developing and implementing a maintenance plan for all architectural and decorative elements, and periodically assessing the validity of the maintenance plan.



An example of some significant elements in a vacant plot in the survey area. This vacant plot is identified with a red color in the survey maps above.

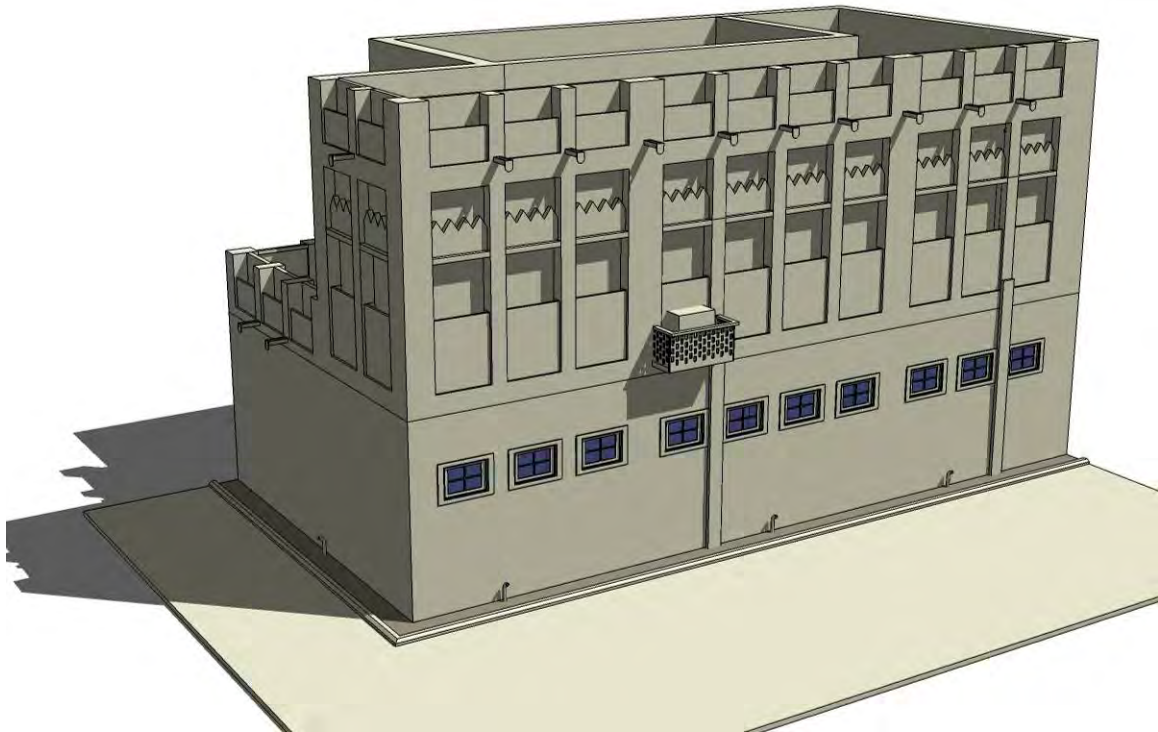
Reference

Refer zoning, legal and economic reports to select a framework through which the preservation and the rehabilitation of this type of buildings could be implemented and sustained.

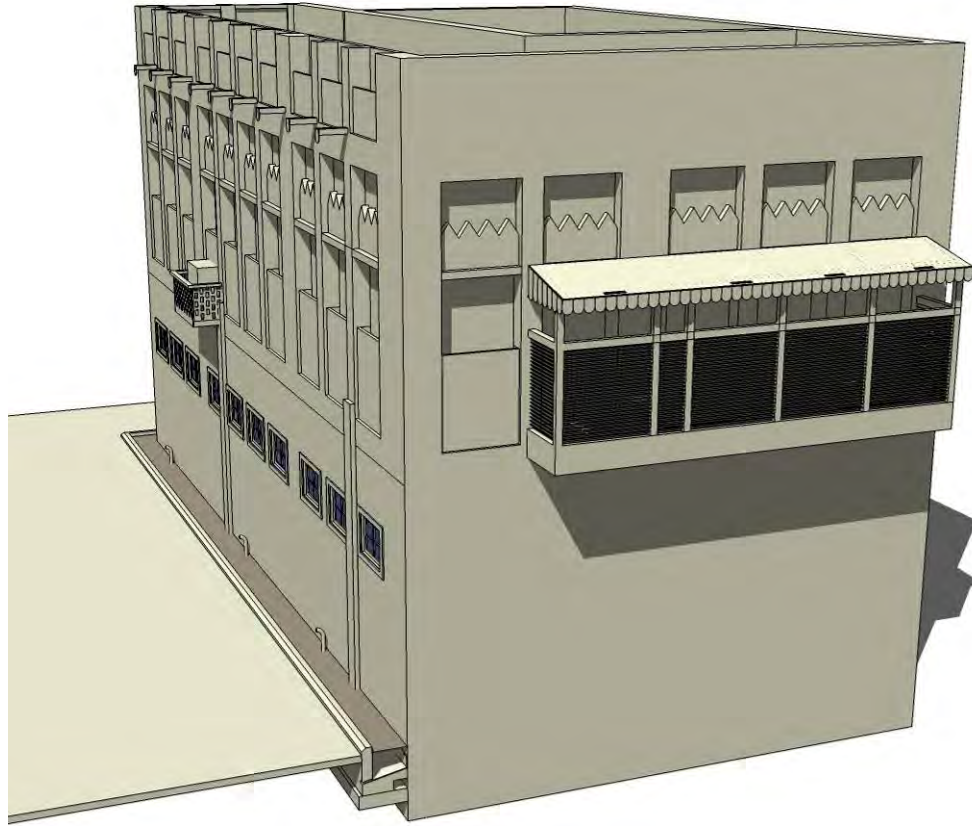
2.2. Principles/Strategies for specific technical interventions

This set of principles/strategies targets the on-going rehabilitation, transformation and modification works that the tenants and occupants of significant buildings are undertaking periodically. Those principles/strategies are basically addressing the current practices by explaining the non-admitted interventions, highlighting how harmful they could be, and by proposing alternatives to achieve the same results but with more sensibility towards the historic fabric.

In order to have an effective presentation of the suggested interventions, a model of a traditional house was drawn on the “Sketchup” Software. John Yarwood’s survey drawings of the Sufi House in Muharraq were used as base for the model drawn here.¹ Most of the suggested interventions are incorporated in the model, for which general views are provided below. Detailed drawings and specifications of implementation are provided in each of the following 19 Policies/Strategies. The proposed detailed sketches are all combined in a 3 minutes movie that is appended to this report. This movie confirms that all suggested interventions can be combined in one of the significant buildings of Manama or Muharraq for the effectiveness of its technical and visual performance in its surrounding urban context.



¹John Yarwood, al-Muharraq: Architecture of a Traditional Arabian Town in Bahrain, in *Arts & The Islamic World*, Special Volume, No. 36, Fig. 4.22, p. 62.



Model of a traditional house incorporating suggested interventions for preservation. The model is based on John Yarwood's survey drawings of Sufi house in Muharraq, drawn and modified according to the interventions suggested by the author of this report.

The following section of the report represents a set of policies/Strategies that are targeting specific preservation themes or issues, which are inferred from the currently practices in dealing with the historic fabric of those traditional buildings.

2.2.1. Excessive and improper use of cement over and with historic building materials

Background

It is noticeable that in most recent conservation works, an excessive use of cement is used to either plaster the walls externally and internally, to prepare mortar for masonry, to screed over roofs. An extreme case is in Bayt al-Shaykh Salman in Muharraq, and in the recently restored house of Bayt al-Shaykh Mohammad Bin Salman in Manama. In the later case, however, a lime wash was applied over the cement plaster in order to give a traditional final look, but nothing to do with compatibility of building materials, and, thus, lime layer flakes away. Some of the houses' owners, such as the owner of the house of Jasim al-Qusayr in Manama, admit that the use of the cement in repair works is not providing satisfactory results, but the usual complaints are about the prices and the scarcity of traditional building materials, and traditional craftsmen.

Mortar of Portland or white cements are harder and more impermeable than the traditional lime based mortar which are soft and usually porous, with the exception of mortars with some fine additives such as ash, brick dust and others. Cement mortar usually contains sulfates which are harmful salts if dissolved in water and reach the lime based traditional mortars or the lime based coral or limestone blocks. It crystallizes into the pores of the materials causing material disintegration, and crumbling. There is always a differential movement between the cement mortars and their traditional substrate, a fact that results in exhibiting a network of surface cracks, and checking. These cracks are areas where water infiltrates to the traditional material, dissolving the sulfates of the cement and crystallizing into the pores of the lime based materials, and the process of disintegration starts. Also, this is the reason for the water stain that are manifested in areas near by any water source, and water infiltrates, and is trapped behind the impermeable cement layer.



Cement plaster over vertical architectural surfaces in the house of Shaykh Salman House in Muharraq



Network of hair-cracks (checking), developed on cement mortar newly plastered over limestone wall. Second floor Majlis, Bayt Mohammad Bin Salman, in Manama. Note that the whitish color of the plaster is of a very thin lime wash applied on top of the cement layer.

Implementation

- Removal of cement layers including the finishing and the substrate preparatory layer.
- Cry cleaning of all the exposed surfaces, and make sure to remove all accumulated dust, debris, and loose plaster chunks.
- Grouting and deep filling the masonry of the revealed walls, or roof slabs with a lime based grout with some additives to minimize possible shrinking when the mortar settles in the grouted voids.
- Plastering the exterior, the interior walls, or roofs according to the traditional specifications listed in points 4.3. and 4.4. of this report.
- In areas exhibiting wide cracks, lime based mortar reinforced with fiber glass shall be deep filled.
- The color of the exterior finish shall be based on the mix of the mortar with not addition of colors, except if specified in the zoning and planning regulations. No paints are permitted on top of the finished plaster.

Reference

Refer to zoning and planning regulations to identify the color of the plaster of the exteriors.

2.2.2. Use of reinforced concrete (columns, beams, staircases) to replace traditional structural elements

Background

One common building practice that is harming the historic fabric of significant buildings, are the tenants' and the users' misuse of the structural elements, such as columns, beams, and staircases, of their traditional buildings. This is usually followed when the existing structural elements exhibits failure, and needed replacement to prevent collapses, or to introduce "stronger" element to fulfill a certain structural function the existing one could not offer. An example of the second scenario is the removal of the ground floor portion of the stone piers in order to widen the intercolumniation at the façade level to use the space behind as street shops. A second example is to replace the structural wooden beams of traditional staircases with reinforced concrete ones to avoid the failure of the wooden elements caused by termites, or dampness, or to provide more strength to the staircase to heighten it for more flights. A third example is the case where the users want to do some extensions, either vertical or horizontal, to their buildings, and use the available building materials that is reinforced concrete to construct floor slabs, roofs, columns, beams, and foundations. The newly introduced elements are too rigid to be compatible with the traditional fabric which is characterized by a certain amount flexibility due to the amount of the wooden elements introduced in the original construction (beams, window and door lintels, tie beams inserted into walls, roof and floor joists, and others).



Newly introduced reinforced concrete slabs, parapets, and staircase in Bayt Siyadi, in Muharraq. Those are candidates for removal and replacements with more compatible construction materials and system. For procedures and conditions, refer to the implementation section below.



Incompatibility of rigid reinforced concrete and traditional construction elements, Siyadi House, Muharraq. This staircase, and parapet are candidates for reinforced concrete elements to be kept in place, as their removal would harm the surrounding historic architectural elements. However, a continuous material joint needs to be installed to allow each of the two different systems to behave separately.

Implementation

- Consider removing all reinforced concrete elements which are in direct contact with traditional building materials in case where such removal will produce minimum damage to historic fabric.
- Consider keeping the reinforced concrete elements if the damage produced in their removal are large and detrimental to significant traditional architectural or decorative elements. In such incidences, it would be necessary to provide a continuous joint that separate the two different system in order to allow each of them to behave differently according to their different properties.
- If decision is taken to keep the reinforced concrete elements, they should be treated in such a way that they should not detract from the interesting parts of the building, its traditional setting, the balance of its composition and its relation with its surroundings. This condition follows the policy of 1964 Venice Charter on conservation and restoration.
- If the decision is taken to remove the reinforced concrete elements, replacements of missing parts shall integrate harmoniously with the whole, but distinguishable at the same time. Traditional or compatible building technique shall be followed in the replacing the removed reinforced concrete elements. No, or minimum, harm shall be allowed to the historic fabric.
- Any extra work which is indispensable must be distinct from the architectural composition and must bear a contemporary stamp.

Reference

Venice Charter of 1964, and Lahore Statement of 1980.

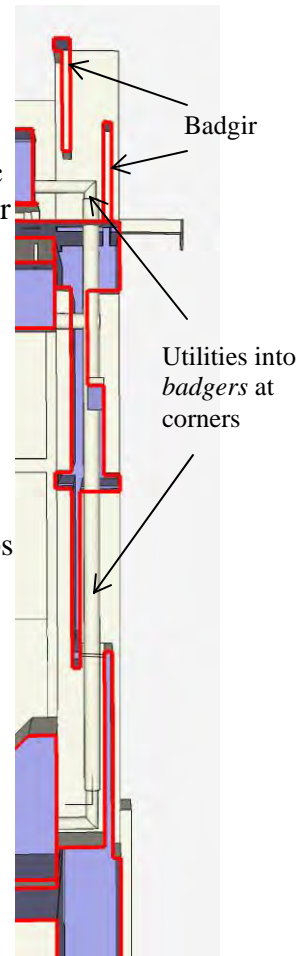
2.2.3. Generic specifications for connecting significant building to modern utilities

Background

Most of the traditional buildings of Manama and Muharraq were built before the laying down of the public networks of utilities; the water supply, sewer lines, electricity, telephone cables, and others. Current occupants and tenants want to introduce all modern utilities into their homes and working spaces. Unfortunately, they are treating their traditional buildings similar to their treatments of any newly built reinforced concrete buildings. The following implementation procedures offers some ideas on how to install these utilities into traditional buildings without damaging its significant elements, or disturbing its structural system.

Implementation

- New installations shall be exposed outside the walls and ceilings, and shall be externally mounted. This, from one side, would produce the least damaging impact on historic architectural fabric, and from the other would assure better future maintenance of all extended utilities. In the case of water lines, exposed pipes would facilitate to locate leaking points for proper and quick repair.
- Possible locations for utilities' lines in the gap of the exterior bagadirs of the exterior walls, or on the ceiling wooden planks between exposed floor wooden beams (in the case of non-decorated ceilings).
- Exposed utilities' lines shall be fixed onto walls or non-decorated ceilings with either brass or stainless steel clasps with screws and dowels. No nails are allowed. Adequate number of clasps shall be used in order to prevent the sagging, and thus the damaging, of the utilities lines.
- Clasps and exposed lines could be painted with a color that would make them homogeneous with the surroundings so that they won't disturb the general atmosphere of the interior and exterior spaces.
- In the instances where the number of the exposed utility lines are large, and they have negative aesthetic impact, temporary covering sleeves shall be considered.
- Wherever utilities' lines shall pass a structural element, i.e. a pier or a roof or floor layers, appropriate sleeves, and in the case of a large opening an appropriate lintels.



Reference

Refer to the planning policies/strategies for implementation procedures required to assure the appropriateness of installations to the urban spaces where those connections exist.

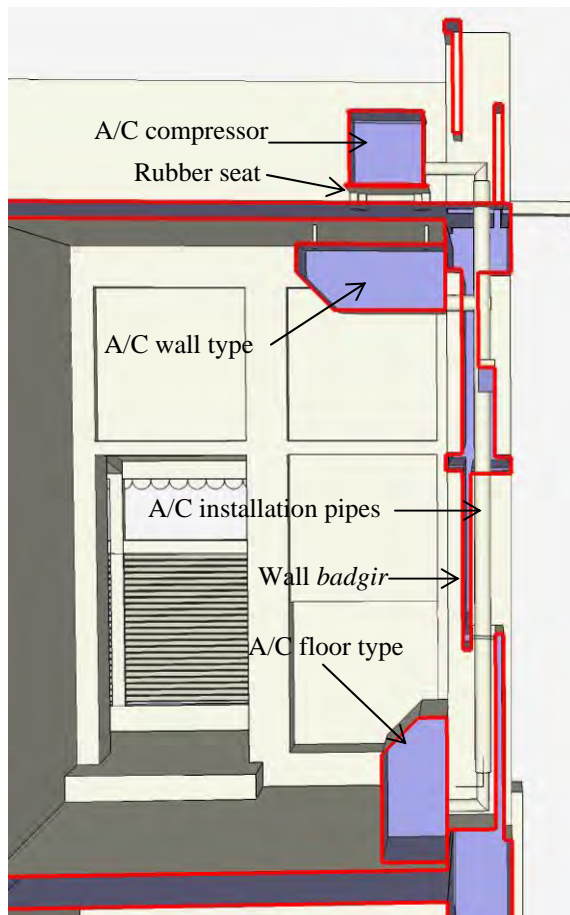
2.2.4. Fixing air-condition units (window or split type)

Background

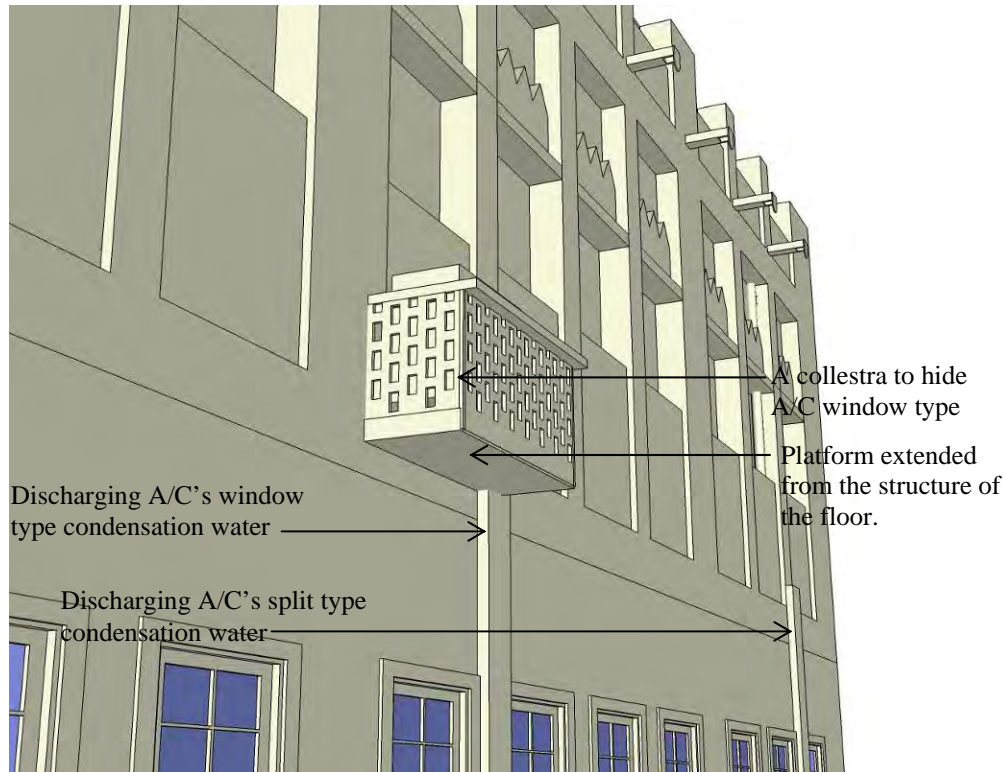
Most of the rooms that are currently used in a traditional house acquired an air-conditioned unit, usually window type. In most of the cases, the window type is installed in the *farsh* area, between the two columns. The common practice is to fix the unit right above the *badgir* opening, so that it could rest on the lower *farsh* partition, and fixed in place by the upper partition. This fixing detail usually fail as those thin, 5-7 cm partitions, are designed to hold neither concentrated load, nor the stresses produced by the vibrating machine. This is the reason that most of the air-condition unit are found displaced, leaning towards the exterior, and usually damaging the *farsh* partitions. The leaning creates another problem of discharging condensation water, which usually leak onto the wall. To remedy this problem, tenants of the ground floor rooms sometimes provides a sort of an external pole that helps to carry the unit and transfer its weight directly to the ground (See photograph below). In the case where tenants are aware of the damage that a window type can produce, they use a A/C split units. Nevertheless, the details of the installations of the compressors, the interior fixation of the split unit, and discharging of A/C condensation water are usually damaging the architectural fabric.



A/C window type in Manama



Alternatives for installation of A/C split units



Implementation

- It is preferable to use split air conditioning units than window types in order to guarantee minimum disfiguring of exterior façades of significant buildings.
- If, for any reasons, window type should be used, the A/C unit should rest leveled on a platform that is extended from the structure of the floor, or fixed on side pillars. *Badgir's* walls are not strong to hold such units. Openings into a *badgir* wall shall be made carefully with the minimum damage, and a wooden lintel over the opening should be introduced. The window-type unit shall slide into the made opening without touching surrounding walls. Gaps between A/C unit and the surrounding walls shall be filled with elastic caulking, which needs yearly replacement.
- A/C split units should preferably be either floor or ceiling type. Wall type should be prevented in order to minimize wall damages. The compressor shall always be installed on the roof over a chassis that sits on a rubber seat to minimize vibration.
- Ceiling type can be hanged from exposed wooden beams with rubber joints. Floor type shall rest of a chassis that sits on rubber seats on the floor. The rubber seats and joints are introduced to minimize the effect of the machines' vibration.
- Condensation water shall be collected in discharging pipes that should be installed with adequate number of brass clasps on the piers of a *badgir's* space as shown in the sketch above. In the case of solid walls, a wooden box, with an appropriate finish color shall be made to hide down-pipes, as shown in the suggested façade above.

Reference

- 1) Planning Policies/Strategies for the intervention's suitability with urban space.
- 2) See No. 2.2.10 for the discharging A/C condensation water to the main sewer line.

2.2.5. Disregarding and disrupting the existing structural system in modifications

Background

A current practice that is a result of the incompatible use of the interior spaces in a traditional house, is the blocking of the *badgirs* and the opening up of windows towards the street. This practice contradicts with the essence of the courtyard house, where all openings are towards the interior, and where exterior solid walls were used, throughout a series of wind catchers (*badgir*), to regulate the interior climate. In opening up an exterior window, the users usually ignore the structural system of the house, and knock down one or two of the stone piers in order to have enough space for the window (see the photograph below). This practice not only disfigures the essence of the traditional buildings, but also results in disturbing the structural system which is the main essence of such buildings, called ‘latent frame.’² A sudden collapse could result from the removal of intermediate piers without taking the appropriate structural precautions.

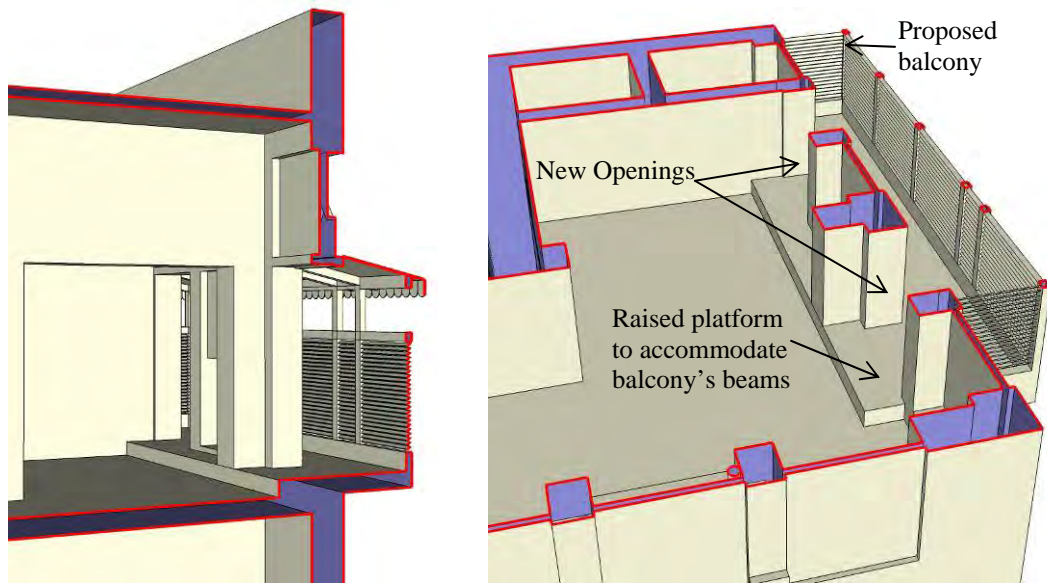


Implementation

- No alteration of the structural system of any internal or external high significant buildings (see survey, and Policies/Strategies 2.1.1.-2.1.4). In the case where the changes were already made in this category of buildings, a full restoration of the original structural system shall be undertaken.
- Significant buildings where interior modifications are allowed (see Policies/Strategies 2.1.5-2.1.6), limited changes in the structural system is allowed on the condition of finding an appropriate structural alternative. A proposal for such alternative is as following:
 - Consolidate and repair the existing piers,
 - No dismantling of any structural piers is allowed.

² See John Yarwood, al-Muharraqd: Architecture of a Traditional Arabian Town in Bahrain, in *Arts & The Islamic World*, Special Volume, No. 36, p. 35. When the structure is expressed externally, Yarwood called it the “emerged latent frame.”

- Dismantling the portion the *farsh* walls are allowed after securing the portions which will be preserved in place by placing adequate lintels over new door openings. No windows shall be opened as this will disrupt the essence of the courtyard type of building. Dismantling shall be proceed slowly with sharp chisels and small hammers. An insertion an adequate size doors to lead to a newly projected balcony shall proceed.
- It is necessary to contain all new door openings behind a newly introduced wooden balcony that resembles the traditional one (shown below). The floor of such balcony shall project from the joists of the wooden floors, and shall be fixed into it. This fixation will probably results in having the balcony's floor raised above the floor level of the room as shown in the sketches below.
- It is necessary to provide an adequate slope for the roof of the new balcony and gutters to discharge any accumulated rainwater (see principle/strategy No. 2.2.22.).
- This approach will also help to restore the vanishing urban aspect of the projected balconies, and will provide an architectural homogeneity that is based on some required necessity for interior space modifications.



Reference

Zoning, and planning principles/strategies for the specific architectural details of projected balconies, and whether projections over façades are permitted.

2.2.6. Ignoring historic layers in the process of rehabilitation and repairs

Background

Historic buildings in Manama and Muharraq can be dated according to their construction system and their architectural style. Yarwood initiated an interesting attempt for such dating in his *al-Muharraqd: Architecture of a Traditional Arabian Town in Bahrain*, where he could identify four categories within the time span of 1850 until the 1940's. Such stylistic, architectural, and constructional differences shall be respected in any future intervention to prevent the confusion in dating the buildings. If the intervention is based on the introduction of modern architectural and construction systems, evidences of distinctive historic features shall be preserved in different scales depending on the case. Moreover, terms stated in international conservation charters shall be respected.



Minaret of the Mosque of al-Fadil before and after intervention. No attempt to indicate historic layering.

Implementation

- If conservation is adopted for a certain significant building, it implies preserving a setting which is not out of scale. Wherever the traditional setting exists, it must be kept, and recognized. This is apply towards buildings subjects for 2.1.1.-2.1.2 and 2.1.8. No new construction, demolition or modification which would alter the relations of mass and color must be allowed.
- If conservation is adopted (buildings subjects for Policy/Strategy 2.1.1.-2.1.2. and 2.1.8.), the moving of all or part of the architecture cannot be allowed except where the safeguarding of the building demands it or where it is justified by national or international interests of paramount importance.
- If conservation is adopted (buildings subject to 2.1.1.-2.1.2. and 2.1.8.), items of sculpture, painting or decoration which form an integral part of the significant building may only be removed from it if this is the sole means of ensuring their preservation.

- If rehabilitation is adopted (buildings subject to 2.1.3.-2.1.7.), traditional construction and decorative techniques shall be followed. Where they proved inadequate, the consolidation achieved by a modern technique for conservation and construction, the efficacy of which has been shown by scientific data and proved experience.
- If rehabilitation is adopted (buildings subject to 2.1.3.-2.1.7.), the valid contributions of all periods to the significant building must be respected, since unity of style is not the aim of rehabilitation. When a building includes the superimposed work of different periods, the revealing of the underlying state can only be justified in exceptional circumstances and when what is removed is of little interest and the material which is brought to light is of great historical, archaeological or aesthetic value, and its state of preservation good enough to justify the action. Evaluation of the importance of the elements involved and the decision as to what may be destroyed cannot rest solely on the individual in charge of the work.
- If rehabilitation is adopted (buildings subject to 2.1.3.-2.1.7.), replacements of missing parts must integrate harmoniously with the whole, but at the same time must be distinguishable from the original.
- If rehabilitation is adopted (buildings subject to 2.1.3.-2.1.7.), additions cannot be allowed except in so far as they do not detract from the interesting parts of the building, its traditional setting, the balance of its composition and its relation with its surroundings.
- If rehabilitation is adopted (buildings subject to 2.1.3.-2.1.7.), reversible techniques should be used in any additions, modifications and changes, except where this is impracticable for reasons of dire structural necessity.

Reference

International Conservation Charters: Venice, 1964; and Lahore Statement, 1980.

2.2.7. Wood preservative and treatment

Background

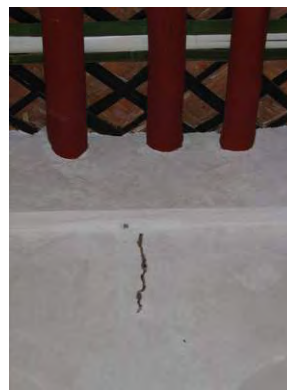
Most of, if not all, traditional buildings in Manama and Muharraq, and in Bahrain in general, are constructed with stone and wooden elements. The wood has twofold structural roles: the first is to tie the stone pillars to each other at various vertical levels, and the second is to provide beams that would span over openings and the span of the rooms. The wood is, therefore, a crucial component of the structure and if it fails, the building usually falls into ruins. The masons of those traditional buildings recognized the importance of this material, and devoted a lot of care to select the type of wood that would resist the climate conditions of Bahrain, and that would assure longevity. It is reported that most of the timber used in the construction works are mainly of teakwood that was imported from India and Africa (Kazerooni, 2002). The mangrove wood is durable, very strong and flexible, and was imported from Malabar Coast (Calicut) or east Africa (Zanzibar, Lamu) and this was used as the roof or the floor beams, which are locally called *al-chandal* or *danchal* (Wali, 1990 and Yarwood, 1999). Those were mainly used for floor and roof joists. The traditional masons also came up with a recipe of a natural wood preservative that is made from the remains of fish. This method is explained in the first implementation procedure, as it could still be revived today.

Unfortunately, termites (*sus*), wood worms (*qarada*), and white ants (*naml- abyad*) are a common problem in Bahrain that attacks the historical wood. It was reported to me that this problem started to rise in Bahrain recently, and there are claims that these insects were brought to the country with some newly imported types of wood. No matter how they found their way into the country, those insects need to be studied by biologists in order to design the most suitable treatment(s) that would prevent those insects from spreading, and meanwhile would not affect the environment. Wood that is newly imported to the country, especially those ready-made furniture made in India currently very popular in Bahrain, shall be carefully inspected to make sure that they are not infested. Those two measures will help to eradicate the extent of the problem in the future.



(1)

(1) *Denchel* wood eaten away in Shaykh Salman house caused the collapse of the floor.



(2)

(2) *Qarada* attacking the wall internal wooden ties, and its excrement is deposited on the walls of Sheikh 'Issa bin 'Ali house.

Implementation

- Applying traditional wood preservative that is called “*sol*,” which is made by dumping fish in a pit and allowing it to rot. “The pit was covered with a big stone. This as mixed with the surface oil and made into a paste. This sticky reddish substance was applied on the *danchal* poles in order to protect them from woodworm and other insect attacks. The date palm droppings were applied on the *mangroor* mat. This provided dark brown and red color to the ceiling, which were collected from the stacks of date palms known as ‘debs’, were applied on the diamond shaped bamboo called “*basjeel*.” This gave a black color to the bamboo mat. These two different shades with light beige palm mat gave interesting contrast to the ceiling.”³
- Structural wooden members, which are found defected, shall be inspected structurally in order to check whether they can continue fulfilling their structural roles. If this is the case, defected portions of the wood shall be disinfected properly. It is preferable for such wooden members to be dismantled from their position, and to be treated in an enclosed environment in order to assure the effectiveness of the treatment, and the to minimize the negative effect on surrounding environment, since in most of the cases, disinfectants are not environmentally friendly. Appropriate respirators are required for the personnel involved in the treatment process.
- If wooden members are proved to be incapable to fulfill its structural role and they are proved not to hold any painted or carved surfaces, they shall be exchanged with new wooden members which shall be similar in wooden type and dimensions. In this case, the newly introduced wooden member shall be treated with the wood preservative explained above. Removed wooden item shall be extinct by burning it out in order to prevent infecting other wooden members.
- If wooden members are proved to be incapable to fulfill its structural role and they proved to hold significant decorative surfaces, whether painted or carved, they should be disinfected, and preserved, but not to be re-incorporated in any structural system. Preferably, treated wooden member shall be exhibited nearby its original location, after it was replaced with a new similar wooden members. If the decoration is of a special significance, transfer of this wooden member to a museum shall be considered, accompanied with proper documentation of its original context from where it was dismantled.
- Non structural decorative wooden members, i.e. window or door frames or ceiling friezes, shall be preserved in place. Defected sections could be either properly disinfected, or to be sawn out and replaced depending on the condition and the prospective use of the wooden element. In the case if the defected pieces shall be sawn away, the newly introduced wooden piece shall be dovetailed and doweled with the old member.

Reference

See also Policy/Strategy 2.2.12. of this report for periodical maintenance of wooden elements.

³ Farry Kazerooni, *Gulf Islamic Architecture*, Bahrain: Oriental Press, 2002.

2.2.8. Roof screed and roof slope

Background

The current practice for maintaining roofs over buildings is to over-layering it with screeds. In traditional building, this practice results in overloading the roof beams until they reach to their maximum loading limit, after which they break, transferring the load they were carrying to the adjacent beams, which in their turn break and so on until the roof fails. On other consequence from overloading the roof beams with additional screed layers, is that usually the roof bows in the middle span, where the load stresses are maximum. This causes the roof slopes to be disrupted, and for falling water to pond in over the middle area of the roof. Throughout hair-cracks in the screed, water infiltrates and reached the wooden *denchel* contributing to the damage of the wood, and to further the reasons for its failure. Similar results also manifests, if the cross sections of the roof beams were inadequate to offer enough strength to carry roof layers without bowing in their middle span. In addition, users of significant buildings find the roofs the only empty space in the house to install some modern equipment such as reception dishes, and water tanks. Those equipment are heavy and they are exerting concentrated loads on either the walls or on some of the roof beams.

Literature points out that the traditional sloped roof dock are made out of mudpack, which is usually 10 cm thick, and that the top surface was finished with lime plaster to provide a hard surface. The top surface which is vulnerable to weathering needs to be repaired and maintained regularly.⁴ There are also reference to a traditional waterproof plaster that is called *saruj*, or *sarooj*, which was used in bathrooms or over roofs. The plaster is made out of the donkey manure which was mixed with pinkish color clay and was then burnt in the kiln. The result was powdered, and was used in two stages: the first mixed with the clay and plastered, and the second powdered and mixed with water and applied on the wall.⁵



Roof of House of Jasim al-Qusayr in Manama

⁴Farry Kazerooni, *Gulf Islamic Architecture*, Bahrain: Oriental Press, 2002.

⁵ See Kazerooni, and Yarwood. Yarwood stated that, *saruj*, otherwise as “linge cement” is known for its moisture resistance in the soil. It is an expensive treatment, and probably time consuming that in 1906, a British who lived in Bahrain wrote that he could only do the dado height of his building.



Roof of House of Jasim al-Qusayr in Manama



Roof failure in house of Shaykh Salman, Muharraq

Implementation

- It is necessary to check all the wooden beams that are supporting the roof, and make sure that they are not affected by termites, and their wooden cross section is adequate to withstand the weight of the roof. It is also important to check whether the two extremities of the roof beams are resting properly on top of the walls on top of an appropriate wooden seat. In the case of replacements, newly introduced wooden members (whether beams or wooden seats), shall be treated against termites (see 2.2.7.)
- It is necessary to provide adequate slope of 3-4% for the screed of the roof. The lowest point of such slope shall be at the gargoyles (*mirzam*).
- It is better if the desired roof slope is achieved through sloping the actual beams of the roof, and to prevent adding layers of screed, thus more load, to make up the slope.
- It is necessary to introduce a waterproof membrane above the sloped roof planks in order to prevent rainwater from reaching the wooden members of the roof. The waterproof membrane shall be bitumen based, and reinforced with fiber glass. It is important to assure the smoothness of the wooden planks before applying the waterproof membrane in order to prevent puncturing it. It is desirable if this membrane could be cold applied, in order to prevent the fire hazards of the torch application of such sheets.
- The sheets of waterproof membrane shall overlap at least 10 cm of distance. The installation shall start from the gargoyles level, into which the sheets shall be extended. Overlaps shall then proceed upwards, providing enough skirting over the roof parapets, at least 15 cm above finish roof level.
- Use of a 10 to 15 cm screed, preferably hydraulic lime mortar with an addition of ash, and light weight aggregates. It is important to make sure that the screed will be compacted and no air bubbles are trapped into it, as those bubbles are one of the causes for developing hair-cracks, and consequently water infiltrating the screed layer.
- Traditional roof screed (*sarooj* or *saruj*) shall be tested and evaluated before use as a roofing screed.

Reference

Policy/Strategy No. 2.2.7, 2.2.9 in this report.

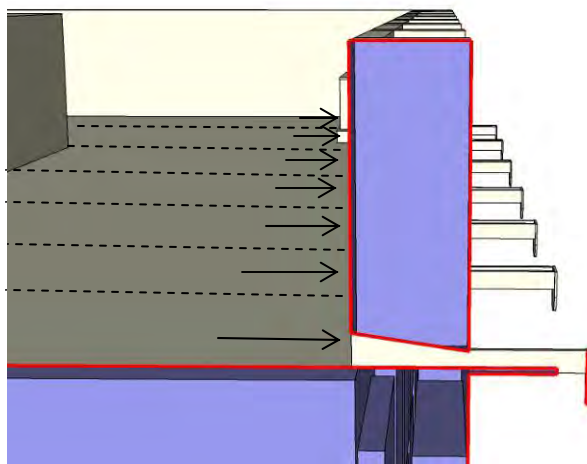
2.2.9. Design of mizram traditional water gutters

Background

It seems that the roof gutters, or gargoyles, or what is called locally *mizram*, is a distinguished element of an exterior façade in a traditional building. It has a particular design, as it is made out of wooden planks, sloped towards the exterior, and had hanging fascia that serves to drop the collected water at a certain position rather than to make spilling uncontrollably over the street below. The *mizrams* are usually positioned at the roof level below the roof *badgirs*, in the case if they exist. They are installed right above the roof wooden planks. If the roof is not used, i.e. the roof of the *majlis* in Manama, photographed below, the *mizrams* come right below the parapet line since no *badgirs* are provided in such roofs. The *mizrams* seem that they don't have a particular position in relation to the horizontal line of the façade, so that they can appear right under the stone pillars of the roof *badgirs*, or right below the *farsh* of the *badgirs*. In no incident *mizrams* were found pierced into a *farsh* wall.

It is not clear why those *mizrams* are so frequent along the façade, even though rainwater is scarce in Bahrain. Beside providing an aesthetic rhythm, it seems that their frequency along the façade contributes to minimize the roof slopes as each structural bay has its own gutter to discharge falling water. Only 2 to 4 cms difference of height in the roof screed should be enough to provide an adequate slope that guarantee immediate water discharging.

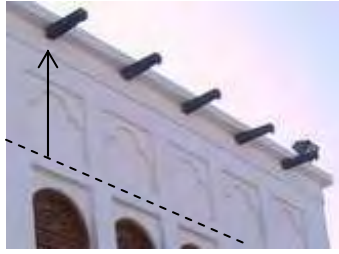
In current restoration and rehabilitation practices, the wooden *mirzams* are replaced with modern pipes which has little to do with an element that became distinguished of a traditional façade. Also, the roof *badgirs* in most of the current rehabilitation projects are roofed to provide more interior rooms and spaces. The *mirzams* in their original positions do not have any function, and therefore, they are relocated above the new roof level right below a shallow parapet. The new position, however, does not provide the *mirzams* its tradition setting, and modify its original function and meaning. It only coat the façade a rhythm that resembles the original one, but does not have a functional reasoning.



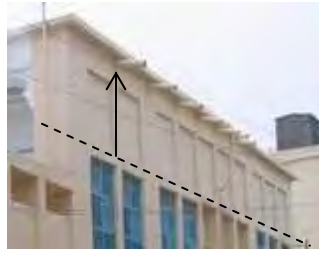
The traditional setting and performance of *mizrams*



Shaykh 'Issa, Muharraq



Abdallah al-Zayid, Muharraq



Restored by Lebanese, Muharraq



Majlis in Manama

The dotted lines show the original level of the *mizrams* which were heightened in recent restoration.

Implementation

- *Mirzams* shall be positioned right above the wooden planks, and its projected wooden platform shall be a continuation of the planks leveling.
- *Mirzams* platform and their sides wooden planks shall be waterproofed with either a brass flashing or an extension of the roof's waterproof membrane.
- *Mirzams* shall be made out of good quality wood (see list of the wood in point No. 4.4.) in order for it to sustain weathering conditions. Wooden pieces shall be soak into hot natural oil, such as linseed oil, in order to elevate the wood's moisture content, and thus elongate its lifespan. Naphtha or turpentine could be added to the oil and to assure better permeate into the wooden pores.
- Assemblage of the *mirzam*'s wooden pieces shall be made with either brass screws, or wooden dowels in order to prevent the rusting of steel nails.
- The installation of the *mirzam* unit shall be simple and easy to be dismantled in order to provide periodical exchange of the unit without damaging the surrounding fabric.
- In high significant buildings subject for conservation or rehabilitation (policies/strategies 2.1.1.-2.1.4) the original positions and the setting of the *mirzams* shall not be changed even if a higher new roof was added. It would be necessary to find a way for those *mirzams* to collect discharge water from higher positions without relocating them, i.e. through wall channels.
- Staining color of the wooden surfaces of the *mirzams* shall be homogeneous with other wooden elements of the façade of the building and in the surrounding urban space.

Reference

Refer to policy/strategy 2.2.10 for draining water discharged from *mirzams*. Also refer to urban codes for the maximum and minimum projections of *mirzams*, and the finishing color of its exposed wood.

2.2.10. *Rising dampness over façade walls, and preventing Asphalting the roads against historic façades*

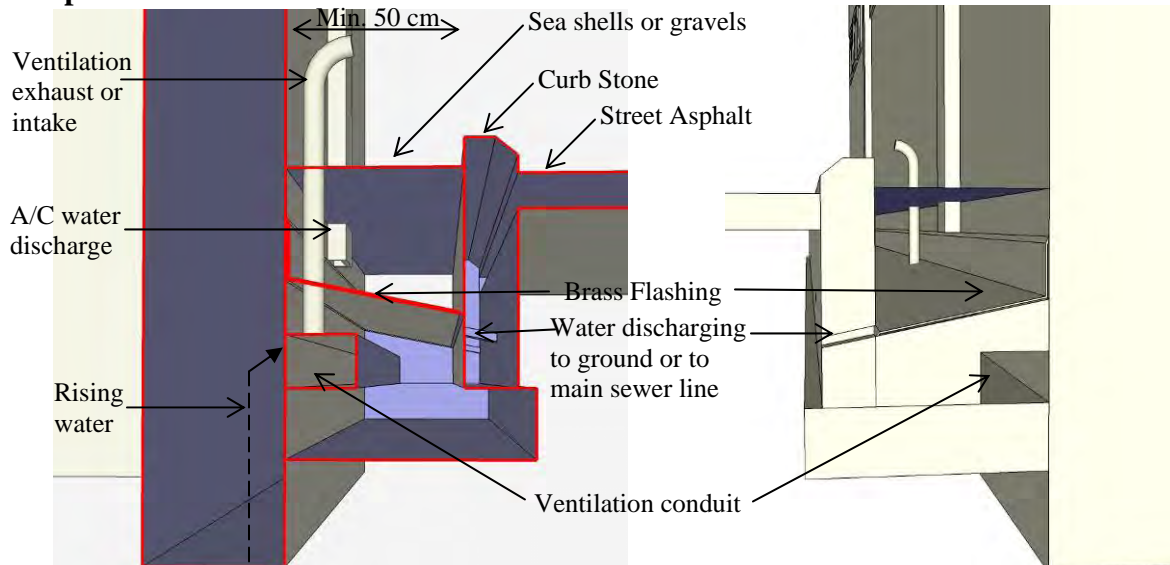
Background

Most of the streets in the historic areas in Manama and Muharraq were asphalted to allow car traffic. The asphalt layer reaches the exterior of the building walls, and in most of the cases, is not sloped in a way to keep water away from them. Surface water is directed towards buildings, and infiltrates its walls through hair-cracks in exterior cement plaster of the façades, and thus trapped into it contributing to the damage of the building materials. Moreover, ground water is trapped under the asphalt layer and finds no way to rise except through capillarity through porous building materials of the exterior walls. This phenomenon causes a continuous line of water staining along the exterior façades, and the formation of efflorescence due to the dry and wet cycles of their lower sections.



Significant buildings in the Suq area of Muharraq, asphalted against their façades.

Implementation



Sections at the street level showing suggested details of ventilation and water drainage system

- Stop asphaltting at least 50 cm away from exterior walls,
- Design and implement a ventilation system at the perimeter of the exterior façades of significant buildings on the basis of the schematic concept shown in the above sketch.

2.2.11. *Mixing traditional mortars for different uses (wall construction, plastering, roof screed)*

Background

It is noticeable that mortar of Portland cement has replaced all sort of traditional mortars. As shown above (see 2.2.1 and 2.2.2.) cement proved to be detrimental for traditional building materials. It is therefore important to emphasize on appropriate mortars when we deal with stones and wood structures. The purpose of this strategy/policy is to list some of the traditional mortars as described in the literature. More descriptions of such materials are available in section No. 4 of this report.

Implementation

- For the mortar used in the construction of the random-rubble technique, the mud usually excavated at Rifa'a area was used.
- For Plastering (rendering) three different mortars are used depending on the layers:
 - The first, called *al-tetrees (al-tatris)* is made out of mud similar to the one used in the construction of the rubble masonry. The purpose of this layer is to fill-up the holes or major unevenness in the masonry of the wall,
 - The second *al-misaih* is made out of mud and gypsum. The purpose of this layer is to establish a reasonably smooth surface.
 - The third *al-tabidh* was lime and gypsum. The third coat is a smooth decorative coat of lime and gypsum. The top coat is sometimes set back about 3 cm from niches and windows.
- Plastering on *farsh*, only one very thin coat of gypsum, about two or three millimeters thick, was applied.
- Components of the mortars:
 - Rifa'a Clay (tin al-Rifa'a): from Rifa'a in the centre of the main island. This was produced by the weathering of the exposed rocks in the central depression. It was used to cement the rubble in the core of walls, and was also mixed with the lime mortar for certain purposes, perhaps to reduce the susceptibility of gypsum plaster to action by water, particularly on sulfates and other salts.
 - Mud from coral reefs: Mortar made from burnt mud from the coral reefs.
 - White mud collected at Bu Ghazal: Ship owners were commissioned by owners or builders to collect the mud and bring it to Muharraq harbor; this took two or three days. This was too expensive for poor people prior to the 1920s or 1930s, and they used mud from the local reefs.
 - *Nurah*: Lime.
 - Djuss (Gypsum): made by crushing and burning limestone. Initially the small cottage industry near A'ali was the only source, but more recently it was imported from Saudi Arabia and Qatar as it was less prone to crumble than the Bahraini product. The gypsum was mixed with lime (*nurah*) which improved its workability. When supplies were imported from Qatar or Najd (Saudi Arabia) to Muharraq, specialist burners calcined it by covering the stone with timber, which was set on fire.

2.2.12. *Maintenance of architectural wooden element,*

Background

As it was explained above, see policy/strategy 2.2.7., construction wooden elements are essential for the structural stability of the traditional buildings. It is therefore necessary to suggest procedures for a periodical maintenance for the exposed architectural wooden elements, i.e. floor and roof beams, wooden doors and windows to reduce chances for their attack with wood termites, and to balance their moisture contents in order to prevent their drying up and being brittle. It also suggests a periodical inspection plan to identify the wooden elements, even those which are inserted within the walls, that are attacked by termites, and measures to be taken to deal with affected wooden pieces.

Implementation

- Applying the traditional wood preservative periodically at least bi-annually. For the preparation and application methods of this wood preservative, see 2.2.7.
- Conducting a periodical, at least annual, inspection of all wooden items, exposed and inserted in the construction of the walls, floor, and roofs, to identify areas attacked by termites or woodworms. For inspection methods, see Fielden, cited in references below.
- In the case where ground (subterranean) termites are identified, which is typical to humid coastal areas such the Bahraini climate, injection of the ground with disinfectants are required, and in some cases exchange of soil is also recommended. If the identified infestation indicates a heavy attack of ground termite, in addition to ground disinfection, it is suggested to insert a continuous layer of insulation sheet (brass or lead or waterproof membrane) that separates the exterior wall from its foundations, where most of the attack is taking place.
- For the wooden elements identified to be infested by termites or woodworms , localized disinfecting is required. For various methods of disinfection, see Fielden 149-151.
- Filling cracks and voids developed on the surface of the wood with an adequate filler, either with a paste of wood dust and gum resins or with a plaster of Paris. The filling shall take place after careful cleaning of the voids and cracks so that the accumulated dust won't create a separation surface between the filler and the wooden fibers.
- Applying wood polishing either oil based or French:
 - Woods which contain a considerable quantity of resin, soft wood, may be filled with boiled oil or spirit varnish. For woods which it is desired to finish as light as possible an oil filler should not be used, as oil has a tendency to darken the color.
 - Polishing that consists of coating the wood with shellac dissolved in methylated spirit, and occasionally other gum resins. The polish is rubbed in instead of being painted on with a brush.

Reference

See Bernard Fielden, *Conservation of Historic Buildings*, Suffolk: St Edmundsbury, first published in 1982, revised edition 1998, pp. 135-151.

2.2.13. *Preservation and maintenance of wall plaster*

Background

The common current practice in dealing with wall plaster in any conservation or rehabilitation projects is to remove the existing exposed layer and replace it with a new one. In few incidents, replacement is made with a traditional plastering techniques, but in most of the cases cement plaster is used (see policy/strategy No. 2.2.1. in this report). This policy/strategy suggests a third approach in dealing with the historic plaster based on the notion of preserving as much as possible from the historic fabric, and if necessity and conditions mandates, replacements shall be minimum, homogeneous with the surrounding plaster but distinguishable.



Exterior being renovated in Muharraq



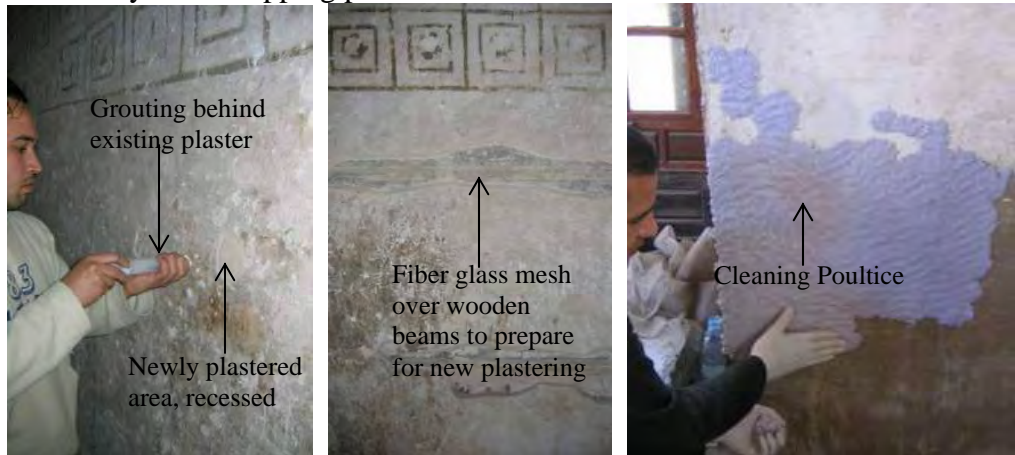
Courtyard facades of Siyadi house.

In both cases, historic wall plaster was scrapped away, and being replaced with new ones.

Implementation

- Preserving as much as possible from the historic plaster if possible.
- If layers of historic plaster in detached from their substrate. Grouting shall be consider to fix the detached areas, and to prevent further development of air gaps and voids behind the finish plaster.
- If cracks are found developed on the surface of the historic plaster, they should be inspected to identify if they are structural or simply manifesting through the finish layer. If cracks are structural, stitching of the wall with wooden ties are required at the cost of partial removal of the historic plaster. If cracks are manifesting only on the surface, they should be filled with lime mortar that is similar to the composition of the existing historic plaster (see 2.2.11. for the composition of the historic mortar).
- If surface cracks are wide (more than 1 cm), they should be filled with compatible lime mortar reinforced with fibers, either straws treated against termites, or preferably fiber glass.
- If there are areas in the walls that lost its plaster, capping along the profile of the existing historic plaster is necessary in order to prevent the spilling of the injected

grout through areas of plaster loss. Capping mortar shall also be similar in composition to the existing mortar, with a small addition of gypsum to allow better workability of the capping profile.



Grouting behind the historic plaster to preserve it, capping around losses, and fixing fiber glass mesh in areas of the losses to prepare them for re-plastering. Note re-plastered area are recessed to distinguish them.

- If the walls' wooden tie beams were being exposed, and they lost their traditional straw ropes, which worked enhanced the attachment of the surrounding mortar to the wooden elements, an fixation of fiber glass mesh over exposed elements is required to reinforce any new addition of plastering layer.
- If layers of dust, pollutant deposits, smoke, and/or graffiti were found deposited on the surface of the historic plaster, changing its original color, and affecting the overall aesthetic quality of the façades, cleaning procedures shall be considered. Dry cleaning, using soft brushes and sharp small scalpels shall be tried at first. If found inefficient, chemical cleaning shall be selected using application of poultices that contains solvents to dissolve deposits on the surface of the wall. Poultice composition shall be designed according to the case. In the case of using a chemical cleaning, it is necessary to neutralize the cleaned surface, usually with distilled water, in order to prevent chemical residues to affect the composition of the historic plaster.
- Areas where historic plaster was found missing, or knocked don in order to fix the conditions of the wall behind, or where existing plaster layer could not be saved because of its condition, shall be re-plastered with mortars and procedures that are similar to the traditional ones (see 2.2.11.). Color matching through samples shall be confirmed before the application of the new plaster. Finishing procedures shall distinguish between the historic plaster layer and the newly added one. Also, new plaster addition shall recess, no more than 1 mm., from the level of the existing layer to assure a better readability of the overall plastered surfaces.

Reference

See also Policy/Strategy No. 2.2.11. in this report for plasters' traditional mortars and their components.

2.2.14. *Alternative uses for wall badgirs in air-conditioned rooms*

Background

In most of the rehabilitation projects that have been achieved in Manama and in Muharraq, the traditional climatic control system, which consisted a series of walls' wind catchers, has been blocked in order to allow the installation of air conditioning units. The essence of the *badgir* inside the rooms, and along the exterior of a traditional building is no longer preserved, and this feature became decorative more than functional. This policy/strategy differentiate between two approaches: the first is the level of conservation specified in 2.1.1, 2.1.2., and 2.1.8, where those *badgirs* should be preserved as a functional element, and the second is the level of rehabilitation assigned for 2.1.3-2.1.7, where those *badgirs* could be preserved and integrated in a new function.

Implementation

- Where conservation is assigned for a high significant building, wall *badgirs*, and roof wind catchers, shall be preserved as functional climatic control elements. Those conserved elements would preserve the functional aspect of those important traditional systems, and would emphasize on the fact the what shaped the local traditional architecture are the attempts of Bahraini people to provide livable interior spaces in the harsh exterior weathering conditions. In such cases, all the *badgirs* accessories, such as the pivoting shutters, shall be re-incorporated.
- Where rehabilitation is assigned for a significant building, more flexibility in dealing with wall wind catchers are allowed. *Badgirs* shall be blocked by either blocking the traditional shutters permanently, or to provide a wooden decking that would seal the gap between the two *farshs* of the *badgir* system. It is important to cover the external *badgir*'s platform with an external plaster that has an adequate slope towards the exterior face of the wall. The façades that are vulnerable to rainwater, it is important to fix a flashing, preferably in brass, that extends over the *badgir*'s platform, and provides a water drip so that discharged water would not spill over the façade and stain its external plaster.
- Internally, the *badgir* space could be used for several purposes:
 - To fix a window type air conditioning unit (see Policy/Strategy No. 2.2.4.)
 - To use the lower spaces between the stone piers as cupboards by installing shelves and double doors. All installation shall be on the piers and not on the *farsh*.
 - The recessed space of the *badgir* can be used as an indoor flower box. In this case, instead of sealing the *badgir* open space with solid wooden planks and flashing above, the roofing could be made with a sloped panel of reinforced glass, or even stained glass to provide a special interior ambiance. The drainage of the flower boxes could be made similar to the one proposed for the air conditioning units (see Policy/Strategy No. 2.2.4.). The flower boxes could be an ideal use of the roof *badgirs*, if a future roof garden is considered.
 - The *badgir* spaces could also accommodate indirect lighting units in the case if the space will be used for an exhibition that needs indirect lightings on a floors.

Reference

Policy/Strategy No. 2.2.4.

2.2.15. Accessories for traditional doors and windows

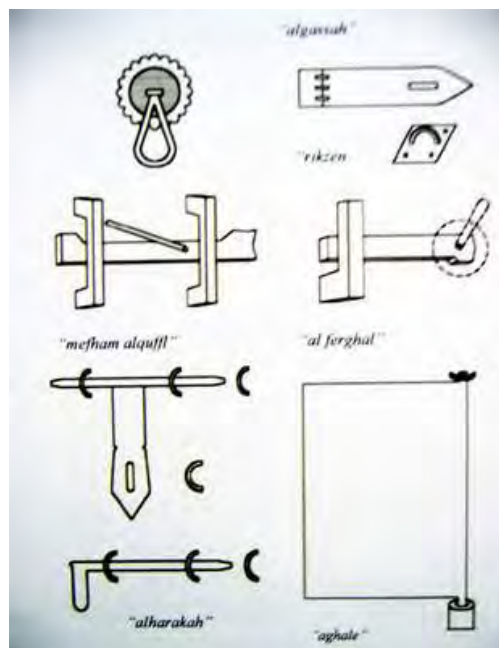
Background

The doors of Bahrain are a unique feature that identify the traditional houses. They are considered an honorable piece that tenants and users are so attached to, to the degree that when a family moves from a house to another, they usually dismantle those doors to take with them to the new destination. Those doors are known with their simple structure, and their decorative nose and bands that surrounds their perimeter. They are also known with their exposed nails with have a bid size head and they are hand forged steel. Between horizontal rows of exposed nails, there are usually centralized decorative motives.



Left: old door after conservation, middle: new door made according to traditional design. The two in the house of Salman in Manama. Left: wooden peg to keep door open at House of Bin 'Issa in Muharraq.

Implementation



Door accessories as shown in Kazerooni

- Select suitable preservation measures from those listed in Policy/Strategy 2.2.12, and applying them periodically (whether for disinfecting, or polishing procedures).
- Using all traditional accessories that go with the type of doors and windows in subject. It would be harmful, for an example, to change the *aghale* (spindle pivot) for modern hinges since the structure of those doors are not designed to be hanged from the sides. A list of the traditional accessories is available in point 4.6. Examples are: ***Aghale*** or ***Raha***: Spindle pivot, door hinge projecting at top and bottom of the door leaves; ***Al-Bezljaj***: timber lock and key system; ***Fixing wooden pegs***: Series of wooden pegs to fix the door in its opened position (shown in the left photograph); ***Mefham***: a sliding timber locking gadget; ***Ferhal***: A timber piece rotates to open the door; ***Al-seakh***: External side lock in brass hasp; ***Al-harakha***: Brass barrel lock; ***Bu-anf***: decorative door noze; ***Bu safgha***: Double door; ***Khokha***: door that has small insert door; ***Door knobs***: different ones are usually fixed on external doors, each produced different sounds so that men and women can identify the sound and attend accordingly. Some times there were three or four occupants and will answer to each sound of door knocks; ***Kamar***: Pierced decorative panels are placed at the external walls, usually placed above the opening to lightening the weight of the wall masonry on the door lintel.

2.2.16. Conservation of carved gypsum panels

Background

The site visits to all rehabilitation projects that were achieved in Manama and Muharraq (listed in point 6. of this report) proved that the trend in dealing with the carved gypsum windows and panels, is that the original ones, which were probably found in damaged conditions, were removed and replaced with newly carved ones. Probably the newly introduced ones follow the designs, the shape and the installation details of the ones which were removed. This approach disrupts the historicity of the place, and results in damaging the precious historic fabric that could be preserved. This policy/strategy suggest to develop a new approach towards those carved gypsum elements based on conserving most of its historic fabric, and repair them with necessary measures in order to provide them with more strength to sustain weathering procedures.

Implementation



Left: old gypsum window restored by preserving its pieces; Right: Nagui carving a new gypsum window.

- Studying the conditions of the existing historic gypsum window to decide if it could be dismantled, conserved in place, or making a new one based on original design. It is also necessary to assemble all broken or loose sections for a possible reintegration in the conservation process. Existing design shall be documented on tracing paper, and attempting to position loose fragments into the composition.
- Pre-consolidating all the existing gypsum with an appropriate consolidant, i.e. 2-7% solution of paralloid diluted in acetone depending on the condition. Consolidation helps dismantling the windows to be cast and carved on an horizontal platform.
- Casting new gypsum in areas that total or partial losses. If areas of losses are large, consider inserting stainless steel pins, or fiber glass to tie the existing sections with the newly cast areas. The new gypsum paste shall be similar in composition and in color to the existing one. Casting shall be made into the wooden frame that will hold the element. For a better adhesion between the gypsum and its wooden frame, new stainless steel pins shall be nailed into the wooden elements and left projected to adhere with the solid areas of the newly cast gypsum.
- Re-carving the newly cast gypsum according to the design inferred from existing fragments. Re-installing the frame into its position after complete dryness. Installation shall be secured in place with a continuous flexible caulking to provide flexibility for the material differential movements.

2.2.17. *Stitching rukniyya on wooden lintels in arcades*

Background

In high significant buildings, the upper corners between free standing columns and the supporting wooden beams are usually decorated with *rukniyyat* (plural). *Rukniyya* (single) is a carved gypsum decoration that takes the shape of a structural corbel. In no visited case those *rukniyyat* were found structural. When such decoration cracks, and falls down, the common practice is to remove it, and replace it with a new one. This policy/strategy suggests possible conservation of existing historic fabric, and not to limit replacement of historic fabric.

Implementation



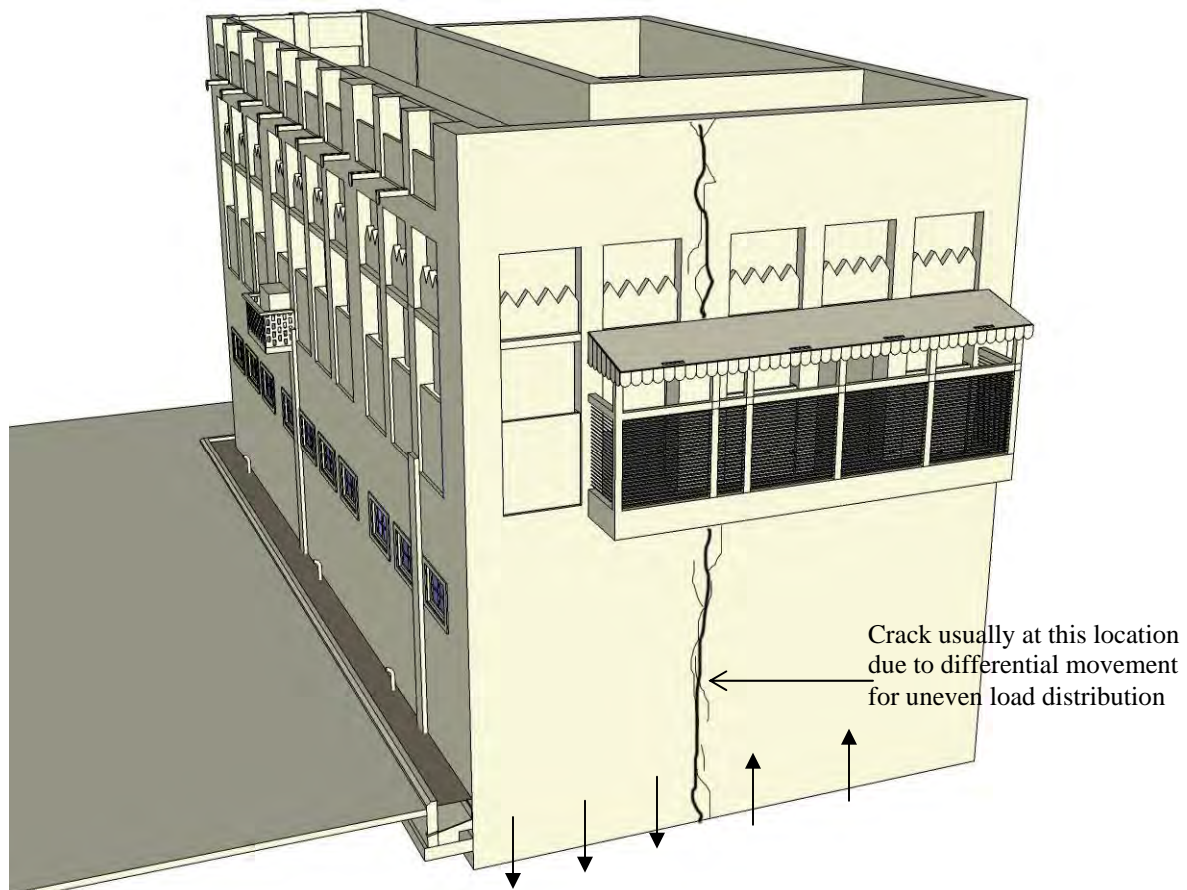
Gypsum decorative corner (*rukniyyat*)

- Studying the conditions of the existing damaged *rukniyya* to decide if it could be dismantled, conserved in place, or making a new one based on original design. It is also necessary to assemble all broken or loose sections for a possible reintegration in a the conservation process. Existing design shall be documented on tracing paper, and attempting to position loose fragments into the composition.
- Pre-consolidating all the existing gypsum with an appropriate consolidant, i.e. 2-7% solution of paralloid diluted in acetone depending on the condition. Consolidation helps possible dismantling of the *rukniyya* to conserved and restored on an horizontal platform.
- Making a wooden form that follows the original design , and casting new gypsum in areas that total or partial losses. If areas of losses are large, consider inserting stainless steel pins, or fiber glass to tie the existing sections with the newly cast areas. The new gypsum paste shall be similar in composition and in color to the existing one. Projected stainless steel pins should be encountered before casting in order to have integrated hanging points. Those pins shall be well structured into the gypsum unit, whether screwed into its wooden internal webs, or welded into its internal steel structure.
- Finishing the newly cast gypsum according to the design inferred from existing fragments. New carving shall produce a surface that is different from the historic finish in order to facilitate distinguishing between historic and modern materials.
- Installation shall be secured in place with a continuous flexible caulking to provide flexibility for the material differential movements.

2.2.18. Corner stitching in upper Majlis rooms

Background

Even though the construction system of the traditional houses seems to be a column/beam frame system, on the foundation level this system works as a continuous wall bearing. Since the poles of the intermediate floors and of the roof are all positioned in such a way that they span the shortest dimension of the built mass, the two longer opposite walls among the four walls of the mass would be responsible to transfer the load to the foundation level. If, at the foundation level, the corner of the mass is not well tied, the system of load transfer would result in developing corner cracks due to differential settlement. This defect is apparent when the short side of the built mass is relatively long (more than 2.5 meters), thus, weak to sustain the differential settlement, and if any of the long walls carry the loads of the floors and the roofs of one mass. In this case the short side work as hinges and develop longitudinal cracks at the corners. An obvious example of such cracks are the one developed along the corners in Shaykh Salman House.



The above sketch demonstrate the failure process due to differential settlements, since the load distribution along the side façade is uneven. The first two bays from the corner are not transferring any loads as all of the roof and intermediate floor beams are directed towards the main façade. The following three bays of the secondary façade are carrying the loads of the roof and the intermediate floors.

Implementation



Sheikh Salman House: first floor room. Note the corner longitudinal crack. Note the external network of continuous longitudinal cracks developed due to foundations' differential movement.

- In order to remedy those kind of cracks, structural intervention needs to be undertaken. There are usually two approaches for the remedy: the first is to create a continuous hinge between the load-bearing and the non-load-bearing walls in order to let each to settle and behave separately from the other; the second is to stitch the two elements together in such a manner that both would be forced to settle in the same rate of the other.
- If the first approach is adopted, a continuous joint between load bearing and non-load-bearing elements shall be provided along a vertical line of the façade. It should be noted that no wooden tie beams shall extend between both sides. This intervention could result in damaging most of the exterior and interior historic plaster in order to determine which tie beams that shall be exchanged. Joints shall be filled with lime mortar that would be compatible with the historic construction mortar. See mortar traditional mortar mixes in point 4.3. of this report.
- If the second approach is adopted, the intervention would be more focused on the foundation level. Foundations of such corner should be excavated, and well studied. The foundations of all sides of this corner shall be designed to sustain maximum load, included the areas that are non-bearing. A firm stitching between load bearing, and non-bearing walls shall be provided using adequate sizes of wooden tie beams. Wood shall be treated before use to prevent possible termite attack (See policy/strategy 2.2.7. in this report). In order to affirm a homogenous structural system, wooden tie beams shall be inserted internally and externally along the developed crack. Exterior plaster finished over newly inserted beams shall follow procedures explained in policy/strategy 2.2.13. in this report).

2.2.19. Restoring missing traditional balconies

Background

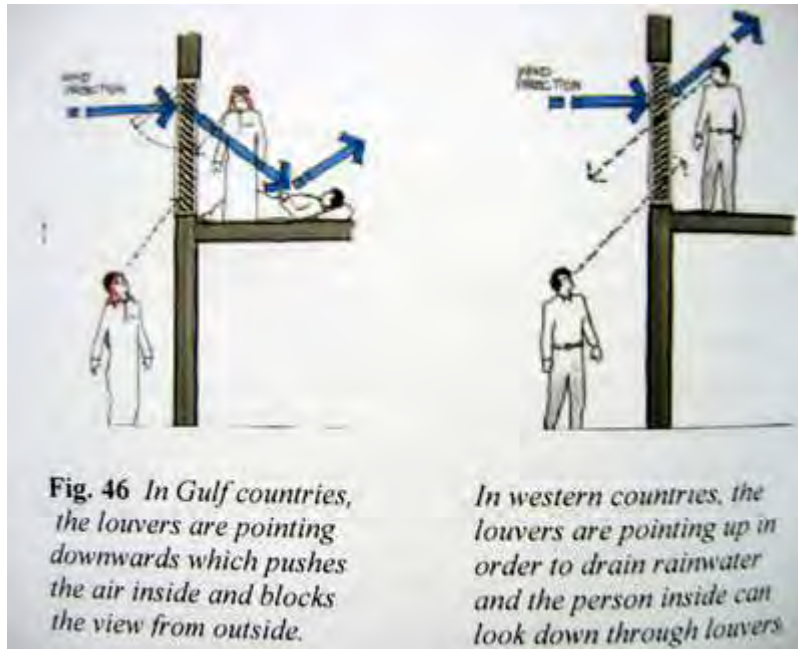
Those projecting balconies are probably initiated by the colonial architecture of the British administration, which may itself reflect the Portuguese *varanda*. It is noticeable whenever those balconies fall down, or for some reason dismantled, little attempts are currently devoted to restore them and reintegrate them into the structure.



Projecting traditional balconies in muharraq (left) and Manama (right).

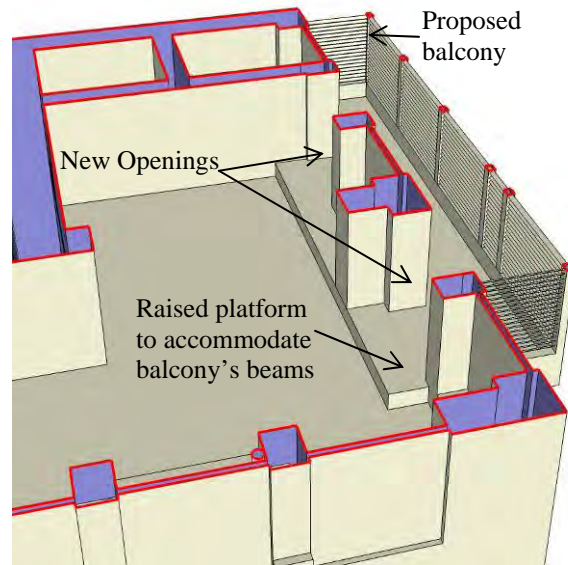
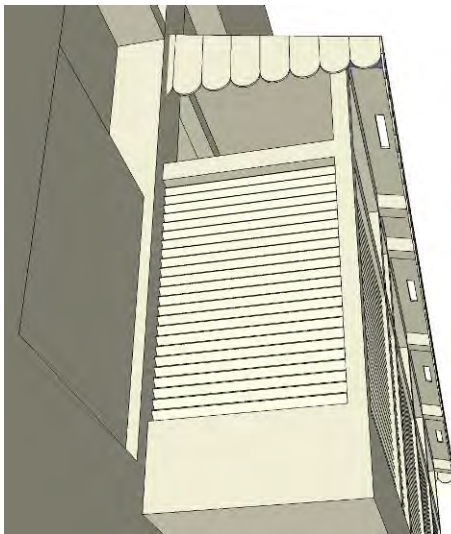
Implementation

- It is advisable to reinstate the traditional balconies wherever those vanished and there are enough evidences of their past existence. This will remedy the oddly looking façades of traditional building with a series of window and door openings, which contradicts with the architectural concept in Bahrain, where privacy of residential spaces is one of the most important design parameters.
- It is also advisable to introduce those balconies whenever necessity to open up *badgir* walls towards the street or the public space. This aspect was explained and studied in Policy/Strategy No. 2.2.5. of this report.
- In order to restore such balconies the following techniques shall be considered:
 - Providing enough projecting beams to carry the dead load of the balconies and all possible life load expected. Wooden beams shall extend at the level of the intermediate floor beams or right above it to form a raised platform shown in the sketch below. Wooden beams shall be inserted into the wall with a length that should not be less than the projection.
 - All the balcony structure shall be made out of good quality of wood (see types of traditional wood in point No. 4.4. of this report. Assemblage of wooden items shall be made out of tongue and groove joints with an addition of wooden elements. If necessary, brass screws could be used. No iron nails are allowed in the construction of those balcony in order to prevent their rusting in the humid climate of Bahrain.
 - The direction of the shutters' louvers shall follow the local traditional direction, as explained by Kazerooni in the sketch below.



Shutter's louvers by Kazerooni

- Providing at least 4% slope for roof of those balconies.
- Inserting a flashing, preferably in brass, that seal the gap between the roof and the exterior wall of the building.
- Providing enough roof openings to discharge rainwater, as shown in the sketch below.



Reference

Zoning, and planning principles/strategies for the specific architectural details of projected balconies, and whether projections over façades are permitted. Policy/Strategy No. 2.2.5. in this report.

2.3. *Principles/Strategies for thematic preservation*

This set of principles and strategies targets selected issues and/or buildings and/or structures that are currently in the public domain, and holds important values either historic, architectural, religious, social or others. They also involves some intangible qualities that the two cities, Manama and Muharraq, are traditionally known of, and they need to be preserved as memories throughout some abstract composition. The values subject of these principles/strategies are neither related to the buildings survey, thus not examined in the first category of principles/strategies, nor are they generic to all the public spaces to have them included in the second. They are specific values whose preservation and/or presentation would help to establish the link between the two cities and their past.

Policies/Strategies

The following are a set of policies/Strategies that are targeting Specific Preservation theme or issue.

2.3.1. “Ferij” representation

Background:

One of the very important aspect of the development of Bahraini cities is that this development is based on “a collection of villages in which family interests predominated over others.”. For example, “It is generally accepted that al-Muharraq is divided into nineteen zones, each named after a major tribal grouping.” However, “a tribal area is only very loosely defined on the ground.” (Yarwood, *al-Muharraq*, 11 and 16) The Ferij, which was social phenomenon that manifested itself throughout various historic phases in the urban fabric of Manama and Muharraq. The bases of this phenomenon is currently dissolved, and, thus, recently legally abolished. This policy/strategy aims to represents this phenomenon throughout some existing architectural elements that are related to the phenomenon’s urban setting. An example here is the Ferij gate that exist in Manama.

Implementation:

- The implementation of this policy/strategy requires the following studies and actions:
 - A historic research to indicate the urban construction of the city in terms of Ferijs.
 - A selection of the existing architectural elements that are related to the phenomenon of Ferij,
 - Conduct a historic research on the selected elements,
 - Conduct a photographic and architectural documentation of the selected elements,
 - Develop and implement a conservation/representation scheme for the selected elements that would be based on the conservation of its historic fabric, the distinction between the historic fabric and modern transformation/modification, and to highlight the element into its urban surrounding,
 - Develop and implement a series of indications and/or signage that would put the selected elements in a comprehensive representation.



Remains of a Ferij Gateway in Manama

Reference

See zoning, legal and planning principles/strategies for permitted intervention in those public architectural elements.

2.3.2. Recent Past Significance

Background:

One of the danger to focus on traditional buildings is to neglect a very important phase in the History of Bahrain, and specially in the city of Manama, and that is the one related to the post 1930's architecture, or what is referred here buildings of the recent past. Examples of those buildings are the Court, the Movie Theatres, the Post Office, and the newly introduced Hotel buildings such as the Bahrain Hotel. Those buildings were built mostly on the periphery of the historic town when the city expanded towards the North on reclaimed lands. Many of those buildings started to be demolished, or heavily remodeled without recognizing the historic importance of the historic fabric lost forever. Most of them cannot sustain their original function, including the old courthouse that is not longer in use, and a new building is replacing it. Another example is the post office in downtown Manama, that is being rehabilitated to be house a police station. It should be noted that these buildings held special qualities in their construction systems that are making them today quite significant. They also consist a transitional phase between the traditional architecture and the one that is practiced today. Therefore, if those buildings are lost, the link between the past that this project is targeting to protect and save and the present will be lost with them.

The following are some photographs of important buildings of the recent past:



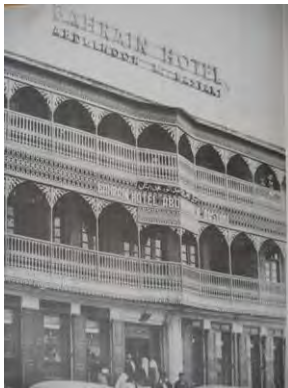
Awal or Lula Movie Theatre (Past and Present)



Awal or Lula Movie Theatre: Existing conditions of the seating rows and the projection machines



Court House (Past and Present)



Bahrain Hotel (Past and Present)

Implementation:

- The implementation of this policy/strategy requires the following studies and actions:
 - A historic research to indicate the importance, the history, the current ownership, the current urban context of such buildings.
 - Conducting a photographic and architectural documentation of selected buildings,
 - Identifying architectural and decorative elements that should be subject of in0situ conservation, and should be integrated in the new rehabilitation program,
 - Developing a rehabilitation program that are suitable to the interior spaces of the buildings, respecting the values of the fabric, permitted by the zoning and urban policies and strategies, and emphasize on an adequate maintenance plan,

- Developing and implementing a series of indications and/or signage and/or publications that put the selected buildings in their historic settings.
- Removing harmful additions and replacing missing parts harmoniously with the whole, but distinguishable at the same time. Compatible building technique shall be followed in the replacing the removed reinforced concrete elements. No, or minimum, harm shall be allowed to the historic fabric.
- If rehabilitation is adopted (buildings subject to 2.1.3.-2.1.7.), additions cannot be allowed except in so far as they do not detract from the interesting parts of the building, its traditional setting, the balance of its composition and its relation with its surroundings,
- Any addition work which is indispensable must be distinct from the architectural composition and must bear a contemporary stamp.
- If rehabilitation is adopted (buildings subject to 2.1.3.-2.1.7.), reversible techniques should be used in any additions, modifications and changes, except where this is impracticable for reasons of dire structural necessity

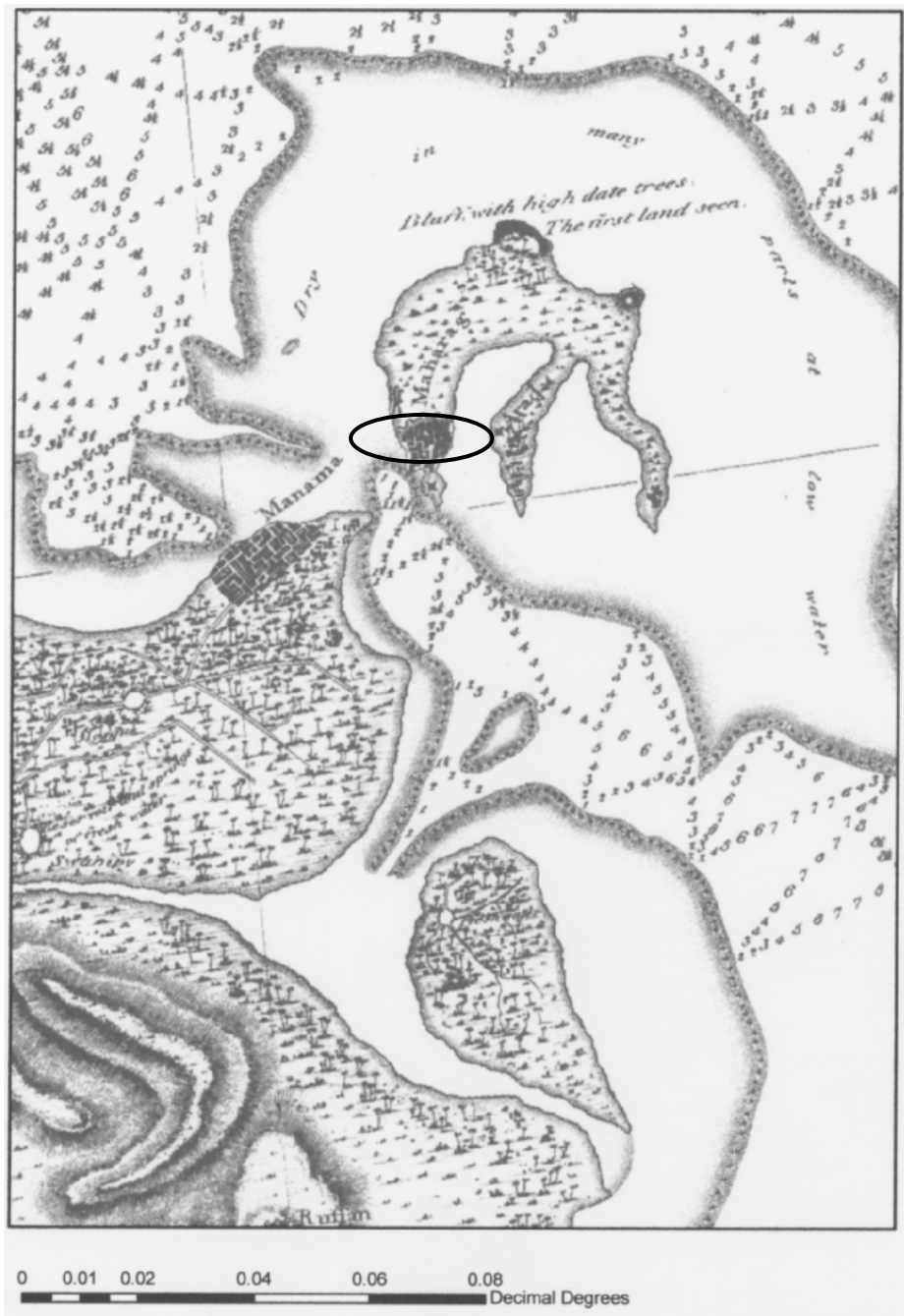
Reference

See zoning, legal, economic and planning principles/strategies for permitted interventions.

2.3.3. Representations of selected archaeological remains

Background:

Bahrain is full of interesting archaeological remains, and most of them are located under the current city. It would be a mistake to neglect the living part of the city for the purpose of revealing such remains, as this will disrupt the existing urban life. However, the idea is to integrate a selection of these remains into the current fabric in a way that it would not affect the function of the city.



There are many historic records that are pointing to the existence of some important archaeological remains, and those could be a guidance for a focused excavation whenever possible. An example is Yarwood's account on Muharraq's "coast battery" that is not shown on historic maps, but "fortifications to the north are shown on the Brucks and Rogers maps of 1825." (Yarwood, *al-Muharraq*, 13) Quoting 1865's Palgrave description of al-Muharraq (in *Travels in Arabia*, 1865), Yarwood refers some fortifications or walls that protected Muharraq from the North side. Subterranean historic structure, whether revealed or still to be excavated, can shed very important information about the historic evolution of the two cities. One example of such structures are the city wall of al-Muharraq, which presumably bordered the northern side of the city, as shown in the 1825 map, and as described by Palgrave in his 1865 accounts. If such wall existed, there must be some remains of it that could be either located in public or private properties. It would be important to reveal sections of this wall as testimony of this historic phase, and to relate it to the current urban fabric. This is a way to link the city to its history.

This policy/strategy aims to represents selected sections of some important subterranean historic structures that would help in linking the city to its history. this phenomenon throughout some existing architectural elements that are related to the phenomenon's urban setting. An example here is the Ferij gate that exist in Manama.

Implementation:

- The implementation of this policy/strategy requires the following studies and actions:
 - Conduct historic research on the existence of such elements, and to indicate their possible current locations.
 - Check on the ground the locations of such structures with the use of non-destructive equipment (i.e. using magnetometer), and investigate the possibility of limited archaeology.
 - Inquire about the means to preserve sections of the revealed elements that would indicate their typology and their role in the past. Other un-important sections shall be back-filled.
 - Develop an action plan for the conservation of the excavated section.
 - Develop a design to incorporate the revealed conserved section into the current urban context of the city in such a way that it would explained and related to the its past shape, function, and history (i.e. through signs).

2.3.4. Representations of the historic city/sea relationship

Background

One of the core reasoning of existence of the Bahrain is the country's relationship with the sea. Such notion is currently fading away with the rapid land reclamation, and privatization of the properties along the sea shore. In fact, with the current rate of land reclamation, the main Island of Bahrain will soon meet Muharraq. The city/sea relationship should be preserved, and its historic evolution shall be represented throughout selected related elements. Examples of such elements, or notions that could be represented are the fishing piers, docks, various sea-shore lines, and ports. Another example is to represent the 1930's rotating causeway that connected Manama to Muharraq.



Right: The northern sea shore of Manama that is currently almost one kilometer inland. Left: The steel causeway built in the 1930's to connect Manama and Muharraq. This causeway is no longer existing and new concrete bridges replace it.

Implementation

- Conduct historic research on a selected elements that are related to city/sea relationship,
- Recover as many fragments as possible from the vanished element, and its historic photographs, such as the steel items of the causeway,
- Attempting to create a total or partial reconstruction of the fragments as representation of the selected elements. The product could either be re-used or to be treated as historic public art. For an example, the decision to either partially or totally reconstruct the historic rotating bridge of the Manama/Muharraq causeway would depends on the available fragments and the possibility to re-create it in its location. The use of the re-constructed elements would, then, be determined according to the urban needs.

Reference

See zoning, legal, and planning principles/strategies for permitted interventions.

2.3.5. Representations of the historic city/desert relationship

Background

The two cities had experience a strong historic tie with the desert for various practical reasons. This aspect is more obvious in the case of Manama than it is in the case of Muharraq. This city/desert relationship had its effect in shaping some aspects of the urban pattern the two cities, and the architectural compositions of its buildings. This relationship could be represented through various methods in the current cities. Example of the elements that could be highlighted and represented is the trails that linked the city fabric with the surrounding natural water springs, i.e. *adhary* and *um al-shu'ur*, that are located in the desert outside the city.



Adhary water spring



Um al-Shu'ur water spring

Implementation

- Conducting a historic research to identify the desert elements which were traditionally used by the inhabitants of Manama and Muharraq, and study the how the trail to reach to those elements were connected to the urban fabric of the two cities.
- Select some of those elements which had the most impact in the historic development of the two cities, i.e. a trail to *adhary* spring became an axis along which the city developed.
- Developing a rehabilitation program for the selected elements that would be suitable to its historic fabric, and that would offer an attraction for the inhabitants and the visitors of the two cities. Visitor centers, and management plan shall be encountered in the rehabilitation projects.
- Developing a series of information and signage panels in the public spaces nearby the selected desert elements, from which trips to reach them could be originated.
- Including such important desert assets into the tourist's maps and guidebooks of Bahrain

Reference

See zoning, legal, and planning principles/strategies for permitted interventions.
See also article written by Ehsane Abdel-Qudus, *Ihya' al-'uyun al-tabi'iyya* (the revitalization of water springs of Bahrain), Conference of MOMAA, Manama, 2006.

2.3.6. Representations of selected outstanding historic events, figures, or places

Background

These representations go along the efforts initiated by the Center of Shaykh Ibrahim in transforming some of the important old houses to museums or cultural centers. This projects need to link the surrounding community with the urban fabric in order to strengthen a feeling of belonging throughout the members of the community, and to imprint the history of Bahrain on the urban fabric of its cities. There are already many examples for policy/strategy that started to appear in Muharraq such as the Abdullah al-Zayed Press Heritage House, and Mohammed Bin Faris Music House undertaken by Shaikh Ebrahim Bin Mohammed al-Khalifa Center for Culture and Research. It is reported that more of such projects are scheduled for implementation by the same Center such as a pearl museum in al-Siyadi House, and Crafts museum in Bayt Mattar.



Abdullah al-Zayed Press Heritage House



Mohammed Bin Faris Music House

Implementation

- Encouraging the endeavors already started by Shaikh Ebrahim Bin Mohammed al-Khalifa Center for Culture and Research to cover various other historic topics, important figures, and/or events that are related to the history of Bahrain.
- Respecting the Policies/Strategies 2.1.1.-2.1.8 assigned for buildings, and Policies/Strategies 2.2.1-2.2.19 that control implementation processes.
- Respecting the zoning and planning regulation in such rehabilitation projects, as they all tend to introduce cultural activities, not necessarily adopted by the community that surrounds the selected buildings.

Reference

See zoning, legal, and planning principles/strategies for permitted interventions.

2.3.7. Representation of selected traditional and/or religious processions and festivities

Background

There are many traditional and religious buildings and open spaces which were established in historic centers of Manama and Muharraq to house important public events, such as the weekly market areas, the religious processions in *ma'tams* and or *maqam* and others, and the majlis of a certain neighborhood. Since most of the Bahraini started to move out to the periphery of the cities, and apparent gentrification of the two historic centers started to take place, those buildings and open spaces will loose their essence of their establishment, will no longer be used, and will soon fall into ruins, or their memories will be completely lost.



Traditional weekly markets in Manama (from Wheatcroft) and a family majlis in Muharraq (by the author)

Implementation

- Conducting a historic research to identify buildings and open spaces which were used as an important space to celebrate an event or to interact in a certain economic or social activities. traditionally used by the inhabitants of Manama and Muharraq. It is important to position such spaces or building in their traditional setting, so that their role could be grasped.
- Select some of those elements which had the most impact in the historic development of the two cities, i.e. an essential weekly market, a major *majlis* building, and others.
- Developing a rehabilitation program for the selected spaces or buildings that would be suitable to its historic fabric, and that would offer an attraction for the inhabitants and the visitors of the two cities. Visitor centers, and management plan shall be encountered in the rehabilitation projects.
- Developing a series of information and signage panels in the selected spaces and building.
- Including such important assets into the tourist's maps and guidebooks of Bahrain

Reference

See zoning, legal, economic, and planning principles/strategies for permitted interventions.

2.3.8. *Conservation and maintenance of historic trees*

Background

During the site visits in Manama and in Muharraq, it was noticeable that there are very few trees that could be found in public space. It is not clear whether traditionally no plantation was considered in the public spaces. However, it is reported that in 1937 a total of 503 trees were planted in the roads of Manama and Muharraq (Muraikhi, p. 89). It is important to investigate the status of these trees and to assess their conditions. Those trees represent an important experience in landscaping the public spaces. Such experience needs to be assessed, and its assets should be conserved. The aim of this policy/strategy is to incite the introduction of trees in Manama and Muharraq in order to upgrade the status of their public spaces.

Implementation

- Surveying all trees located in public spaces, identifying their exact location, their approximate age, their relation with the surrounding built fabric and open spaces, their condition.
- Developing a maintenance plan for watering, trimming and the general cleaning of those trees in accordance to related specifications.
- Assuring that water used in watering those trees are not reaching the foundations of surrounding buildings, especially those significant ones.
- Assuring that the roots of the tree will not damage the foundations and the exterior walls of the surrounding buildings.
- Considering integrating the existing trees into an overall strategy for the landscaping of open spaces, and public streets.

Reference

See zoning, legal, economic, and planning principles/strategies for permitted interventions.

3. Pilot Projects

On the basis of the above study, and proposed policies and strategies, I propose a series of pilot projects that would exemplify the prospective interventions. These projects could be linked with the existing on-going projects and studies such as the one of the Ministry of Works and Housing, Old Muharraq Conservation Project, Ministry of Works and Housing Bab al-Bahrain Souq area, Financial Harbor Project, Project for the Area of al-Zayed House, and others.⁶ The pilot projects include the following.

- One example for each of the 8 levels identified in the first category “Principles/strategies according to types of interventions identified from survey.” It would be important to include different building types beside the residential buildings, such as the one related to commercial activities (specially Mattar’s hospital and apartment in Road 1129, and the wind tower in road 1125, Nos. 41 and 42 in Yarwood’s list of surveyed and discussed buildings). It is recommended to select most, if not all, of these 8 projects in one particular area, as the prospective survey and its results would indicate. In such case, the impact will be noticeable and visible, and those pilot projects would meet its goal to demonstrate how preservation intervention should be carried out in Manama and Muharraq.
- Localized interventions in Shaykh Salman House in Muharraq. The House of Shaykh Salman in Muharraq manifests most of the issues discussed in the “Principles/Strategies for specific technical interventions,” and thus would be a perfect location to set up models for the second level of principles/strategies.
- One or two examples of the issues related to “Principles/Strategies for thematic preservation.” It is recommended to start with Awal movie theater as a representation of the recent past buildings, and with the Ferij representation through the Ferij gate in the city of Manama.

⁶ For a list of those projects and their donors, see Duane Philips Report.

4. Traditional buildings: elements, materials, techniques and terminology

4.1. *Building Types*

Amarat could be either linear or a central plan. The linear plan *amarat* usually on the seashore to facilitate unloading ships. The central plan *amarat* are much smaller and a single door is used to bring goods in and out. (Yarwood, *al-Muharraq*)

Khans and other living apartments come in three types: the predominant closely resembles the usual domestic first-floor apartment, and is found above the *amara* on the street or coast frontage. It has a staircase with a separate street entrance to allow use when the *amara* is closed. The second type is a row of shops have long *khan* apartments on the first floor (two example in road 1123 near Bin Khatir Mosque, and one example in Tijjar road). The third type is colonnaded structure (example is the one in road 1129, the former waterfront, built by Salman Mattar). (Yarwood, *al-Muharraq*)

Units Shops and Workshops: Units of accommodation that are versatile, could be used as shops, workshops and or storage. The units is three meters wide, and the depth varied. (Yarwood, *al-Muharraq*)

4.2. *Architectural and decorative elements*

Arish: Palm thatched dwelling that combines stone walls (Majed, 1987).

Arches: The local designation of different types of arches among craftsman: semicircular as being *hillali* (crescent form), trefoil as *al-bughdadi* (from Baghdad), ogee as *al-rumi* (Roman or western arch), multifoil a *al-rumi imthaniyan*, pointed as being *al-bahraini* (Bahraini arch). (Yarwood, *al-Muharraq*)

Badgir: The water in the ground raised in the ground floor walls up to 1.5 meters to 2 meters high. The hot air, which passes through, dries the wet wall and removed the moisture in the wall. By this, the air becomes so as the room. The air circulation is complete only when the doors and windows at the courtyard side are open. During this process of wetting and drying, the walls deteriorates, and thus annual maintenance becomes inevitable. Maintenance is normally carried out during hot season and at the time of low water table. (Kazerooni, 71-72, Majed, 1987; Wali 189)

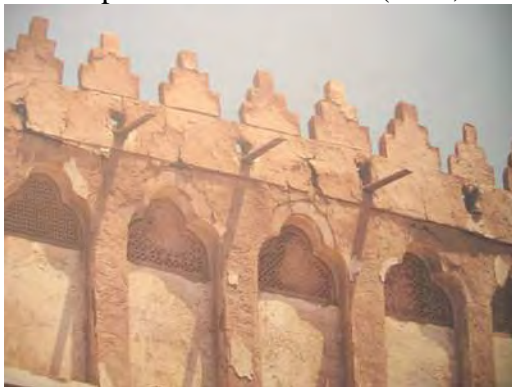


Barasati: Palm thatched swelling (Majed, 1987).

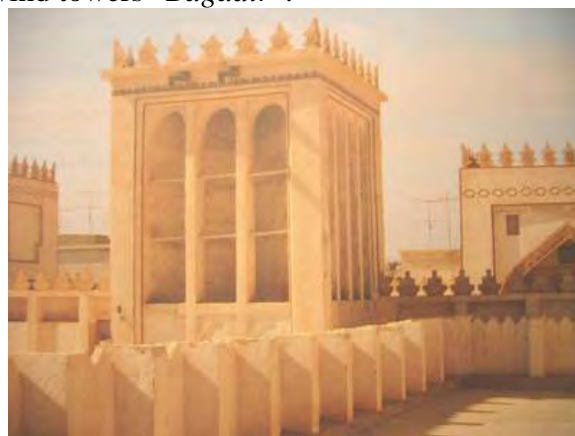
Danjel or **Dencel** or **chendel:** Round timber poles or beams (Majed, 1987). Beams of mangrove to tie columns horizontally, known as *Zanzibar poles*. (Yarwood, *al-Muharraq*)

Farsh: Thin coral panels. (Yarwood, 1999)

Hama'im: Crenellation that usually crowns the corners of the buildings, or tops a certain important exterior wall. (Wali, 196).



Kashtil: Wind tower (Majed, 1987; Wali 188). I have noticed that some Bahraini are calling those wind towers “*Bagadir*”.



Mirzam: Wooden gargoyle (Majed, 1987).



Mirzam at the house of Ali bin Salman

Mukharramat Khashabiyya (traditional balconies): Wooden screens, and/or shutter, usually fixed over window openings to provide privacy for interior spaces, and the lessen the effect of direct sunlight. They come in different geometric patterns. (Wali, 180)



Murfaah: Store box which hangs from the kitchen ceiling (Majed, 1987).

Rushanih: Niche inside a room (Majed, 1987).

Rukniyya: A decorative element that decorates the corners of straight lintels over an opening (Wali, 200)

Siyam: Palm frond shelter raised above ground (Majed, 1987).

Rosanna: Plaster decorative panels and interior niches. (Yarwood, 1999)

4.3. Traditional construction and finishing techniques

Basra mats: palm-frond woven mats used above a diagonal grid of split bamboo for roofing. (Yarwood, *al-Muharraq*)

Columns: are built from coral stone (*hadjar al-bahr*) excavated from inter-tidal flats, using random-rubble technique in construction. (Yarwood, *al-Muharraq*)

Dira': Measuring unit in traditional building construction, about 40 cm (Majed, 1987)

- Exterior and interior plaster:** For the exteriors and the interiors. This is lighter in construction, cooler, and also provides a smooth finish for an otherwise rough construction. The quick setting of gypsum requires the workers to carry out their works faster. This plaster mix was also used to pack the porous construction before the actual plasterwork started. This finished lime gypsum plaster was in cream color due to the color of the sand. (Kazerooni)
- Foundation walls:** built with calcareous stone from a quarry on Jiddah island. (Yarwood, *al-Muharraq*)
- Sarooj (Saruj):** An ingenious way to waterproofing the surface of the bathroom. The donkey manure was mixed with pinkish color clay was burnt in the kiln. The result was powdered. This was used in two stages. In the first, it was mixed with the clay and plastered. In the second stage, the powder was mixed with water and painted on the surfaces. (Kazerooni) In 1906, saruj, otherwise as “lingeh cement” is known for its moisture resistance in the soil. It is an expensive treatment, and probably time consuming. In 1906, a British who lives in Bahrain wrote that he could only do the dado height of his building. (Yarwood)
- Sol (wood preservative):** Fish were dumped in a pit and allowed to rot. The pit was covered with a big stone. This was mixed with the surface oil and made into a paste. This sticky reddish substance was applied on the *danchal* poles in order to protect them from woodworm and other insect attacks. The date palm droppings were applied on the mangrove mat. This provided dark brown and red color to the ceiling, which were collected from the stacks of date palms known as ‘debs’, were applied on the diamond shaped bamboo called “*basjeel*.” This gave a black color to the bamboo mat. These two different shades with light beige palm mat gave interesting contrast to the ceiling. (Kazerooni)
- Staircase:** The staircase construction is based on a central circular or rectangular pillar holding the steps. The steps were spanning between the outer wall and the central pillar. The central pillar is constructed by bundling the *danchal* poles with coir ropes and filling gap with lime mortar and aggregates. The steps for the staircases were also supported by the *danchal* poles horizontally tied to the central pillar to the walls. The surface of the step and pillars was formed with lime mortar screed. (Kazerooni)
- Plastering (rendering):** consists of three layers: the first is *al-tetrees* was mud; the second *al-misaih* was mud and gypsum; and the third *al-tabidh* was lime and gypsum. (Yarwood, *al-Muharraq*). *al-tatris* (?): first layer using mud used to fill-up the holes or major unevenness in the masonry. (Yarwood, 1999). *Al-misaih*: Is the second layer made with mud, probably with gypsum added, and it establishes a reasonably smooth surface. (Yarwood, 1999). *Al-tabidh*: the third coat was a smooth decorative coat of lime and gypsum. The top coat is sometimes set back about 3 cm from niches and windows. (Yarwood, 1999). Plastering on *farsh*, only one very thin coat of gypsum, about two or three millimeters thick, was applied. (Yarwood, 1999)
- Roofing plaster:** According to the author, the roof does retain the mudpack on the top. The mudpack was usually 4” thick to slope. The top surface was finished with lime plaster to provide a hard surface. The top surface was still vulnerable to water but this was repaired and maintained regularly. (Kazerooni)

Mortar used in random-rubble technique: mud usually excavated at Rifa'a. (Yarwood, *al-Muharraq*)

Stained glass: may have come from Danzig. (Yarwood, *al-Muharraq*)

4.4. **Traditional building materials**

STONES

Coral Block (sea stone, *hajar al-bahr*): Calcareous grit stone used to build structural piers and walls. It is crystallized carbonate of lime reasonably strong but very salty. (Yarwood, 1999)

Farsh stone: is a regular bedrock stratum, also from the sea. It occurs naturally up to about 7 cm thick. It was quarried by driving wedges into the strata and levering with a bar. This split the stratum off, sometimes in large areas which could then be determined with axes. It was used for infill panels between piers and also for partitions. It was used for coping in the Middle and Late periods. Sometimes a higher quality calcareous stone from the quarry on Jidda Island was used for foundations. (Yarwood, 1999)

WOOD

Palm trunk (*yadhaw?*): they were quartered and used as wall plates and tie-beams. These were mbeded within the masonry, with a vertical spacing of about 0.7 meters (or less if required to bridge over windows or other voids). (Yarwood, 1999)

Manqruf Mangrove poles (*denchel* or *chendel*): Mangrove slat timber (Majed, 1987). They were imported from Malabar Coast (Calicut) and East Africa (Zanzibar, Lamu), and were used mainly for floor and roof joists. It is durable, very strong and flexible. Above the mangrove, was split bamboo laid diagonally. (Yarwood, 1999)

Manqrur: Woven palm frond matting (Majed, 1987).



manqrur rolled before installation

Basra mats: mats made of woven palm fronds. They support a layer of small stones finish with mud (*gatch*) laid to a fall & drained to the street by simple wooden gargoyles (*marzam*). (Yarwood, 1999)

Sa'af: Palm Leaves (Majed, 1987).

PLASTER AND MORTAR

Rifa'a Clay (*tin al-Rifa'a*): was brought from Rifa'a in the centre of the main island. This was produced by the weathering of the exposed rocks in the central depression. It was used to cement the rubble in the core of walls, and was also mixed with the lime mortar for certain purposes, perhaps to reduce the

susceptibility of gypsum plaster to action by water, particularly on sulphates and other salts. (Yarwood, 1999)

Mud from coral reefs: Some mortar was made from burnt mud from the coral reefs. (Yarwood, 1999)

White mud collected at Bu Ghazal. Ship owners were commissioned by owners or builders to collect the mud and bring it to Muharraq harbor; this took two or three days. A donkey was then hired to transport the mud to the building site. This was too expensive for poor people prior to the 1920s or 1930s, and they used mud from the local reefs. (Yarwood, 1999)

Nurah: Lime.

Djuss (Gypsum): was used for rendering walls and roof surfaces. It was made by crushing and burning limestone. Initially the small cottage industry near A'ali was the only source, but more recently it was imported from Saudi Arabia and Qatar as it was less prone to crumble than the Bahraini product. The gypsum was mixed with lime (nurah) which improved its workability. When supplies were imported from Qatar or Nejd (Saudi Arabia) to Muharraq, specialist burners calcined it by covering the stone with timber, which was set on fire. (Yarwood, 1999)

Saruj: In 1906, saruj, otherwise as "lingeh cement" is known for its moisture resistance in the soil. It is an expensive treatment, and probably time consuming. In 1906, a British who lives in Bahrain wrote that he could only do the dado height of his building. (Yarwood, 1999)

4.5. Spaces in a traditional Bahraini house

Ghahoud: Ground floor rooms which have high ceilings and which are used in winter. (Kazerooni)

Roshaneh: an opening in rooms that brings sun light. (Kazerooni)

Doucha: Niches in halls to keep vases. (Kazerooni)

Dehries/Dehlies: A corridor. (Kazerooni)

Khinghiah: Small room provided at the mid-level of a staircase for storage purposes, and mainly used by the servants of the house, or to keep chickens. (Kazerooni)

Jaleeb: Well inside the courtyard to collect drinking water and for cooking and washing purposes. (Kazerooni)

Balu'a: A circular pit that collects the sewer waters and disposed below ground level. (Kazerooni)

Karkari: louvered wooden shutters, usually at balconies, pointing downwards which pushes air inside. (Kazerooni)

Bunghlah (bangala): First floor rooms that are used in summer time. (Kazerooni)

Madbasa: A room or a series of rooms, usually within a house, for the fermentation of the palm dates. It is a roofed room, with high little windows, and a series of exposed floor conduits where dates are put. The exposed floor conduits are interconnected and sloped towards a container whose level is lower than the lowest point of the conduits.



Madbasa at Muhammad Bin Salman

Majlis: Men's reception hall (Majed, 1987).



A family *majlis* in Muharraq

Sabat: A room or a set of rooms bridging a street (Hakim, 2005)

Sattah: Terrace rooms, usually in upper floors, in front of *Bunghlah*. (Kazerooni)

4.6. **Carpentry Works (Doors and Windows)**

The timber used for all works are mainly of teakwood in order to resist the harsh climate.

The wood was imported from India and Africa.

Bab taqlidi(Traditional Door)



Doors at Bayt Abdullah Al-Zayid and Bayt al-Shaykh Salman, Muharraq

Aghale: Spindle pivot, (Kazerooni)

Al-Bezljaj: timber lock and key system, (Kazerooni)

Fixing wooden pegs: Series of wooden pegs fall exactly on the series of holes in the wooden lock, thus the door is locked without allowing any movement in both the leaves of the door, (Kazerooni)

Mefham: doors' locking system, a sliding timber piece gadget, (Kazerooni)

Ferhal: A timber piece rotates to open the door, (Kazerooni)

Al-seakh: External side lock in brass hasp, (Kazerooni)

Al-harakha: Brass barrel lock, (Kazerooni)

Buanf: Decorative door, (Kazerooni)

Bu safgha: Double door, (Kazerooni)

Khokha: door that has small insert door, (Kazerooni)

Door knobs: produced different sounds so that men and women can identify the sound and attend accordingly. Some times there were three or four occupants and will answer to each sound of door knocks. (Kazerooni)

Kamar: Pierced decorative panels are placed at the external walls, usually placed above the opening to lighten the weight of the wall masonry on the door lintel. (Kazerooni)

Qalaf: A joiner, or a carpenter. (Majed, 1987).

Raha: A door hinge, projecting at top and bottom of the door leaves to fill into hollowed pieces of wood attached to the door frame (Majed, 1987).

Windows had their frames, often with vertical iron bars after 1900, which were imported from ironworks such as Kulti, and Jamshedpur. (Yarwood, *al-Muharraq*)

5. Annotated Bibliography

This section of the report presents all the references that were consulted for this study. Each listed reference is followed by a brief on the contents that is useful to the topic of this report. It should be noted that there is a literature that was never consulted for this study, and it seems from their titles and from the other researchers who quoted them that they could interest and enrich the understanding of the Bahraini traditional architecture. The following is a list of those studies, which is mostly extracted from Yarwood's *al-Muharraq*, and his article *Traditional Building Construction*:

- Allison, T.R. *Building Materials in the Arabian Gulf-Their Production and Use* (Overseas Building Note No. 176), Watford: Building Research Estab., 1977.
- Al-Oraifi, Rashid. *Architecture of Bahrain*, Bahrain: published by author, 1978.
- Belgrave, Charles D. "Bahrain," in *Royal Central Asian Society Journal*, (V) n. 4, 440-45, 1928.
- Hansen, H.H. *Investigations in a Shia Village in Bahrain*, National Museum, Benmark, Ethnographical Series, vol. 12, Copenhagen, 1965.
- Hardy-Guilbert, C. and Lalande, C. *Sheikh Isa House, Muharraq*, Paris: French Archaeological Mission to Bahrain, 1981.
- King, G. "Bayt al-Muyyad: a late 19th century house of al-Bahray," in *Journal of Arabian Studies*, (4), 1977.
- Lewcock, Ronald. "Bahrain: A Consultant Report," Conservation and Presentation of Archaeological Monuments and Sites of the Islamic Period, unpublished report, UNESCO, n.d.
- Lewcock, Ronald. *Architectural Connections between Africa and Parts of the Indian Ocean*, London: A.A.R.P. paper no.9, 1976.
- Lewcock, Ronald; and Richard Hughes. *Conservation for the Monuments of the State of Bahrain*, Unpublished Typescript: UNESCO, n.d.
- Lewcock, Ronald; and Richard Hughes. *Conservation Techniques for the Monuments of the State of Bahrain*, Unpublished Typescript: UNESCO, n.d.
- Yarwood, J.R. *Al-Muharraq: Architecture, Urbanism and Society in a Historic Arabian Town*, Ph.D. thesis, University of Sheffield, 1988.

5.1. **Bashmi, 2000**

Bashmi, Ibrahim. *Ayam Zaman (Old Days)*, 2nd edition, Bahrain: Mu'assassit al-ayam li-al-Sahafa wa al-nshr wa al-tawzi', 2000 (1st edition 1986).

This book collects a number of old black and white photographs for different locations in the Bahraini cities, especially Manama and Muharraq. Most of the photographs, as the author states, are taken by foreigners and could be dated to the beginning of the twentieth century. All the photographs could be an interesting source to depict the state of selected buildings at that time, especially those buildings that are located around the market areas, or large public spaces. Some of the most interesting photographs in this book depict the turn of the twentieth century movie theaters in Muharraq and in Manama, and also social clubs which were reserved for the foreigners living in the country.

5.2. Majed, 1987

Majed, Ebrahim Issa. *The Traditional Construction of Early Twentieth Century Houses in Bahrain*, Doha: The Arab Gulf States Folklore Center, 1987.

Useful book to understand traditional building techniques, and traditional building materials. A study on three Houses: Bayt Shaikh Salman or Bayt Shaikh Hamed, Bayt Yusuf Ali Riza, and Bayt Ahmed Khalaf. The author provides a useful glossary for technical terms at the beginning of the book.

5.3. Manama Urban Renewal Project, 1987

Physical Planning Directorate, Urban Renewal Department. Manama: Urban Renewal Project, State of Bahrain, Ministry of Housing, 1987.

This a study by the Urban Renewal Department on Manama. It includes a brief on the Island's history, and the history of its urban development. The study is based on a survey of the built and the social fabric detailing the urban qualities, the land use, the state of the buildings and their heights, and infrastructure and the services as they were at the end of the eighties. An attempt was made in this study to identify the boundaries of the what it is called in the study the "Old City." The selected area of the city includes 7 census blocks (301-307). The study points that water supply network and electricity network existed and they were efficient. At the time of the study a comprehensive sewerage network was under construction, and that is was scheduled to be completed by 1989. One of the problems detected in the study, and that is relevant to this report, is by 1985, 45% of the buildings that existed in the "Old City" were reported to be in derelict state, and it was foreseen that this percentage will rise to reach 65% by 2001.

5.4. Moore, 2004-5

Moore, Eward. Kingdom of Bahrain: Manama Map and Index for Manama/Seef/Bahrain, Edward Moore Advertising, Public relations and Graphic Designs, not dated (probably 2004-5).

The map and its appended index are quite a useful tool for the visitor of Bahrain, especially because they are written in English, and such materials are very scarce to find. It provides Tourism Map where all the islands of Bahrain are depicted with an emphasis on the Manama an to certain extent on Muharraq. The later was included only because it has the international airport, which is an important landmark in any tourism map. Other than the airport, no sites were highlighted in Muharraq. The index includes basic and important tips for tourists such as a calendar of public holidays, chronological historic events in bullets, some Arabic common words, phrases, and numbers. The Index provides a list of the Museums (the National, the Modern Crafts, Beit al-Qur'an, and the Currency Museum. It also suggest some tours for tourists with a focus on the sites of Manama. The Map and its index was approved by the Ministry of Information and Tourism Affairs, and the information was made available by the Bahraini Ministry of Housing.

5.5. Muraikhi, 1997

Muraikhi, Khalil. *Events Enfolded in Time, a Journey into Bahrain's Past: the 1920's through the 1960's*, Bahrain: Arabian Printing & Publishing House, 1997.

This book is based on the records of the State budgets which was first prepared in 1924. The author made a summary of the events that could be extracted from those records highlighting those which are related to the development of the country. He also used Bahrain's daily Arabic newspaper for compiling those events. No analyses were offered in presenting the data, a fact that makes these data quite valuable to our exercise as they are, in most of the cases, not interpreted from a specific point of view.

5.6. Kazerooni, 2002

Fary Kazerooni, *Gulf Islamic Architecture*, Bahrain: Oriental Press, 2002.

Kazerooni has a section on "Construction" (p. 66-72). In this section several construction details are described. Those are all quoted, elaborated upon, and presented in the terminology/techniques section in this report.

Kazerooni explains the evolution of the residential buildings in Bahrain by describing that the "earlier buildings were built with monolithic thick walls without windows at the outside walls. Even though these thick coral walls were able to provide part of the insulation against the heat, when the heat soared up to high temperature of 50°C, the living was unbearable due to lack of circulation. As per the saying 'necessity is the mother of invention,' master builders from Iran were compelled to incorporate indigenous ways to circulate air inside the building." (Kazerooni, p. 19).

5.7. Shu'ab, 1995

Shu'ayb, Hamid. *al-ímara al-taqlidiyya wa al-ímara al-haditha fi duwal al-khalig* (The traditional and modern architecture in the Gulf cities) in *ishkaliyyat al-nazariyya wa al-tatbiq fi al-ímara al-taqlidiyya* (The theoretical and practical problems in the traditional architecture) Al-Harami, Masúd (ed.), Bahrain: Bahraini Engineering Society, 1995, p. 49-58.

This article cites two new projects in Bahrain which followed "traditional style." The first is Bayt al-Qurán, designed by Dr. Abdel Lateef Kano, and followed the design of an "Arabic Fort." The second is the Exhibition Center where traditional elements such as al-Baqdir (wind towers) were used. On the cover page there is a photograph of Bayt Khallaf in Muharraq before it was restored.

5.8. Wali, 1990

Wali, Tariq.⁷ *Al-Muharraq 1783-1971: 'umran madina khlijyya* (al-Muarraq 1783-1971): the urbanism of a Gulf City), Bahrain: Panorama al-Khalij, 1990.

⁷ Dr. Tariq Wali currently lives in Cairo, Egypt. His mobile No. (002-012-213-3214).

This is one of the most valuable consulted books in giving a general overview on the geography, geology, climate, history of Bahrain in general and al-Muharraq in Specific. The first chapter provides an overview on the environmental quality of Bahrain (the site, the administrative location, the climatic parameters such as the temperature and the relative humidity and the winds, the geology of the land and the sea. Wali traces the modern history of the development that took place in Bahrain through six distinct phases: the first started at the end of the eighteenth century, and the beginning of the twentieth; the second started in 1809 under a somewhat stable political environment led by Al-Khalifa (Slaman and Abdallah); the third started in 1869 with a stable independent familial leadership; the fourth started by the middle of May 1923 when two British ships arrived to Bahrain and negotiated with local leaders to participate in the decision-making process concerning internal matters and this phase was described to have a dual leadership; the fifth was basically a maneuvering from the British to downplay the role of the local leadership which existed in Muharraq and empower the foreign power centered in Manama; the sixth and the last started after WWII, when the international environment mandates an independency for Bahrain that was then granted in 1971. To illustrate these points, Wali shows 4 historic maps (1825, 1872, 1904, and 1939), which are extremely important to analyze. Wali highlights the effect of the discovery of the oil in Bahrain starting from 1934, and explains that such discovery was the reason for the society to look inland more than towards the sea. The author hints some correlations with the type of urban typology what was based primarily on the resources coming from the sea and to a lesser extent to agriculture, to the resources within the land. In a following section, the author analyzes the social structure based on various viewpoints such as the religious sects (sunnis or shi'is), and the ethnic origins. The author also defines the idea of neighborhood which was based on family border (farij), and identifies many of them in Muharraq.



الحي	الاسم	الوصف	المرحلة	الفترة
الحي الأول	مجلس	حرم	حديقة	1810 - 1872
الحي الثاني	مجلس	حرم وحديقة	حوش واحد	1872 - 1905
الحي الثالث	مجلس وحرم	حديقة	حوش واحد	1905 - 1939
الحي الرابع	مجلس وحرم وحديقة	حوش واحد	حوش واحد	1939 - 1951
الحي الخامس	-	حرم وحديقة	حوش واحد	1951 - 1971
الحي السادس	-	حرم	حوش واحد	1971 - 1980

جدول رقم (١٠) الأحياء العمرية للسكان القديمين لبلدية المحرق

In a study for the urban growth of Muharraq, Wali provides a historic scenario that spans from 1810, when the urban nuclei started to develop, until the early 1970's. He depicted such growth on circles on a map (p. 87), and investigates the process on urban elements such as the central market, and on the social grouping within the different urban contexts. The author, then, analyzes the legal and administrative aspect in the phenomenon of the

urban growth highlighting the roles and the powers of the mosques, and the family *majlis*. Apparently, the author demonstrates, each family sector in the city was under a certain economic, religious and juridical power from those two elements. Wali argues that such urban composition started to develop after the 1920's and was to a large extent dissolved by the 1950's to be replaced with a bourgeois type of urbanism that started to develop in the sixties and seventies. In this urban context, Wali highlights the importance of the role of the residential units to shape the urban fabric in its physical, economic, social, and political aspects. For such reason, the author focuses on analyzing the architecture of the traditional residential units as it relates and affects the general urban characters. He categorizes the residential units into two types: the first being the house of the aristocratic members of the family, and the second being those which belongs to the general public. Under the first category, Wali cites examples such as Bayt al-Shaykh 'Issa, Bayt al-Shaykh Salman bin Hamad, Bayt al-Shaykh Hamad bin 'Issa, Bayt Fakhru, Bayt Matar, Bayt al-Shaykh Abdallah. For the houses of the general public, Wali provides many examples and locates each of them within the urban context of the aristocratic unit. On this topic, Wali makes an interesting comparison between the two types of residential units.

On another level of categorization, Wali identifies the difference between al-Barasti, which is hut-like structure usually built on the sea shore as a summer residence or a rest house for fishermen, and the urban residential units, which a structure that usually encloses a courtyard around which the different uses and sections of the house are arranged. In the second type, the urban residential unit, Wali identifies several traditional components that are usually encountered: al-majlis, al-haram, the servants area, the courtyard, and others. The author classifies the urban residential units into six types according the existence of each of those components, and how they are relate to each other (p. 121).

The author, then, investigates the concept of the central market within the city, and identifies several types of structures within it. He identifies four types of the market units and drew plans, façades, and in some cases longitudinal sections, for each (p. 127-129). Those four types are as following: khan, wikala or 'imara, majlis for pearl trading, and coffee shops. The author also describes other building types that were found in the market area such as the mutawwi', which is a Quranic school that resembles the kuttab in other Islamic cities, the clinics, which started to appear with the missionaries. On a urban level, the author investigates the deterioration that the market area of Muharraq witnessed after the construction of the bridge that links the island with Manama.

In the last chapter of the book, Wali analyzes the architectural elements and the traditional construction technology involved in the constructing each type of the above mentioned structures. In this section, the author analyses the different types of entrance gates in residential units, the design and the role of the courtyards and open spaces, the liwan (which is the covered areas in the courtyard, the staircases. The author, then, discusses the different types of construction systems and the local and imported building materials. He identifies two types, the first are the marine materials, and the second are the materials that are used from the land. The first includes the *al-farrush*, which is a coral stone of 5-15 cm thickness and of square meter of surface, and the maritime pebbles, which are little pieces of corals that are used in the mix of different mortars. From the list of land construction materials, the author cites al-layzu', which are planks

cut from the trunks of the palm trees and which comes in two different types the first is called *yazu'*, and the second is *faljah*. The mangrove wood was imported from Zanzibar or east Africa and this was used as the roof or the floor beams, which are locally called *al-jandal*. The author explained that each of the materials used in the construction of the roof or the floors are usually left exposed after painting them with a particular color; red for the jamdal, greenish blue for the lower weaved reeds, brown for the upper weaved reeds, and yellow for the mat sheets (*mangarur*). The coloring of the different building materials was a type of interior decoration. The author goes on in the last chapter of the book to describe several architectural elements such as the traditional doors with their locks and accessories, widow shutters with their stained glass units, the wooden screens (*mukhrramat khashabiyya*), the iron screens, wind catchers, gypsum decorative panels. *hama'im*, *rukniyya*, and others.

5.9. Wheatcroft, 1988

Wheatcroft, Andrew. *Bahrain in Original Photographs 1880-1961*, London: Kegan Paul International, 1988.

Most of the photographs in this book are drawn from material in the National Photographic Archive of the State of Bahrain, or in the author's own collection. In his introduction, the author quotes William Gifford Palgrave who sailed from Katif to Bahrain on 23 December 1862. One interesting description Palgrave gave is the one on "strangers" mixed with the indigenous population. Palgrave wrote that: "Thus the gay-coloured close-cut dress of the southern Persian, the saffron-stained vest of 'Oman, the hite robe of Nejed, and the striped gown of Bagdad, are often to be seen mingling with the light garments of Baheryn, its blue and red turban, its white silk-fringed cloth worn Banian fashion round the waist, and its frock-like overall' while a small but unmistakable colony of Indians, merchant by profession, and mainly from Guzerat, Cutch, and their vicinity, keep up here all their peculiarities of costume and manner, and live among the motley crowd, "among them, bit not of them."

Palgrave in 1862 wrote: "Baheryn is a daughter of the sea, and the sea is, and always will be, her best nursing mother; the lean and the fat lions of St. Mark's at Venice are the proper type and measure for the prosperity of this island and its resources."

The author stated, describing the boom with the pearl and the oil industry, that "change can also spell disaster for a settled and established community, and it was clearly this view which lay behind Shaikh Isa's consistent rejection of innovation." But, the author states, "change had already come, and by accession of Shaikh Salman in 1942, it was almost universally welcomed. The money was spent discretely and widely; many of those who had resisted change were gratified when fine new mosques were built and the government opened the first state-supported religious school in 1943." Most immediate evident "was the physical transformation which was taking place... [r]oads were paved, barasti houses were replaced by less romantic looking concrete or limestone, public buildings began to transform Manama waterfront, about which most foreign visitors had been so dismissive. The Customs House was opened in the 1920's, the new Court House in the 1930's, and... a ceremonial entrance gate cum government office the Bab al Bahrain, formally opened after the end of the Second World War. (p. 13).

The book contains very valuable historic photographs which could be used in studying many historic buildings, and open spaces.

5.10. Yarwood, Traditional Building Construction, 1999

John R. Yarwood, "Traditional Building Construction in an Historic Arabia Town," in *Construction History*, Vol. 15, 1999, 57-78.

Yarwood in this article provide explanations of several traditional building techniques and materials. Those are included in the lists of "traditional construction and finishing techniques" of this report.

5.11. Yarwood, Arts & The Islamic World

John Yarwood, al-Muharraqd: Architecture of a Traditional Arabian Town in Bahrain, in *Arts & The Islamic Word*, Special Volume, No. 36.

Yarwood highlights the importance of the Bahraini's historic cities, exemplified here in the city of Muharraq, described as "it is the only remaining traditional city on the south side of the Arabian gulf-if we discount 'museum buidings' and small quarters constructed in the twentieth century." (p. 36)

Yarwood also points that "Bahrain has done well to preserve a number of 'museum buildings', but beyond that the challenge is to find new functions for old buildings, so that urban forms are conserved, even though building fabric maybe modified to accommodate the ineluctable demands of a contemporary community." (p. 36)

To establish cultural continuities between past and future, Yarwood suggests three "issues." "First, institutional arrangements and building forms should reflect the need for new types of communal living... Second, the role of the artist and craftsman in building should be strengthened, and building technology should be steered away from impersonal mass-production. Thirdly, the motor-car should be disciplined, and the role of infrastructure in form-creation should be subjugated, so that layout geometry is made by organic social processes and not only by technology... Lastly one might question the role of private capital I creating the modern city which seems just as philistine and merciless in the east s it does in the west." (p. 36).

Yarwood presents an interesting section where he traces the historic accounts on the city of al-Muharraq from the 1825 until the 1920s. In this section, he concluded that such accounts are scarce.

In chapter two, Yarwood offers some construction specifications which are described in the section on "traditional construction and finishing techniques of this report."

Yarwood presents a very useful catalogue of designs for merlons, brackets, arches panels, carved wood decoration, and stain glass fanlight designs. He also started an effort to compile a list of vocabulary of decoration.

The author propose a methodological study for the dating of the historic buildings which are based on either relating them to the dates of the rulers who built them, or foundations inscriptions, word of mouth, and dated photographs. Yarwood distinguishes four distinct periods: Early period (up to 1850), Transitional period (1850-1890), Middle period (1890-1930), and Late period (1930-1940). Each o the periods have certain common

building features, which are explained by the author. Yarwood offers sketches of façades to help identifying his four categories.

In Chapters four and five, Yarwood presents descriptions and surveys of the following buildings (35 residential buildings in the fourth chapter, and 12 buildings related to the Suq in the fifth chapter):

1. Sheikh Salman House (started 1800);
2. Sheikh Isa House (1840's-1860's);
3. Sheikh Abdullah bin Isa House (started 1800, 1890, western apartment in 1925);
4. Sheikh Hamad House (1890's);
5. Sheikh Abdullah bin Mohammad House (1880);
6. Seyadi House (1850?-70's);
7. Fakhroo Abdulrahman House (started 1905);
8. Salman Matar House (1927);
9. Ahmad Mattar House (1929);
10. Shirawi House (1890-1900 with an extension date to 1925);
11. Al-Jalahma House (without drawings, only one photo);⁸
12. Sufi House (1935);
13. Sheikh Ali bin Mohammed House (transitional period, no photos and no drawings);
14. House in Lane 1140 (Transitional period, one photo);
15. House in Street 1339 (N.D., no photo, no drawings);
16. House in Road 835 (N.D., drawing of a ceiling);
17. Bin Khatir House in Street 1120 (N.D., elevation);
18. House in Lane 913 (1921, middle period, elevation drawing and liwan screen);
19. Seyadi Mosque in Road 905 (foundation in 1865, but the current building dates to 1910, the gate is 1955, plan and elevations);
20. Mosque in Sheikh Khalifa Mohammed Avenue (doorway of the late period, photograph of the gate);
21. Yusef bin Yusef Kakhroo House (1925?, Photo);
22. Jalahma Houses in Roads 1625 and 1622 (N.D., 2 photos);
23. Sheikh Abdullah house at Croner of Sheikh Khalifa Road and Airport Road (Late period, drawing of doorway);
24. House in Lane 991 (Late period, drawings of doorways);
25. Sheikh Ali House in Sheikh Abdullah Road (Late period, 2 photos);
26. House in Street 914 (Late period adjacent to Seyadi House, drawing of street façade);
27. House in Lane 911 (N.D., drawings of liwan screen and elevation);
28. Building in Sheikh Isa Road, Steeshan Area (Late period, façade with traditional balcony);
29. House in Lane 1421 (Late period, drawing of windtower and frieze detail);

⁸ One of the rare examples of houses which had a room that bridges a public street. Yarwood states that “this was a later addition to two earlier properties. They were located on either side of a lane leading to the waterfront... The *majlis* covers the street and is mainly situated over the eastern plot... The *liwan* west of the *majlis* is located directly above the street... There is a bridge over the street to the north connecting with a later two storey house which provided a kitchen.” Yarwood, al-Muharraq, p. 58.

30. House in Road 3 (demolished by the time of the publication, drawing of doorway);
31. House of Sheikh Isa Road (Shia motif-a-six-pointed cross with dots, drawing of plaster decoration);
32. House of Shiekh Isa Road and Lane 1402 (Late period, drawing of doorway);
33. House at Corner of Sheikh Isa Road and Lane 1401 (Late period, multi colored glass, no photos, no drawings);
34. Malik House in Road 1349 (Late period, photo of gate);
35. House in Road 1630 (N.D., modified in the Art Deco period, no photo no drawings);
36. Amara Mattar, Lane 1125 (existed in 1900, plan, section and sea-shore elevation);
37. Shops in Road 1123, north of bin Khatir Mosque (N.D., elevation);
38. Shops and Khan in Road 1123, south of bin Khatir Mosque (N.D., elevation and section);
39. Shops and apartment in Road 1129, south side, colonnade style (1927, elevation, section);
40. Shops and apartment in Road 1129, north side, (1927, elevation)
41. Hospital and apartment in Road 1129 (the first hospital in Muharraq), Salman Mattar lived in it, converted into a social club;
42. Wind Tower in Road 1125, now a tea house, (N.D., plans, elevation and section);
43. Khan and Shops in Rood 1339, (N.D., façade);
44. Shops and amara in Tijjar Road and Lane 1551, known as Amara Ali Rashid Fakhroo (N.D., plan, sections and elevation);
45. Amara Ysusf Abdul Rahman Fakhroo has a wind tower (N.D., photo);
46. Khan on Tijjar Road (AH 1345, elevation/section).

Yarwood provides, without specific references, the names of some of the craftsmen and/or masons, who were involved in the building process of some specific houses. For examples:

1. Said Yassim in 1880's (from al-Hayayik) for the House of Sheikh Abdullah bin Muhammad;
2. Ibrahim al-Humeyli from al-Hayayik and Yusuf al-Ramul from Al Bin Ali the masons who built the Majlis of Seyadi house in 1920's;
3. Salman Sakran worked in the construction of Seyadi House in 1920's;
4. Musa bin Hamad the mason who worked in Fakhroo House;
5. Musa bin Hamad, and Ahmed bin Thaif the masons of Salman Mattar and Ahmed Mattar houses, and the Hospital and apartment in Road 1129;
6. Ahmad Sufi built his own house.

Yarwood in the fifth chapter explains three building types related to commercial activities: Amarat, Khans and other living Apartments, and Units shops and workshops. He also offers a plan of the Muharraq suq as it could be in the 1940's reconstructed from the aerial photograph.

5.12. Yarrwood, 2005

Yarwood, John. *Al-Muharraq*, Souheil el-Masri (editor) and Ali Abd Alraouf (translator), Shaykha Ebrahim Bin Mohammed Al-Khalifa Center for Culture and Research, 2005.

The book is the dissertation of John Yarwood written in the 1980's. The Center decided to publish it after editing and translating it. It contains a wide collection of architectural surveys and analysis of historic houses. It is not published yet, but I've seen a model copy in the Center when the UNDP group was invited there on the 24th of November 2005. Although the book was not yet in the market at the time of writing this report, Dr. Ali Alraouf of the University of Bahrain and one of the translators of the book informed that it contains a lexicon of architectural terms. This section can be a good addition to the one provided in this report.⁹

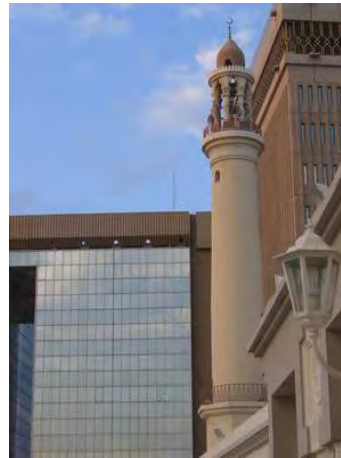
⁹ Dr. Ali Alraouf contacts are as following: alialraouf@yahoo.com; Mobile in Bahrain: 3053513; Tel: (+973) 17 876941; Fax: (+973) 17 684844.

6. Site Visits

The following is a list of the site visits made within the scope of the first mission November-December 2005. The purpose of this section is to report on the achieved tasks. Each site visit is accompanied with a brief report where one or two aspects are highlighted, and those are in relevance to the above interpretation and analysis. It should be pointed out that those site visits helped in shaping, checking, and elaborating the list of the technical terminologies included at the end of this report, and to develop a list of incompatible and inconsistent interventions that are currently followed by tenants and users. The negative effects of those interventions were explained in 2.2. of this report, and alternatives that could achieve similar results but sensible to the historic fabric of the significant buildings were proposed.

6.1. *In Manama*

6.1.1. The Minaret of the Mosque of al-Fadil



One of the examples that shows the detrimental effect restoration, if undertaken without adhering to preservation charters and guidelines, can produce. During my visit to the mosque, a professional Bahraini architect working in field of heritage preservation did not know whether this minaret was historic or newly built.

6.1.2. *Bayt al-Shaykh Mohammad Bin Salman, Manama*



One of the few buildings that still has a *madbassa*, which is a room or series of rooms, where palm dates are collected and fermented.

The building was under renovation. It seems, however, that the works stopped. I've learned from Shaykha Mai, that the works stopped because the owner died. An excessive use of cement mortar was used to plaster the walls, which resulted in the formation of surface hair-cracks, and continuous cracks between parapet and roofs.

The building has a water basin.

It is noticeable that no air-conditions were installed in the renovation program. It is not sure, however, whether they will be installed in a later stage, or they won't be incorporated at all.

It is noticeable that a lime wash was applied over the cement plaster. Lime layer flakes because of incompatibility. Some lime bags were found in the site, and confirms that all the lime used is imported. The Saudi hydrated lime is from Saudi Lime Bricks & Old Building Materials Co., al-Riyadh, P.O. box 3130, Tel: 4829097, 2751816, Fax: 4829528, 2651175, or from Nura Ra's al-Khayma. There were also bags of hydrated lime imported from Turkey.

6.1.3. Ruins of the water house of the Shaykha Nora Bin Salman.



The ruins of this water house, and the remains of the traditional irrigation system that surrounds it, could set a good example of conservation of ruins, and exemplify means to reintegrate them into a preservation framework.

6.1.4. House of Jasim al-Qusayr



One of the few historic houses I visited that is fully operating as a house for one family, except some of the first floor rooms that are difficult to maintain, and thus their

conditions are becoming too weak for usage. The building is actually two houses combined together. This is an example of how modern facilities can disrupt the historic fabric of a structure (note the water heaters, satellite dishes, air conditions, electrical wiring, water conduits, and others). The owner admits that the use of the cement in repair works is not providing satisfactory results, but he also complained about the prices and the scarcity of traditional building materials, and traditional craftsmen.

6.1.5. *Bayt Khalaf*



The owner, Mohammad Khalaf (tel: 3990777) left the building 15 years ago and spent 200.000 Dinar to build another house outside of Manama, but he always wants to go back to the house because “he feels himself there.” That is why he always wants to come back and live in the house but modern facilities are hindering him to take such a step. The house is 85 years old. Iraqi carpenter made all the woodwork of the projecting balconies, which became a distinct feature of the house. Mr. Khallaf stated that he never considered a modification or additions to the house because he wants to preserve the memories of his grand mother in the place. Despite his claim, there are many additions in the ground floor level to enclose some of the open corridors into some rooms. The interventions are done sensibly, and actually this is considered one of the few examples where one can easily distinguish the additions from the historic fabric.

6.1.6. *Bayt Bani Rida*

This is a ordinary historic house that is partially lived by few members of the family (2 old women). There are sections of the house rented to other tenants, and they all share the courtyard. This mandated the insertion of some wooden staircases in order to access the subdivided spaces directly from the courtyard. The interventions here are quite different within one building, as each tenant is configuring his or her living spaces according to a certain taste. It is noticeable that all kitchen and the water supply outlets are in the courtyard.



6.1.7. Bayt at the corner of Bani Radi House



The house, which is abandoned, but the shops at the ground floor are still functioning. The peculiar thing about this building is that it still holds the projected wooden beams which once supported the balconies that went around the first floor openings. This is an example to recommend the reintroduction of a vanished architectural element in order to restore the surrounding urban scheme.

6.1.8. Madrasa Abu Bakr

Built in the 1940's by the British. The building is currently used as administration offices for the school. New buildings are built to house the classes. The Ministry of Education has its own maintenance office responsible to upkeep its buildings, including the historic ones. The supervisor of the maintenance is r. Ali Al-Jamri (tel: 39460201). It should be noted that architectural surveys were made by the Ministry of Education for the buildings and for other schools that belong to the Ministry.



6.1.9. *Bayt ??? (Currently la Fontaine Restaurant)*

The idea of preserving a historic house, change its use to meet contemporary needs and circumstances, is a sensible approach. However, if conservation charters and guidelines will be ignored in the practical processes, the result could be detrimental. In the case of La Fontaine Restaurant, the excessive use of cement mortar is harmful, and incorporating many incompatible additions to the building resulted in an unclear distinction between the old fabric that was preserved the newly added architecture.

6.1.10. *Bayt ??? (Currently Mezzaluna Restaurant)*

It is located in ‘Adliyya, not too far from Ferrari exhibition hall, and Bahrain British School. The brochure of the place states that the restaurant is “located in a traditional Bahraini courtyard house.” It stresses that the interior “balances the modern and the whimsical in a warm inviting setting.” (Tel.: 973 17 742999)

This is an example of reuse of a historic building with a sensible preservation of its historic fabric. Unlike La Fontaine Restaurant, Mezzaluna Restaurant emphasized on presenting the traditional architectural elements. Modern additions, such as the wood and glass skylight that covers the courtyard, are done sensibly without harming the historic composition.

6.2. *In Muharraq*

6.2.1. *Bayt al-Siyyadi*



The house is under “restoration” as the plaque at the entrance says. It is constantly locked. I’ve managed to enter it on the 24th of November, and met Nagui the gypsum carver working there (see contacts).

It seems that the owners are removing the previous faulty interventions such as the reinforced concrete beams and slabs, and the steel beams, and replacing them with traditional materials. It is one of the rare cases I visited that follows this approach. I have noticed that the ceiling of the entrance hall, where the gypsum carver was working, was painted with vivid colors that are probably different in hues and compositions from the original ones. Fortunately, the ceilings of the upper rooms are still not touched.

The first floor circular staircase that leads to the women’s gallery has a wooden noze as in the case of the staircase of the house of ibn ‘Issa.

Shaykha May of Shaikh Ibrahim Center informed me that the center is intending to transform this house into a Museum for Bahraini pearls, as the original owner of the house was one of the famous pearl catcher.

6.2.2. House purchased and renovated of al-Sabah Family



The house is currently under renovation. The contractor and the project manager is ‘Abdallah Isma’il (Tel: 39940030/39808830). Craftsmen working in the house are mostly Bahraini: ‘Ali Muhammad (Tel: 39862009), Ishaq Darwish (Tel: 39721266), Salim Sa’id (Tel: 39252009).

During the site visit, I met the workers and supervisors working in the field, and learned many traditional techniques and system currently followed in conservation.

6.2.3. House of Ibn 'Issa



This is one of the rare examples of the traditional houses which still has its wind towers. The rarity of the wind towers in Muharraq and in Manama raises the question whether this climatic control element is locally rooted or was imported at some point in time to Bahrain from other neighboring countries.

The house is currently used as a museum, which is one of the uses that are currently assigned to newly restored historic houses. The guard of the museum informed me that the building witnessed several phases of the preservation intervention, each led by a team of Arab conservators (Tunisian, Iraqi, and then Bahrainis). A brief on the general type of interventions for each team is the “interesting information” section.

6.2.4. House restored by Lebanese/French Group



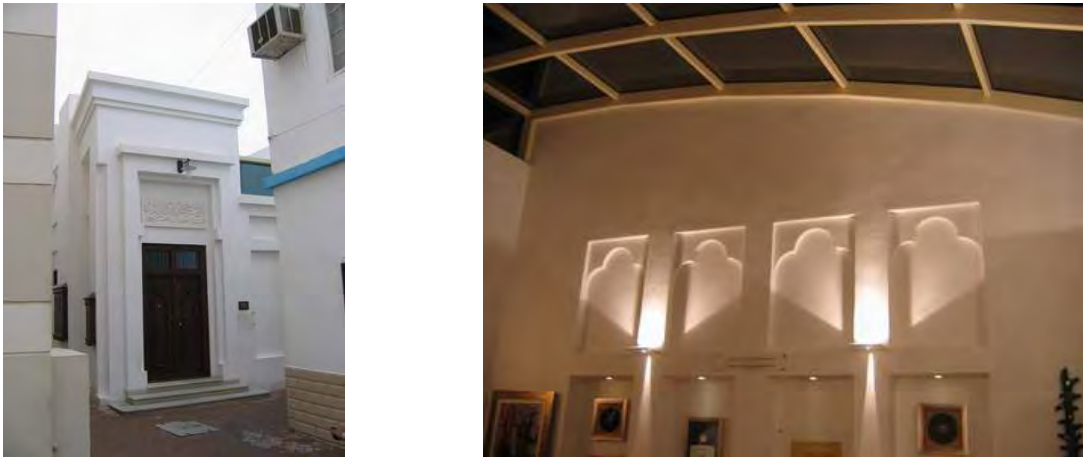
In the renovation works, interesting details to fix air conditioned units, and drain their condensation water were followed. A exterior masonry plinth was built against the historic wall, and within its thickness, water draining pipes were inserted. Loopholes were left at the bottom of the plinth to discharge the water directly onto the street level.

6.2.5. *Majlis and House*



This is one of the few examples of *farij majlis* that is still surviving with the meaning of the space. It actually still functions as a *majlis*, and we were invited to one of the meetings by the family leader, who is currently occupying a prominent ministerial position. It should be highlighted, however, that the maintenance that is undertaken is quite minimum and does not relate to the deteriorating conditions of the building, especially with the “*qarada*” (termites) problem.

6.2.6. *Bayt Muhammad Bin Faris (Sut Music House)*



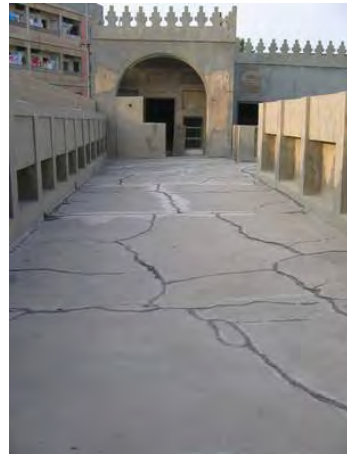
This is an example of the preservation that is solely based on nostalgic notion, discussed above. It is also clear that little respect was paid for the existing historic fabric. Also, it is noticeable that the restoration was not based on firm traditional forms and techniques. Distinction between historic fabric and modern intervention was not carefully considered, and the result is a confusion of clear understanding of the final product in terms of layers of intervention.

6.2.7. Abdallah al-Zayid Press Heritage House



Another example of the preservation that is based on nostalgic notion, with a little attention given to integrating the building to the surrounding fabric and society. This type of intervention, if generalized, might result in a disrupting the social fabric in the area, and eventually will lead to a gentrification.

6.2.8. Shaykh Salman House



An example of the effect of the excessive use of cement. There are some old weapons which are stored in some spaces and in the courtyard, which could be an interesting case to conserve and represent to recite, in a special permanent exhibition, history of wars in Bahrain.

6.2.9. Bayt Matar, Muharraq



During the meeting with the members of Shaikh Ebrahim BinMohammad al-Khalifa Cener for Culture and Research, led by Shaykha May, the Head of the Bahraini Antiquities (?) mentioned that Bayt Matar will be transformed in a Museum called “the Memory of the Place,” where exhibitions of different traditional crafts, including those related to construction and architecture. This information is also stated in the Center’s brochure, and website.

I only checked the exterior of the building.

Except from some of the street shops at the ground level that are still being used probably for storage, the building is no longer in use. The first floor is nearly reaching a ruinous state.

7. Important selected contacts

Individuals

- Ahmad Bucheery (architect, director of Gulf House Engineering)
P.O. Box 136, Manama
ahmed@ghe.com.bh
Tel: +973 17 720203; Fax +973 17 722824; Mobile: +973 39677577.
- Dr. Souheil el-Masri
Department of Civil and Architectural Engineering, Bahrain University.
Tel: 36757750
selmasri@hotmail.com
Souheil is the editor of the book on Muharraq, and he promised to send via e-mail the list of bibliography of the book, and the lexicon of technical terms that is an appendix in the book.
- Mr. Jamal (wood conservation and cleaning)
Tel: 39699374
Cleaned the doors of Bayt Muhammad bin Salman.
- Nagui the gypsum carver
Tel: 39070357
Nagui reported that the gypsum he used is imported from Saudi Arabia, Qatar or Turkey. He prefers to use the Saudi one.
Nagui carves a 40x100 cm window for approximately 30 Dinars.

Organizations

- Shaikh Ebrahim Bin Mohammad Al-Khalifa Center for Culture and Research
PO. Box 13725, Muharaq
Tel: +973 17322549; Fax: +973 17320955
e-mail: info@shaikhebrahimcenter.com.
www.shaikhebrahimcenter.com
Board of Trustees: Mai Mhammad al-Khalifa (founder), Latifa Mohammed al-Khalifa, Aisha Khalifa Mattar, Ahmed Baqer Hasan, Hasan Salman Kamal, Isa Mohammad Amin.
- Craftsmen Center in al-Jassra
No specific information are available on this center. A visit has to be scheduled to check its scope and the usefulness of its activities in relation to the project.
- MIMCO (traditional Materials)
Khalifa al-Mannai
Tel: 39695222; 17214458

8. Appendix: Movie on a CD that demonstrates Principles/Strategies for specific technical interventions



Kingdom of Bahrain



United Nations
Development Program



Ministry of Municipalities
and Agriculture Affairs

مشروع

بناء القدرات لتحسين الإدارة الحضرية
(الحفاظ على المناطق والمباني التراثية)
المرحلة الأولى: الاستراتيجيات والسياسات
تقرير الاستشاري تكنولوجيا المعلومات
د. أسامة طلبه

**Capacity-Building for Enhancement
Of Urban Governance**
(Conservation Urban and Architectural Heritage)

Stage One: Strategies & Policies

**IT Consultant's Report
Dr. Osama Tolba**

February 2006

UNDP/Bahrain
Ministry of Municipalities and Agriculture Affairs
“Capacity Building for Enhancement of Urban Governance”

IT Consultant’s Report
Osama Tolba, Ph.D.

February 23, 2006



Photograph looking up into the wind tower of Shaikh Isa Ibn Ali Al-Khalifa House

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- ANNEX 2 – IT Consultant’s Mini-Report on The Suitability of the Existing Governmental GIS to Conservation Planning
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1. Summary

This report summarizes my finding and recommendations resulting from two work phases as IT Consultant on the “Capacity Building for Enhancement of Urban Governance” project, undertaken by the UNDP/Bahrain and the Ministry of Municipalities and Agriculture Affairs. The first work phase was from 16 November till 25 November 2005, while the second work phase was from 16 January till 2 February 2006.

During the first work phase, I attended several sessions of the public Charrette run by other consultants. I also participated in several field visits and met with several individuals at governmental locations. During the second work phase, I worked on the development of IT strategies and field survey.

1.1. Summary of First Mission

I divided my time in Bahrain between three main tasks: attending Charrette sessions, accompanying other team members in site visits, and meeting with certain individuals in the government.

The Charrette sessions that I attended were useful in several ways:

- Clarifying the scope and aim of the mission in general.
- Meeting with people who may provide data or data sources.
- Arranging for site visits.

It was crucial to witness, first-hand, the architectural character of the old cities. Walking the streets of Manama and Muharraq with other team members and our hosts helped clarify the extent and type of documentation that is necessary.

Besides the meetings at the Charrette and during site visits, I conducted the following meetings that were geared toward identifying geographic and demographic data sources:

- Mr. Mohamed Nour al-Sheik, Undersecretary of the MOMAA, who clarified some issues concerning the national GIS and cadastral survey.
- GIS engineers at the MOMAA, who provided valuable information about the municipal GIS, its components and uses. They also provided several map layers that would be useful for conservation planning. They did so with the approval of their department head and Mr. Mohamed Nour al-Sheik.
- Dr. Maher abu-Seif of the Planning Department, who has access to census data. Dr. Maher also expressed interest in collaborating with our team in the zoning issues.

1.2. Summary of Second Mission

My second mission’s work included working with the conservation and preservation consultants to plan for and carry out a visual field survey of the urban conservation zones. This entailed building an experimental database and geographic information system (GIS) aimed at jumpstarting a municipal IT strategy. This system was tested on a visual survey of a small section of the historic town of Manama. It is hoped that the system will be further developed and put to use as a decision support system for the municipalities of Bahrain.

1.3. Summary of Recommendations

The Kingdom of Bahrain has an urgent need to document different kinds of heritage, including cultural heritage as well as the agricultural and natural areas, all of which have become extremely affected by recent development. This study concerns Bahrain's architectural heritage, which includes significant buildings and the overall character of Bahrain's traditional towns. This heritage is endangered due to new urban development and the general neglect over the past decades, as discussed in the reports of other consultants.

This report proposes two strategies for the employment of IT in the conservation of the old towns and the architectural heritage of Bahrain:

1. The establishment of a national heritage documentation center that collects data about buildings of architectural or cultural significance. This data can come from existing sources or through active documentation projects. The center must also promote the use of architectural records in various applications.
2. The development of a decision support system for urban conservation planning. The system supports planning specialists and decision makers in their areas of work, such as the creation of urban conservation zones and redevelopment strategies. It documents existing structures and their present conditions in order to assist in decisions regarding their preservation, restoration, and possible reuse. Such a system will also help the municipalities in management tasks, such as building permits.

The remainder of this report is devoted to explaining these two strategies in more detail. It also includes a description of the survey and field work that was carried out during the mission.

2. First IT Strategy: Establishment of a National Heritage Documentation Center (NHDC)

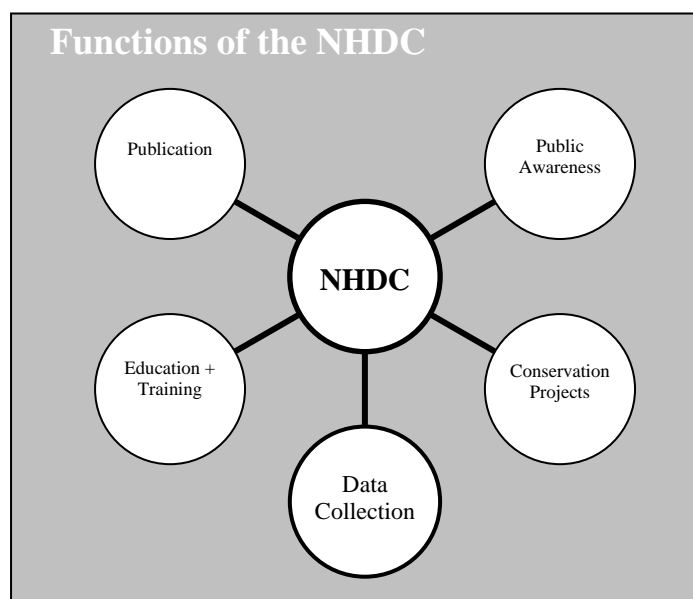
2.1. Introduction

Some significant buildings have been studied and documented by various interested parties. Examples of these buildings include the Fortresses of Bahrain and the old houses of the ruling family in Muharraq that have been converted into museums. However, the vast majority of the significant buildings are not documented. There is a need for a specialized documentation center that continues recording the significant architectural heritage of Bahrain, both within the old cities and outside.

The continuing documentation of Bahrain's architectural heritage must be undertaken by a special governmental unit. For example, in Egypt, this task is undertaken by a special center in the Supreme Council of Antiquities, which is a branch of Ministry of Culture. The proposed center may be managed by the Ministry of Information, or by the *Ministry of Culture*, which is proposed elsewhere in this report. The shape of this documentation unit is discussed in this section.

The documentation center will have two main objectives:

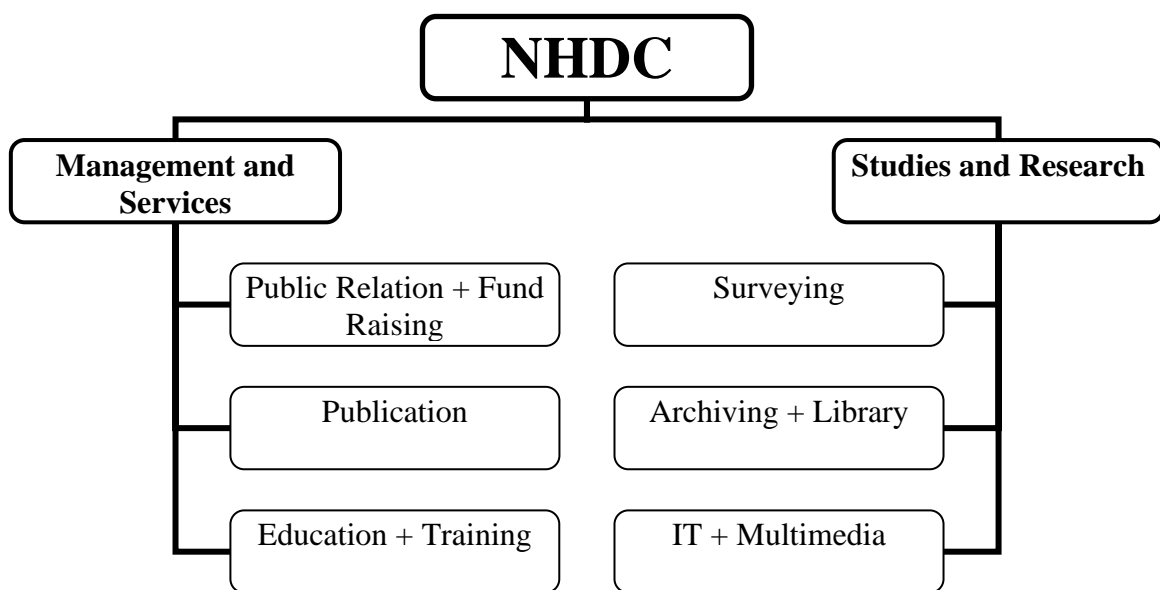
1. Collect data about buildings of architectural or cultural significance. This data can come from existing sources or through active documentation projects.
2. Participate in and actively promote the use of architectural records in various applications, such as:
 - Publications on print, digital media, and the Web.
 - Raising public awareness about the national heritage.
 - Projects for urban conservation and preservation of significant buildings.
 - Architectural education and research (a research unit within the documentation center is recommended).
 - Training of architects and preservation specialists in the procedures of architectural documentation.



2.2. Proposed Structure of the NHDC

2.2.1. Organization of the Center

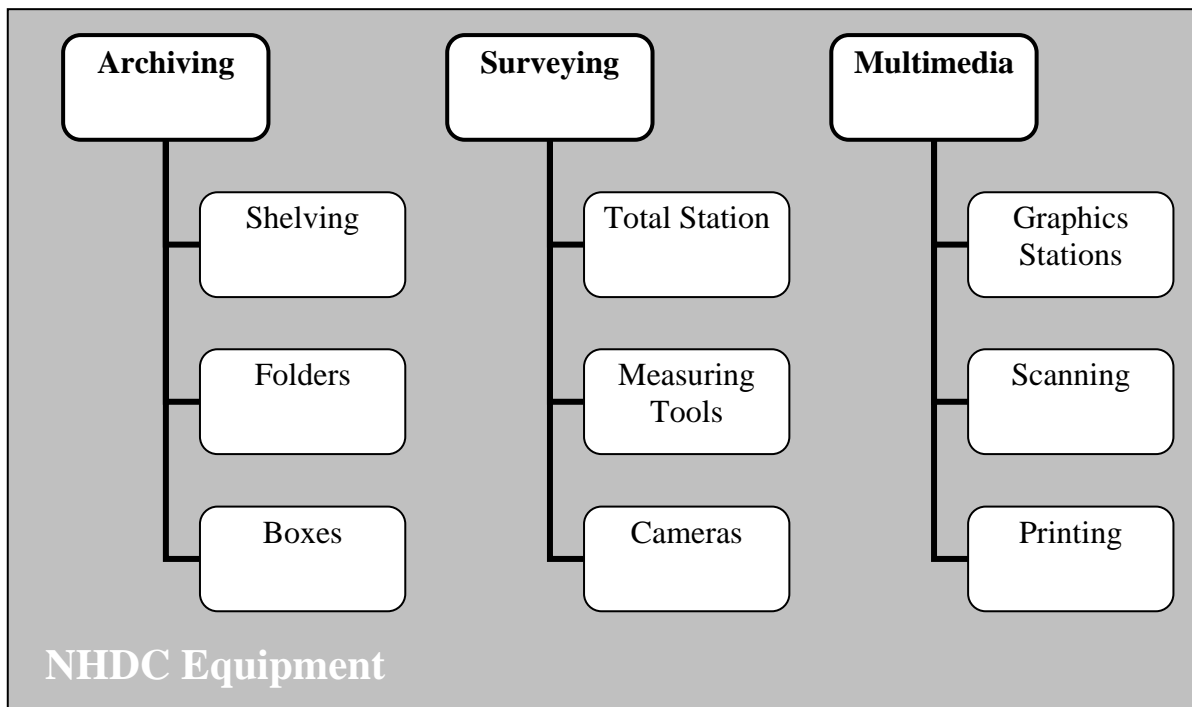
The center shall have two main sections as shown the diagram below: one for the management and services and another for the studies and research. Each of these sections will perform several tasks. The “Management and Services Section” is responsible for public relations and fund raising activities, general publications, and education and training. The “Studies and Research Section” will undertake field surveys, archiving of the records. It will also host a special library and the IT and multimedia functions of the center.



2.2.2. Equipment for the Center

A suggested list of equipment for the proposed center (see diagram below) may include the following:

- Computing workstations
- Small-format and large-format scanning and printing devices
- CAD, 3D modeling, and other graphics software
- Professional-grade digital cameras and lenses
- Professional-grade 35mm film cameras for photo-archives
- Digital surveying stations (*total station*)
- Traditional measuring tools
- Digital photogrammetry cameras and software
- Archive-quality shelves, folders, boxes, media, etc.
- An off-premises data warehousing facility



2.3. Proposed Database Framework for Heritage Documentation

In this section, I hint at a possible structure for a database system to be employed at the National Heritage Documentation Center. However, a functional database system must be designed in due course as the center is established. The database design and implementation must be done according to professional methodologies of systems analysis and design.

Although UNESCO strongly advocates high quality heritage documentation, it does not enforce a specific standard or documentation technique. Each country or site will have its own set of requirements and resources that will dictate the design of the specific documentation system.

The proposed database system will be composed of several related tables. It will also include the GIS maps of buildings, properties, utilities, etc. The maps and the other tables will be linked via a main table, called BUILDINGS for example. The other tables include: the PHOTOS, DOCUMENTS, and BOOKS tables. The following is a short description of these tables. Certain technical details are omitted for brevity.

Fields of the BUILDINGS table:

- Building ID
- Building address
- Owner's names
- Date of last inspection
- Structural condition of building
- Architectural evaluation
- Links to several photos
- Links to several drawings of the building
- Links to several documents
- Etc.

Fields of the PHOTOS table:

- Photo ID
- Building ID (if applicable)
- Date taken
- Time taken
- Photographer's name
- Description
- Format (JPG, TIFF, etc.)
- Link to image file
- Etc.

Fields of the DOCUMENTS table:

- Document name
- Author
- Description
- Format (Word, DWG, PDF, etc.)
- Link to document file
- Building ID (if applicable)
- Etc.

Fields of the BOOKS table:

- Book ID
- Title
- Copyright Year
- ISBN number
- Publisher name
- Place of publication
- Edition number
- Pages
- Notes
- Etc.



Relationship diagram showing example database tables.

2.4. Information Needed

There are different kinds of information needed for the NHDC. In addition to detailed surveying and documentation of significant buildings, the center should acquire the following kinds of data related to the heritage:

- Maps and geographic data of the buildings and sites.
- A bibliography of the available sources, either governmental or commercial.
- Current governmental reports.
- Previous public reports and studies in digital form or printed reports that can be scanned. For example, the report entitled “Manama Urban Renewal Project” by the Ministry of Housing’s Physical Planning directorate (Urban Renewal Dept), 1987. With proper permission, other commercially published books and reports about the cities of Bahrain may be obtained.
- Historical data, such as old maps, photos, drawings, and documents such as property title deeds, etc. Various governmental offices may be contacted for this task; for example, the Properties Department at the MOMAA.

The above-mentioned data sets, when collected and cataloged, can become an extremely useful management and research tool that any project related to the architectural and urban heritage of Bahrain can employ.

Summary of Strategy 1: Establishment of a National Heritage Documentation Center

Background:

Some significant buildings have been studied and documented by various interested parties. However, the vast majority of the significant buildings are not documented. There is a need for a specialized documentation center for recording the significant architectural heritage of Bahrain, both within the old cities and outside.

The documentation center's main objective is to collect data about buildings of architectural or cultural significance. This data can come from existing sources or through active documentation projects. The center will also undertake and promote the use of architectural records in various applications, such as:

- Enhancing public awareness about the national heritage
- Providing publications on print, digital media, and the Web
- Engaging in urban conservation and preservation projects
- Progressing architectural education and research; a research unit within the center is recommended
- Training architects and preservation specialists in the procedures of architectural documentation

Implementation:

The center may be managed by the Ministry of Information, or by the Ministry of Culture, which is proposed elsewhere in this report. The center must be equipped with the following:

- Computing workstations, small and large-format scanning and printing
- Graphics software including CAD, 3D modeling, etc.
- Digital surveying stations (*total station*); traditional measuring tools
- Digital photogrammetry cameras and software
- Professional-grade digital and 35mm film cameras for photo-archives
- Archive-quality shelves, folders, boxes, etc.; data warehousing facility



Examples of architectural documentation: surveying with a total station (left), creating drawings from rectified photographs (right)

3. Second IT Strategy: Development of a Decision Support System (DSS) for Urban Conservation Planning

3.1. Introduction

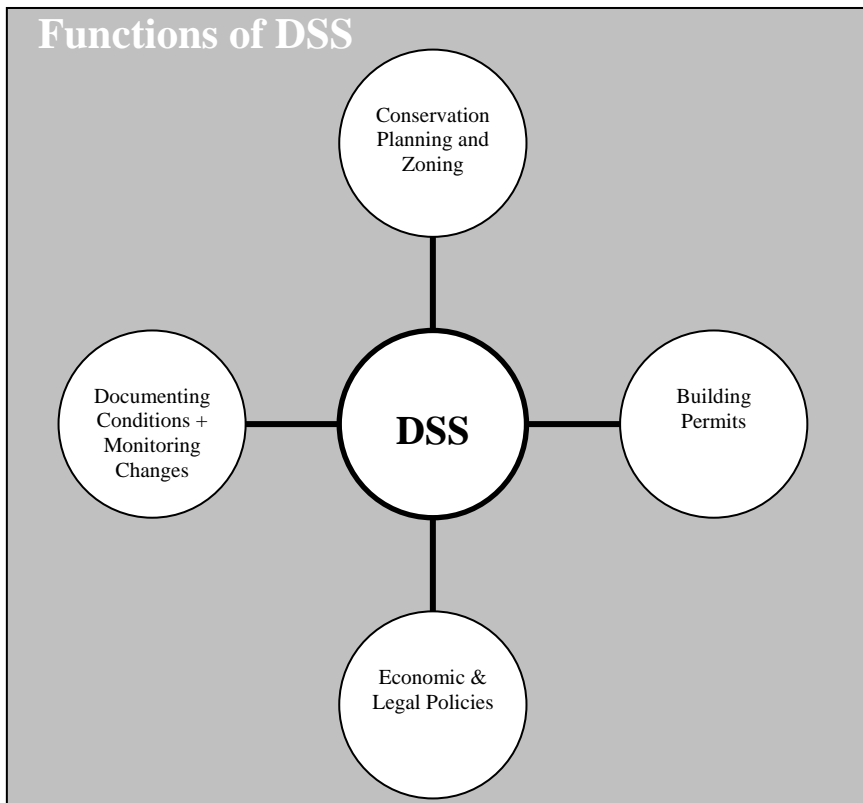
The government of Bahrain and the municipalities of the old towns of Bahrain need a database designed to support decisions about urban conservation. A previous governmental attempt at creating a GIS-based record of architectural heritage exists. This attempt used a documentation method that was largely subjective, leading to an incomplete and scattered record of some buildings that were deemed significant by the individual surveyors. Such a record cannot be used efficiently for planning and zoning purposes, in part because it does not provide any information about the surroundings of the significant buildings.

On the other hand, the general-purpose GIS developed by the government of Bahrain is mainly designed and used for fiscal purposes, such as tax and fee collection. This system is useful as a starting point for mapping the urban fabric, but it cannot be relied upon exclusively for conservation planning due to the lack of some crucial data related to the character and condition of the built environment.

In this light, and because the MOMAA already possesses a functional GIS, it is deemed useful to link the database to the GIS and use it for storing and exploring information about the urban conservation zones of Bahrain. This will facilitate the use of the database in an array of application, such as urban planning and zoning tasks, investment and tourism planning, architectural studies and research, and Web publication for facilitating public access to information.

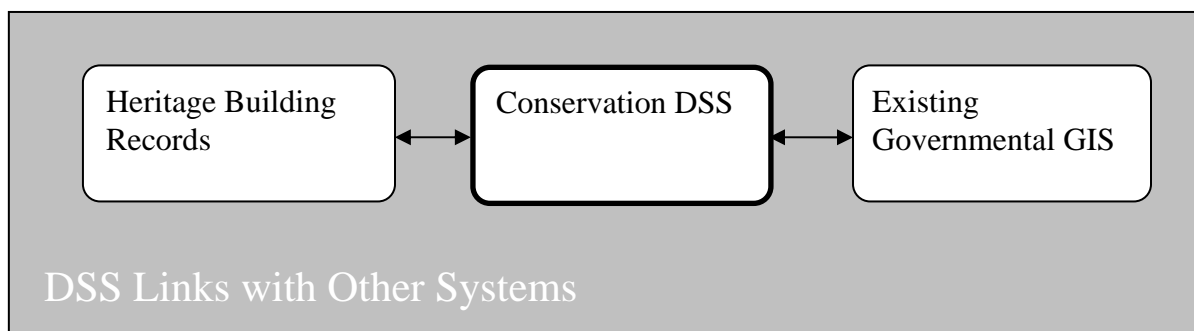
The purpose of the proposed DSS is as follows:

- To support planning specialists and decision makers in their areas of work, such as the creation of urban conservation zones and redevelopment strategies.
- To document existing structures and their present conditions in order to assist in decisions regarding their preservation, restoration, and possible reuse.
- To document demolished and ruined structures in order to aid in their rebuilding or redevelopment as determined by the historic preservation specialists.
- To provide documentation in support of various government ministries' financial and judicial initiatives.
- To help the municipalities in management tasks, such as building permits.
- To monitor any unsupervised changes to the historic built fabric.
- To promote public awareness about the historic cities of Bahrain through publication of maps in print and Web formats.



Special Considerations:

- The system needs to be integrated with the existing governmental GIS, so that it can be used for management purposes. For example, decisions regarding building permits must take into account the data and recommendations offered by the conservation planning system.
- In the case of significant buildings, the system must provide links to the proposed National Heritage Documentation Center.
- Surveying teams from the MOMAA must continue to collect data for Manama and Muharraq and enter the data into the system.
- Any decision support system such as the one proposed needs to be continually tested and refined as the needs change.



3.2. Database Design

A “real” database takes months to design, develop, and test. Given the short period that was available for this task, the database design that was achieved is experimental in nature and cannot be treated as a final product that is deployable across governmental institutions. For example, no formal gathering of requirements was attempted; i.e., it is not known exactly how the database will be used. Without this knowledge, the consultant is forced to come up with a design that can satisfy the immediate needs of the project and one that can be implemented in the given amount of time.

A preliminary database was implemented during the second work phase to serve as an early model for a Decision Support System (DSS). This database, like any other software system, needs to be continuously tested and refined as it is being inhabited with data and maintained by specialists. The system was crafted to suit the needs of the tasks that it serves.

A regular forms-based database entry and retrieval system was developed. It permits the storage of different types of information about buildings and properties. The data entered need not be tied to a specific geographic location. However, a database or information system for the documentation and management of urban conservation zones is most useful when linked to geographic information. Therefore, each building is given a unique identification number used to link entries in the database tables with the building’s location on the map (see diagram below). This permits the use of the database for planning and zoning as well as for producing different kinds of maps.

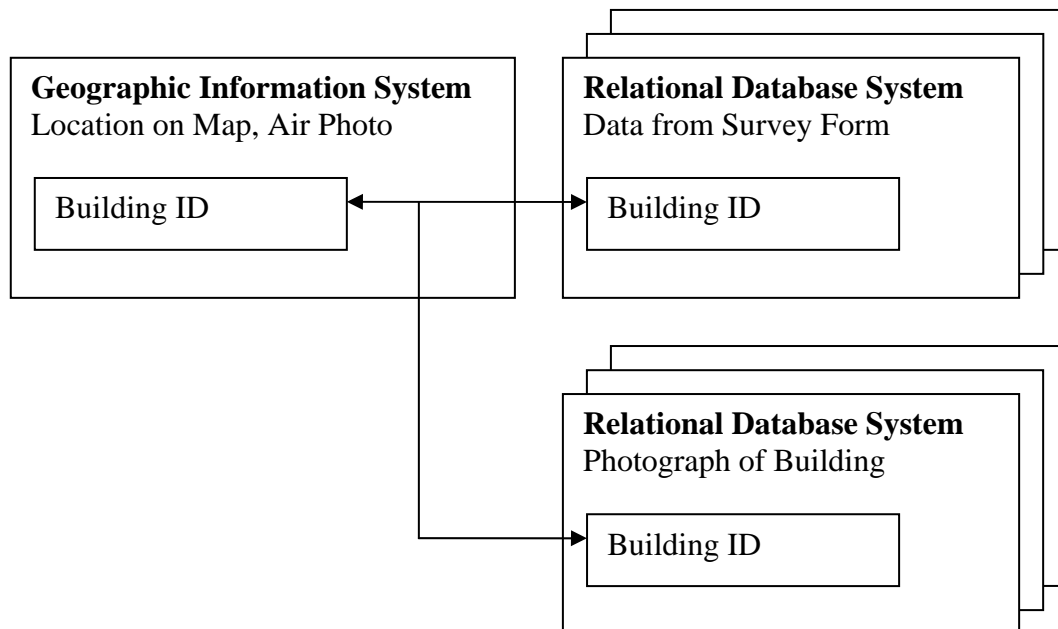


Diagram showing conceptual design of the proposed database system.

The following tasks were completed during the mission:

- Set up of an experimental database.
- Testing the database with the field survey that was proposed by the zoning and conservation consultants.
- Entering survey data into the Database.
- Training individuals from the Studies and Research Section and other departments to continue adding data into Database after the consultants have left.

Implementations:

- The current project's team has designed a prototype GIS that can serve as the basis for a conservation planning system. This prototype is composed of new map and a related database system. The consultants have also designed a sequence of field data collection, followed by data entry into the database system. This sequence has been tested in the field on a group of parcels in Manama.
- The system is composed of GIS maps of buildings and properties. The maps are linked to other tables and data, such as photos of buildings and other types of related documents like deeds, etc.
- The system is to be inhabited by data collected through a purposely designed survey form (see elsewhere in this report for a detailed description of the survey).
- The proposed GIS may be hosted by the MOMAA (through its Information Systems Directorate) and can be used remotely by the municipalities. This allows the system to be linked to the existing governmental GIS and eliminates the need for new hardware and software.
- Initially, there will be a need for increased human resources in order to build the system, collect data, and inhabit the system with data. However, on the long run, minimal resources can suffice to maintain it.

3.3. Information Needed

Different kinds of information are needed for the development of the conservation planning DSS:

- The different cases in which the database may be used. For example, the kinds of queries and searches will be conducted. More generally, what different uses and applications of the database can be foreseen?
- Better maps and geographic data of the study area. Due to budgetary and social constraints, there seems to be a problem with updating the cadastral survey. Many properties are not delineated in the base map. This may hinder the progress of data collection and analysis, especially when it comes to zoning and urban design. In such studies, there needs to be a clear distinction between public and private land, as well as a clear outline of open space.
- Census reports for the two urban conservation zones. The Planning Department at the MOMAA has provided some of this data but it is incomplete and needs to be related to the GIS maps.

3.4. Available Information

In general, governmental data in Bahrain is hard to come by and obtain. There is no clearing house or Web access to geographic and other data. Nevertheless, the project director and other MOMAA officials were very helpful in providing contacts.

The following sources of maps and relevant data were identified:

MOMAA's Information Systems Department (ISD) maintains a remarkable GIS that includes the following:

- 3.4.1. Map layers of several themes that include the following:
 - Road centerlines with roads divided into 4 types: Avenue, Highway, Lane, and Road. Most highways and avenues have names attached to them, while roads and lanes are identified by number only.
 - Road lines: boundaries of major roads (curb lines)
 - Census blocks with identities and attributes that describe the municipality and the area name where the block is located.
 - Zoning polygons that describe the different planning areas in Muharraq and Manama. The zoning categories on the map are as follows:
 - Archaeological
 - Buildings: 3 storey, 5 Storey, 7 Storey, 10 Storey A, 10 Storey B, 15 Storey, 20 Storey
 - Commercial Zone / Showrooms
 - Embassy site
 - Free Zone, Future Development
 - Garden, Graveyard, Green Belt
 - Industrial Projects (C)
 - Investment building type B4, Investment D Area
 - MOH Projects

- Private Residential (A), Private Residential (B)
 - Productive Agricultural Areas
 - Public Services / Utilities
 - Recreational
 - Row Building 3 Story
 - Row Housing (A), Row Housing (A) Special, Row Housing (B)
 - Seef Mall
 - Services Area (A), Services Area (B)
 - Special Project
 - Unplanned
 - Workshops
- Cadastral survey map of Bahrain. Each property is bounded by a polygon without any attributes.
 - Building outlines (polygons) roughly delineated.
 - Various layers of utilities available from the ISD.
 - Properties with possible historical or heritage value. These properties were highlighted during a previous governmental study and were grouped by significance into four categories: A, B, C, and D. Each property has a link to a single photograph. Some properties have road names, area names, and owner names listed in Arabic.
- 3.4.2. High-quality digital images from recent air photos and satellite images were provided. Historic air photos from various years during the 20th century were also available. These photos are rectified to match the projection of municipal maps.
- 3.4.3. ISD has also developed various GIS applications used by many departments in the ministry and municipalities for permits and other urban land management functions.
- 3.4.4. The Planning Department at the MOMAA promised to provide census data for the years 1981, 1991, and 2001. They have provided Donovan Rypkema, the project's consultant for economic issues, with some of this data.
- 3.4.5. Other potential sources of data include:
- Department of Properties at the MOMAA
 - Ministry of Housing
 - Surveying Authority
 - Ministry of Information, especially the Restoration Department and the National Museum.

3.5. Field Survey

An inventory of the buildings and open spaces in the historic centers of Manama and Muharraq was proposed by the conservation consultant. The complete inventory must be performed through an extensive field survey covering the proposed protection perimeters and buffer zones.



Consultants discussing the extent and methodology of the field survey

A specially designed form for data collection was designed by the consultants concerned with conservation zoning and preservation in collaboration with the IT consultant (see survey form in annex). The design and revision of this survey form involved several cycles of modification, during which the form was tested on actual areas in Manama. Also, during our mission, the survey form has been verified on the ground.

The survey form is divided into several sections:

- The top section designates an ID for the building along with its address and other administrative data.
- The “property ownership and uses” section documents the building and land use.
- The “Building Details” section records several aspects of the construction of the building and its occupants, such as the building typology, height, number of floors, and construction system.
- The “Buildings of Architectural Significance” section is filled only when a significant building is encountered. It records, in detail, the historic elements in the architecture of the building, such as wind towers, traditional balconies and doors, etc.
- The final section is to be filled by the conservation and preservation experts, who decide on the possible form of intervention for each building. There are three categories of intervention: preservation, new construction, and demolition.

The field survey has begun with groups of surveyors employed by the MOMAA and selected by the different municipalities during our mission. Before the beginning of the field survey, our team of consultants has instructed them on the inventory objectives, the survey forms, and the techniques to be used (see photo below).



Consultants explaining the field survey to the new surveyors

For a few days, the surveyors have worked together with the consultants, receiving further training on the ground and then performing the survey. This resulted in completing the inventory for a small area in Manama, which we called the test survey. In parallel with the test field survey, in the Studies and Research office, the following operations were carried out by the team of consultants and the survey supervisors:

- a) Updating and preparation of base maps in preparation for data entry.
- b) Downloading and renumbering of the photos of the surveyed buildings.
- c) Beginning of the data entry into the GIS.

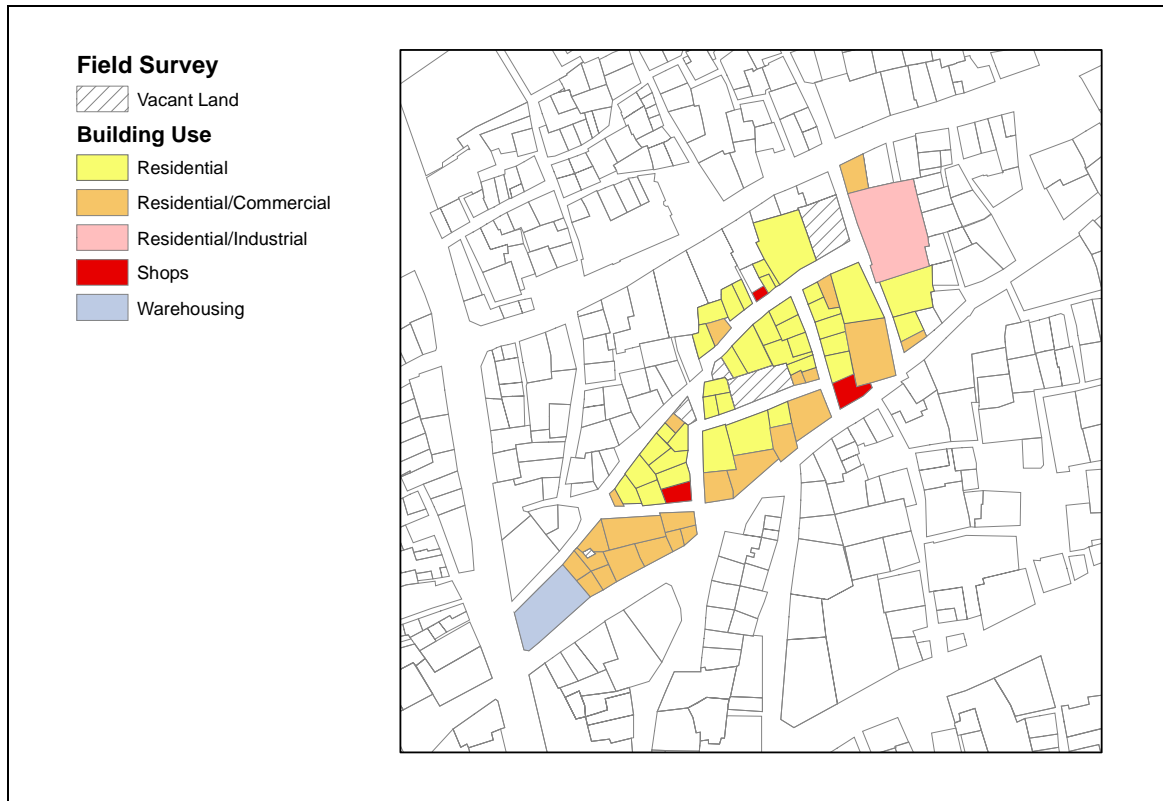
The tasks involving the GIS were completed afterwards, in the following weeks by the team of consultants. They included redrawing parts of the maps where the building boundaries were not available from the municipal GIS. In addition each building was given a unique ID that comes from the survey form. After this, the survey form data is entered into the database system and a link between the GIS and the database tables is established.

In order to illustrate the usefulness of the field survey and the collected data, several thematic maps for the surveyed area were generated and incorporated in the following pages. Each of these maps is generated from the system with simple GIS commands that color each building according to its attributes in the database table.

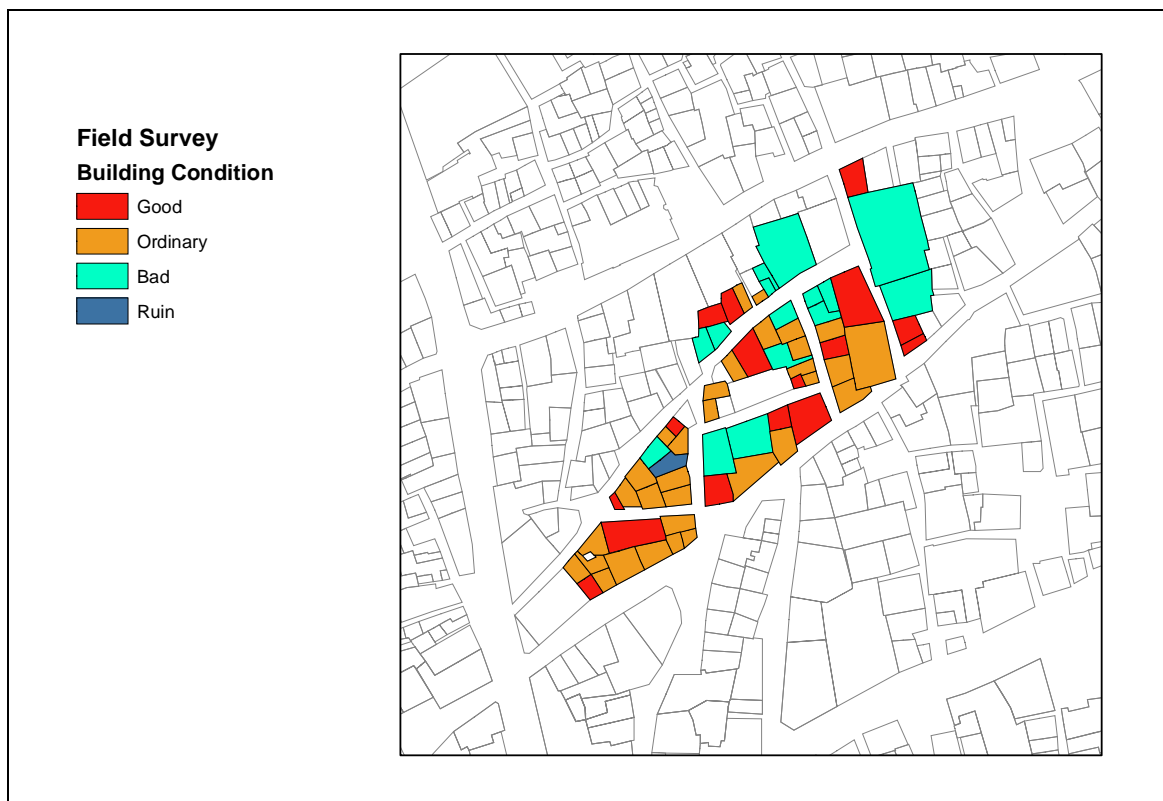


Example of a map where surveyors have outlined and numbered some buildings.

SAMPLE GIS OUTPUT USING FIELD SURVEY DATA



Building use map showing the infiltration of various uses into the residential fabric.

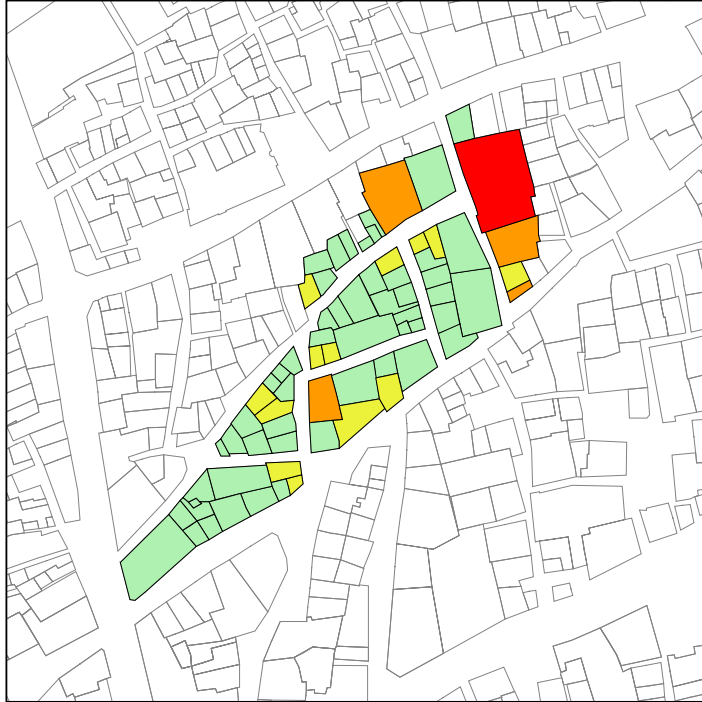


Building condition map showing many building in bad condition (cyan) and a single

ruin (blue).

**Field Survey
Level of Significance**

- High
- Medium
- Low
- None



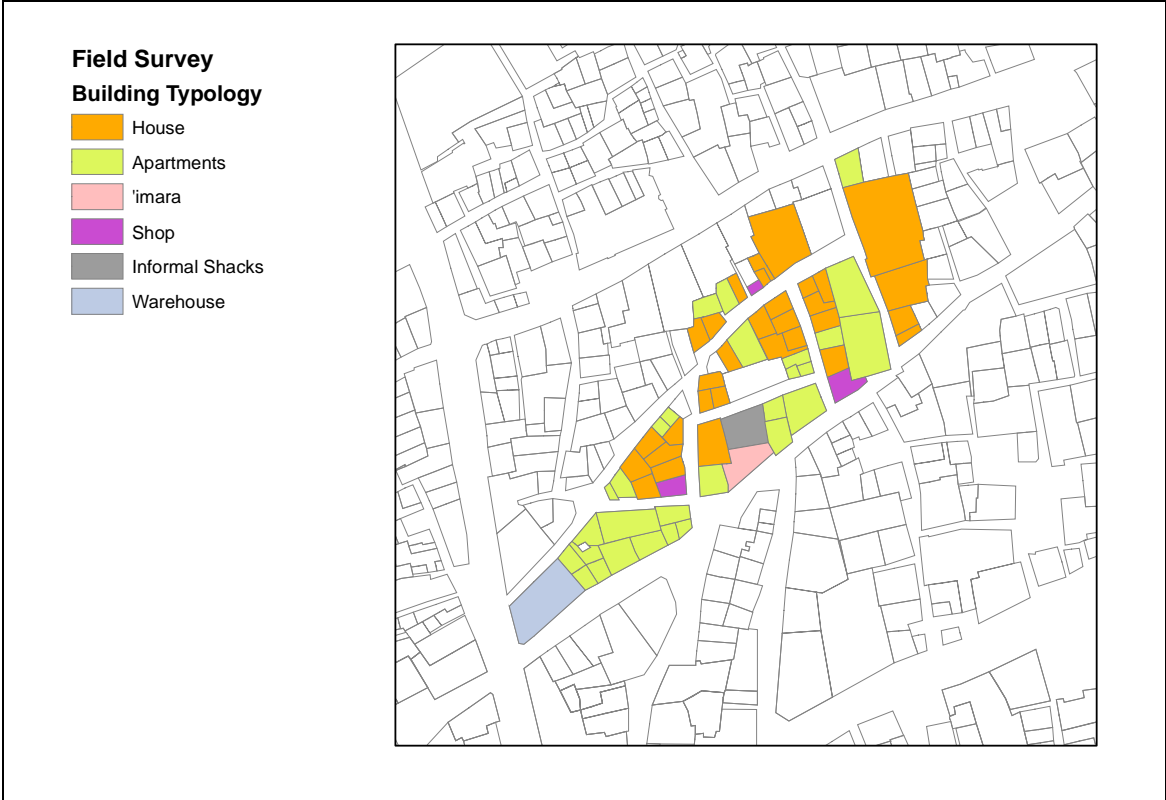
Map showing a single high significance building in the surveyed area (red) and a few of medium significance (orange).

**Field Survey
Significance, Condition**

- High, Bad
- Medium, Good
- Medium, Bad
- Low, Good
- Low, Ordinary
- Low, Bad
- Low, Ruin



Map showing a combination of two attributes that is useful for decision making, such as choosing buildings for restoration projects.



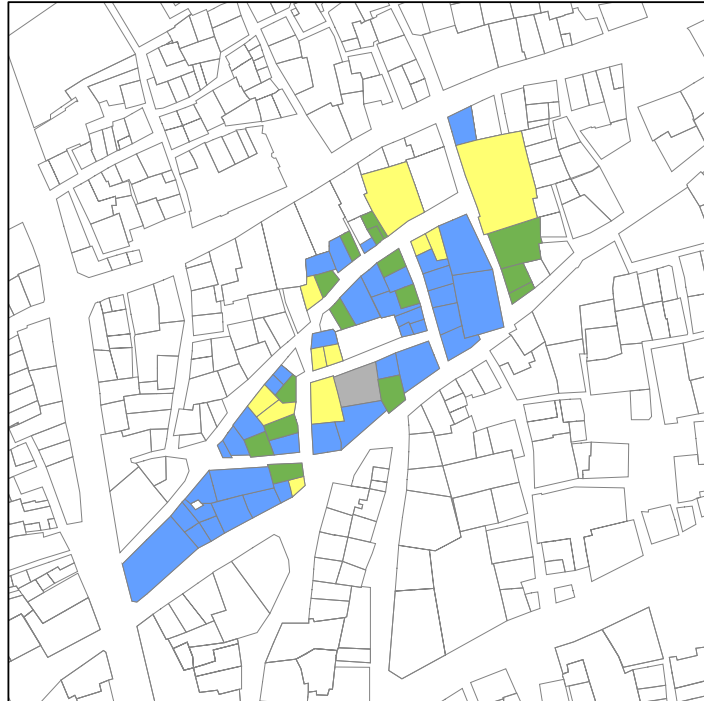
Map showing a typology of most buildings are houses and apartments, with some shops and a scattering of 'imaras, shacks, and warehouses.



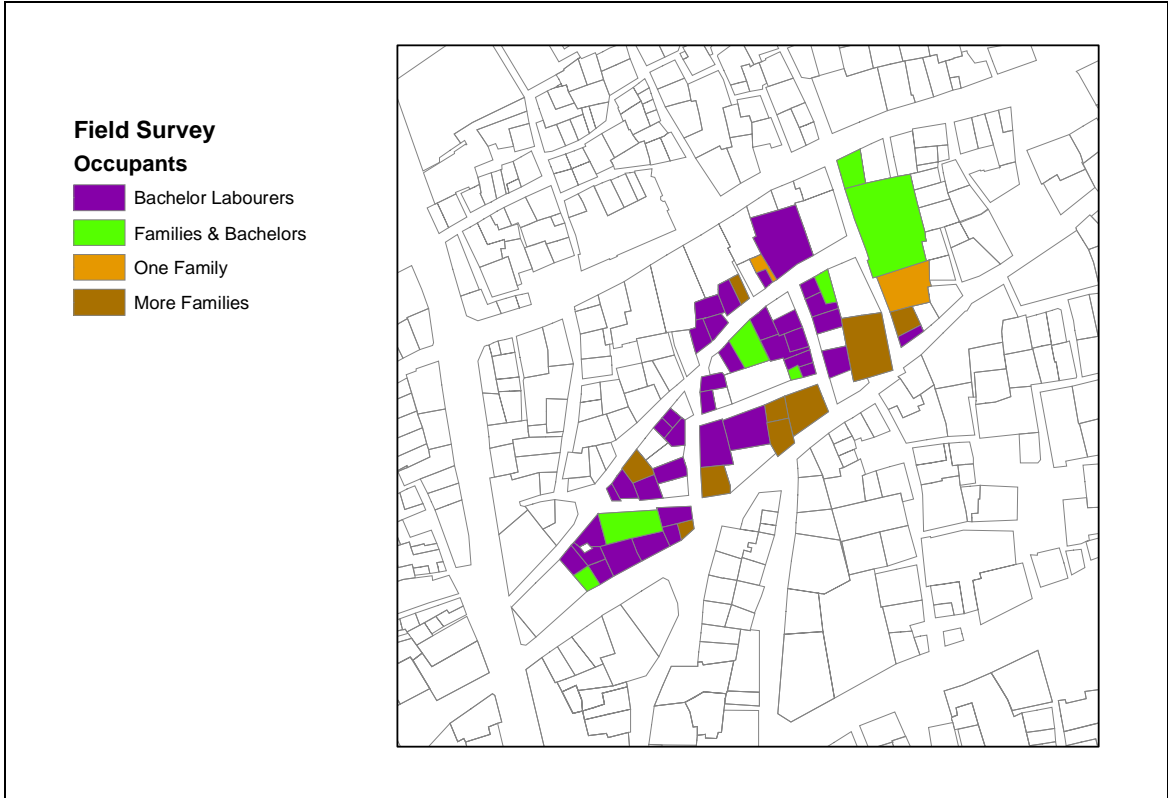
Map showing heights of most buildings are less than 4, with some newer apartment buildings than reach 5 stories.

**Field Survey
Construction**

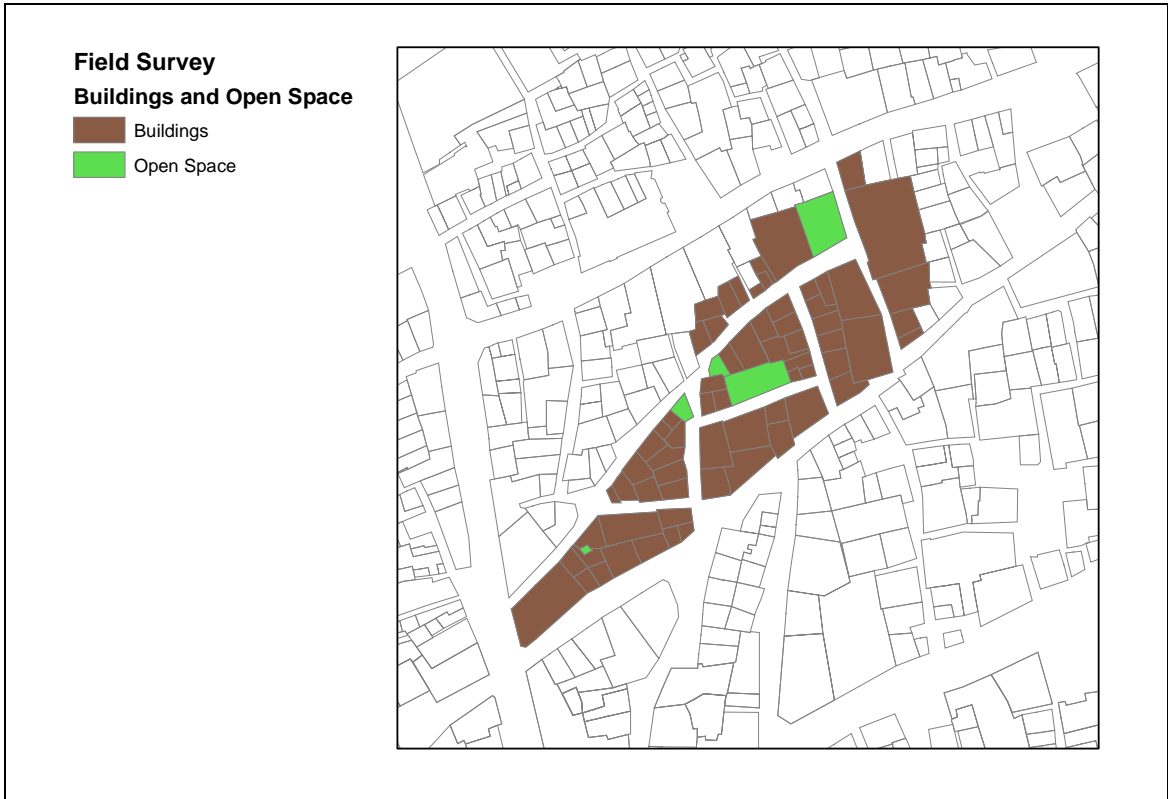
- Concrete
- Stone and Wood
- Mixed
- Other Structures



Map showing concrete to be the most prevalent construction system after stone and wood.





Map showing that many buildings are occuppies by bachelor laboureres.

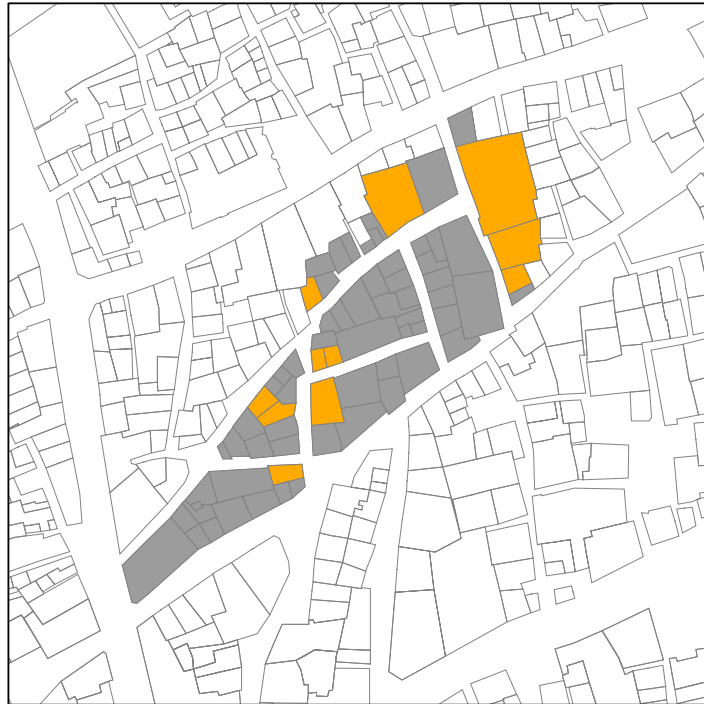


Map showing existing open space, including vacant land.

Field Survey

Courtyards

-  Courtyard Building
-  No Courtyard



Map showing buildings with courtyards.

Summary of Strategy 2: Development of a GIS-Based Decision Support System for Urban Conservation Planning and Monitoring of Architectural Heritage

Background:

There is an urgent need for a geographic database designed to support decisions about urban conservation. A previous governmental attempt at creating a GIS-based record of architectural heritage exists. This attempt used a documentation method that was largely subjective, leading to an incomplete and scattered record of some buildings that were deemed significant.

The purpose of the proposed system is as follows:

- Support planning specialists and decision makers in their areas of work, such as the creation of urban conservation zones and redevelopment strategies.
- Document existing structures and their present conditions in order to assist in decisions regarding their preservation, restoration, and possible reuse.
- Provide documentation in support of various government ministries' financial and judicial initiatives.
- Monitor any unsupervised changes to the historic built fabric.
- Help the municipalities in management tasks, such as building permits.

Implementations:

- The current project's team has designed a prototype GIS that can serve as the basis for a conservation planning system. The consultants have also designed a sequence of field data collection, followed by data entry into the system.
- The system is to be inhabited by data collected through a purposely designed survey form.
- The proposed GIS may be hosted by the MOMAA (through its Information Systems Directorate) and can be used remotely by the municipalities.
- Initially, there will be a need for increased human resources in order to build the system, collect data, and inhabit the system with data.
- The system needs to be integrated into the existing governmental GIS.
- In the case of significant buildings, the system must provide links to the proposed National Heritage Documentation Center.
- MOMAA surveyors must continue to collect data for Manama and Muharraq.
- The proposed system needs to be continually refined as the needs change.



Sample GIS output in Manama and Muharraq (base map courtesy of MOMAA)

4. Conclusion

In this report, I have summarized my finding and proposed two strategies for the employment of IT in the urban conservation of the old towns of Bahrain. The first strategy is the establishment of a national heritage documentation center. The documentation center's main objective is to collect data about buildings of architectural or cultural significance and undertake and promote the use of architectural records in various useful applications. The second IT strategy is the development of a GIS-based decision support system (DSS) for urban conservation planning. The purpose of the proposed DSS is to document and monitor building conditions in order to support planning specialists and decision makers in their tasks.

I have also described an experimental database that I implemented for documenting the urban character of the old towns of Manama and Muharraq. This database was tested during a partial visual survey of Manama. The survey was designed and conducted with the zoning and preservation consultants. It is hoped that this database will be the nucleus of a long-term process of urban conservation in the Kingdom of Bahrain.

IT Consultant's Report
Osama Tolba, Ph.D.

February 23, 2006

ANNEXES

ANNEX 1 – Schedule of the Second Mission

Monday 16th January

18:30 Arrival in Manama

Tuesday 17th January

08:00 - 09:00 Organisation of the working space.
09:00 - 14:00 Meetings with other consultants to discuss work plan.
18:00 - 21:00 Review of reports from previous mission.

Wednesday 18th January

08:00 - 10:00 Meeting at UNDP with Mr. Ali Salman.
10:00 - 14:00 Discussion of test survey.
18:00 - 21:00 Design and modification of survey form.

Thursday 19th January

09:00 - 10:00 Bank withdrawal of UNDP payment.
10:00 - 12:00 Preparations for test survey.
12:00 - 13:30 Beginning of test survey in Manama's commercial center.
16:00 - 18:00 Review of survey and survey form.

Friday 20th January

13:30 - 14:30 Discussion of survey form.

Saturday 21st January

08:00 - 09:00 Review of survey form.
09:00 - 10:00 Visit UNDP office to collect DSA payment.
10:00 - 11:00 Discussion and revision of survey form with project coordinator.
11:00 - 13:30 Preparation of presentation and work on GIS.
15:00 - 17:00 Presentation of survey procedure.

Sunday 22nd January

08:30 - 09:30 Meeting with Undersecretary at MOMAA.
09:30 - 13:30 Meeting with GIS specialists at MOMAA.
15:00 - 17:30 Training of surveying teams.

Monday 23rd January

08:00 - 09:30 Team meeting to coordinate on final report writing.
09:30 - 13:30 Development of information system.
15:00 - 17:30 Training of surveying teams.

Tuesday 24th January

08:00 - 09:00 Team meeting to coordinate on report.
10:00 - 11:00 Meeting with GIS specialists at MOMAA.
11:00 - 13:00 Site visits in Manama.
17:00 - 22:00 Writing samples for final report.

Wednesday 25th January

08:00 - 17:00 Development of database and GIS for survey entry.

Thursday 26th January

08:00 - 17:00 Development of database and GIS for survey entry.

Friday 27th January

11:00 Departure from Bahrain

ANNEX 2 – IT Consultant’s Mini-Report on The Suitability of the Existing Governmental GIS to Conservation Planning

On Sunday 22nd of January, the project team was summoned to the office of the Undersecretary to the MOMAA. The main reason behind the meeting was to discuss the design of the general survey that the team had proposed to do in order to set up a decision support system for conservation planning. There were doubts that the existing governmental GIS already contained much of the information that the project team had set out to collect.

Immediately following this meeting, the team met at length with the MOMAA’s GIS specialists who agreed to provide the team with a sample output from the government’s GIS. This sample would cover a small area of Manama or Muharraq and include data about land properties, their usage, and building type. The team received this sample on the following Tuesday (see attached documents).

By studying the sample, it became clear that while some components of the GIS system are useful for providing base maps, the system was found to be confusing and lacking in completeness and accuracy. For example, the following problems were immediately apparent:

- According to the GIS specialist, the data is not up to date.
- The data is organized by street address rather than by building or property.
- For each property or building, there was often more than one street address or no street address at all.
- The number of floors attached to some addresses was incorrect.
- The building type was given according to a categorization system that is not always relevant to conservation planning.
- It would take a long time to extract a few items from the GIS that would go into the survey form. The majority of the items on the form would have to be filled on site by surveyors.

Recommended Actions:

- The project’s consultants have designed an addition to the existing GIS to serve as a conservation planning system. This addition is composed of new map layers and a new database system.
- The project’s consultants have also designed a sequence of data collection in the field, followed by data entry into the conservation planning system. This sequence has been tested in the field on a group of parcels in Manama.
- Surveying teams from MOMAA will continue to collect data for Manama and Muharraq and enter data into the system.

The system needs to be integrated into the existing governmental GIS, so that it can be used for management purposes. For example, decisions regarding building permits must take into account the data and recommendations offered by the conservation planning system. The means to establishing this link will be determined later.

ANNEX 3 – BAHRAIN: Manama and Muharraq Survey Form

Identification number:		Block No:	
Street name if available:		Road No(s):	Building No(s):
Date of survey:			
Name of surveyor 1:		Surveyor 2:	
Current state of activities <input type="checkbox"/> Construction <input type="checkbox"/> Demolition <input type="checkbox"/> Rehabilitation <input type="checkbox"/> No activity			

Property Ownership and Uses

Ownership	<input type="checkbox"/> Private	<input type="checkbox"/> Public	<input type="checkbox"/> Waqf
<input type="checkbox"/> Building		<input type="checkbox"/> Open spaces outside the building	
<input type="checkbox"/> Residential	<input type="checkbox"/> Cultural	<input type="checkbox"/> Existing before 1998	<input type="checkbox"/> Parking
<input type="checkbox"/> Residential & Commercial	<input type="checkbox"/> Public administration	<input type="checkbox"/> Created after 1998	<input type="checkbox"/> Garden
<input type="checkbox"/> Residential & offices	<input type="checkbox"/> Health (clinic, hospital)	<input type="checkbox"/> Fenced	<input type="checkbox"/> Garbage dump
<input type="checkbox"/> Residential & other	<input type="checkbox"/> Commercial (shops)		<input type="checkbox"/> Vacant
<input type="checkbox"/> Religious	<input type="checkbox"/> Commercial & others	<input type="checkbox"/> Walled	<input type="checkbox"/> Other uses
<input type="checkbox"/> Educational	<input type="checkbox"/> Private and public services	<input type="checkbox"/> Not fenced/walled	
<input type="checkbox"/> Storage	<input type="checkbox"/> Other:	<input type="checkbox"/> Historic remains	

Building Details

Name of building (if available):				
State of occupancy	<input type="checkbox"/> Occupied	<input type="checkbox"/> Partially occupied	<input type="checkbox"/> Not occupied	
Typology of the building	<input type="checkbox"/> House	<input type="checkbox"/> Shop	<input type="checkbox"/> Warehouse	<input type="checkbox"/> Public building
	<input type="checkbox"/> Majlis	<input type="checkbox"/> 'imara	<input type="checkbox"/> Mosque	<input type="checkbox"/> Informal shacks
	<input type="checkbox"/> Apartments	<input type="checkbox"/> Factory	<input type="checkbox"/> Ma'tam	<input type="checkbox"/> Others
Prevailing construction system	<input type="checkbox"/> Concrete	<input type="checkbox"/> Stone and wood	<input type="checkbox"/> Mixed	<input type="checkbox"/> Other structures
Number of floors	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4-5 <input type="checkbox"/> More than 5
Estimate date of construction	<input type="checkbox"/> Before 1950's		<input type="checkbox"/> 1950's-1997	<input type="checkbox"/> After 1998
Occupants	<input type="checkbox"/> One family	<input type="checkbox"/> More families	<input type="checkbox"/> Bachelor labourers	<input type="checkbox"/> Families & bachelors
Nationality of occupants	<input type="checkbox"/> Bahraini		<input type="checkbox"/> Foreigners	<input type="checkbox"/> Both
4.1.1. General condition of the building	<input type="checkbox"/> Good	<input type="checkbox"/> Ordinary	<input type="checkbox"/> Bad	<input type="checkbox"/> Ruin
Type of significance (multiple choice)	<input type="checkbox"/> Historic/Cultural	<input type="checkbox"/> Religious	<input type="checkbox"/> Architectural	<input type="checkbox"/> No significance

Buildings of Architectural Significance

Internal open space (courtyard)	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
<input type="checkbox"/> No need to enter building	<input type="checkbox"/> Entered building	<input type="checkbox"/> Not permitted to enter building		
Significant architectural elements	<input type="checkbox"/> Wall <i>badgir</i>	<input type="checkbox"/> Traditional balcony	<input type="checkbox"/> <i>Badgir</i> tower	<input type="checkbox"/> Gypsum ornament
	<input type="checkbox"/> Old door	<input type="checkbox"/> <i>Hama'im</i>	<input type="checkbox"/> <i>Danjaj</i>	<input type="checkbox"/> Minaret <input type="checkbox"/> Arches
Level of architectural significance	<input type="checkbox"/> High	<input type="checkbox"/> Medium	<input type="checkbox"/> Low	
Upper floors in use	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Partially	
Recent building transformations	<input type="checkbox"/> Vertical addition	<input type="checkbox"/> Horizontal addition	<input type="checkbox"/> Other transformations	
Courtyard modification (if entered)	<input type="checkbox"/> Original state	<input type="checkbox"/> Subdivision	<input type="checkbox"/> Merging	<input type="checkbox"/> Intrusions
Overall compatibility of current use	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Partially	

Permitted intervention	Preservation	New Construction	Demolition
	<input type="checkbox"/> Conservation	<input type="checkbox"/> Re-development	<input type="checkbox"/> Partial demolition
	<input type="checkbox"/> Restoration	<input type="checkbox"/> Infill	<input type="checkbox"/> Total demolition
	<input type="checkbox"/> Clearing inconsistent additions	<input type="checkbox"/> Re-landscaping	
	<input type="checkbox"/> Rehabilitation	<input type="checkbox"/> Integration of façade	
	<input type="checkbox"/> Reconstruction		
Type of intervention	<input type="checkbox"/> Total intervention		<input type="checkbox"/> Partial intervention

ANNEX 4 – International Organizations Working on Heritage Documentation

Organization	Initials	Web Site
UNESCO World Heritage Centre	UNSECO, WHC	whc.unesco.org
International Council on Monuments and Sites	ICOMOS	www.icomos.org
International Committee for Architectural Photogrammetry	CIPA	cipa.icomos.org
International Society for Photogrammetry and Remote Sensing – Commission V / Working Group 2: Cultural Heritage Documentation	ISPRS, WG V/2	www.commission5.isprs.org/wg2/

Bahrain Conservation Planning Survey Form

Identification No.	<input type="text" value="302XX01"/>	Block No.	<input type="text" value="302"/>
Street Name	<input type="text"/>	Road No.	<input type="text" value="243"/>
		Building No.	<input type="text" value="2865"/>
Survey Date (mm/dd/yyyy)	<input type="text" value="1/23/2006"/>		
Surveyor 1	<input type="text" value="Ehsan"/>	Surveyor 2	<input type="text"/>
Current State of Activities	<input type="text" value="Rehabilitation"/>		

Property Ownership and Uses

Ownership	<input type="text" value="Private"/>	<input type="checkbox"/> Open Space Outside the Building	<input type="checkbox"/> Parking
Building Use	<input type="text" value="Residential"/>	Date of Space	<input type="text"/>
		<input type="checkbox"/> Fenced	<input type="checkbox"/> Garden
		<input type="checkbox"/> Walled	<input type="checkbox"/> Garbage Dump
		<input type="checkbox"/> Historic Remains	<input type="checkbox"/> Vacant
			<input type="checkbox"/> Other Uses

Building Details

Name of Building	<input type="text"/>	Occupants	<input type="text"/>
State of Occupancy	<input type="text" value="Not Occupied"/>	Nationality of Occupants	<input type="text"/>
Typology of Building	<input type="text" value="House"/>	General Condition of Building	<input type="text" value="Bad"/>
Prevailing Construction System	<input type="text" value="Mixed"/>		
Number of Floors	<input type="text" value="2"/>		
Estimated Date of Construction	<input type="text" value="Before 1950's"/>		

Type(s) of Significance Historic/Cultural Religious Architectural

Buildings of Architectural Significance

<input type="checkbox"/> Courtyard	Entered Building?	<input type="text" value="No Need"/>	
<input type="checkbox"/> Wall Badgir	<input type="checkbox"/> Traditional Balcony	<input type="checkbox"/> Tower Badgir	
<input type="checkbox"/> Old Door	<input type="checkbox"/> Hama'im	<input type="checkbox"/> Danjal	
		<input type="checkbox"/> Gypsum Ornament	
		<input type="checkbox"/> Arches	
		<input type="checkbox"/> Minaret	
		<input checked="" type="checkbox"/> Other Element	
Level of Significance	<input type="text" value="Low"/>	Upper Floors in Use?	<input type="text" value="No"/>
Building Transformations	<input type="checkbox"/> Vertical Additions	<input type="checkbox"/> Horizontal Additions	<input checked="" type="checkbox"/> Other Transformations
Courtyard Modification(s)	<input type="checkbox"/> Original State	<input type="checkbox"/> Subdivision	<input type="checkbox"/> Merging
		<input type="checkbox"/> Intrusion	
Overall Compatibility of Current Use	<input type="text" value="No"/>		

Permitted Intervention

Preservation	New Construction	Demolition	<input type="text"/>
<input type="checkbox"/> Conservation	<input type="checkbox"/> Redevelopment	Type of Intervention	<input type="text"/>
<input type="checkbox"/> Restoration	<input type="checkbox"/> Infill		
<input type="checkbox"/> Clearing	<input type="checkbox"/> Landscaping		
<input type="checkbox"/> Rehabilitation	<input type="checkbox"/> Integration of Facade		
<input type="checkbox"/> Reconstruction			

Screen Capture of the Data Entry Form



United Nations
Development Program



Kingdom of Bahrain



Ministry of Municipalities
and Agriculture Affairs

مشروع

بناء القدرات لتحسين الإدارة الحضرية
(الحفاظ على المناطق والمباني التراثية)
المرحلة الأولى: الاستراتيجيات والسياسات

**Capacity-Building for Enhancement
Of Urban Governance**
(Conservation Urban and Architectural Heritage)
Stage One: Strategies & Policies

Economic Consultant Report
Economic Issues, Strategies and Tools
Donovan D. Rypkema

February 2006

UNDP/Bahrain
Ministry of Municipalities and Agriculture Affairs

"Capacity Building for Enhancement of Urban Governance"

Heritage Resources in Bahrain:
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Donovan D. Rypkema

February 23, 2006



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- 8. Conclusions**

- 9.0 Addenda**
 - 9.1 Appendix 1 – Recap of Recommended Strategies
 - 9.1 Appendix 2 – Transferable Development Rights (TDRs)

1.0 Introduction

Heritage resources have multiple values – cultural values, aesthetic values, environmental values, educational values, social values and others. But it is increasingly being learned around the world that heritage resources also can have an important economic value. In the long run, the economic impact is far less important than the educational, environmental, cultural, aesthetic, historical, and social impact. In the long run, all of those other values of historic preservation are vastly more important than the economic value. But as the great British economist John Maynard Keynes once said, “In the long run we’re all dead.”

In the short run, however, those who have the most influence on what happens to our historic resources – property owners and members of parliament, bankers and businessmen, developers and donors, municipal council members and investors – many of those interests do care about the economic aspects of heritage buildings. And it is often through the door of economic impact that those decision makers become advocates for heritage conservation on the other, more important grounds.

As the Egyptian scholar and former World Bank official, Ismail Serageldin has written,

Because dealing with historic cities involves more than the restoration of monuments or the protection of urban character, any effort to restore and conserve them must include adequate attention to the renewal of the economic base, an increase in investment, and the revitalization of the economic and financial structure.¹

But there is a widespread lack of understanding among many of the decision makers – not just in Bahrain but around the world – about the economic potential that heritage resources contain.

1.1 Monumental vs. "ordinary"

To many people, “heritage buildings” refers to those landmark structures that are written about in history books and are the cover photographs of tourism brochures. And, of course, those monumental buildings are important components of the cultural heritage of any nation. Bahrain certainly has notable examples of these landmarks, many of which have recently been carefully restored, others protected as ruins, and more such monuments will be preserved in the future.

Among the many fine examples of the monumental buildings and structures are: Arad Fort, Bab Al Bahrain, the Sheik Isa Bin Ali House, the Alkhamis Mosque, the Seyadi House and many others. These are important national efforts that demonstrate Bahrain's commitment to sharing its historic legacy with future generations.

What seems to be less recognized, however, is the wonderful historic buildings, spaces and urban fabric that define the historic cores of both Manama and Muharraq. These are the neighborhoods where generations of Bahrainis lived and shopped and prayed and socialized. These are the neighborhoods of real, active daily life. These are the

¹ *Cultural Heritage and Development: A Framework for Action in the Middle East and North Africa*, World Bank, 2001

neighborhoods that are in great jeopardy daily of being lost forever. These are the neighborhoods that are the primary focus of this report.

1.2 Role of the private sectors/need for private capital

By world standards, Bahrain is a relatively prosperous country, and getting more so. But even the wealthiest nations in the world do not have the resources from the governmental sector to save all the heritage resources that deserve to be saved. There needs to be strategies developed to attract private sector investment capital into historic buildings and areas.

Attracting private capital generally requires strategies on multiple levels: a regulatory environment that is clear, consistent and predictable; information about the public goals for the targeted investment area; delivery of public services in an efficient and effective manner; and, particularly in the early stages, a package of financial tools and incentives.

1.3 Assignment as understood

While there were multiple objectives and responsibilities established by the UNDP and the Ministry of Municipalities and Agriculture Affairs for the Economics Consultant for this project, the ones most germane to this written report are as follows:

- Identify potential economic activities that would benefit the surrounding communities, owners, tenants and interested investors.
- Identify appropriate potential economic activities for buildings and sites.
- Identify potential income generating activities and uses that target low-income families, helping them to become stakeholders in their community.
- Develop programs and procedures for the immediate, short term, medium term and long-term regeneration and revitalization of the areas and buildings.
- Develop programs and procedures that are able to be implemented:
 - Proposals for the modification or elimination of current laws, programs, and procedures.
 - Proposals for new laws, programs and procedures.

Because this was an integrated, multi-disciplinary team approach to the overall assignment, some of these issues will be more fully covered in other reports. There will also be some overlapping among the reports on several of these issues. Because of the ongoing coordination among the consultants, however, there should be no conflict or inconsistency in the observations and recommendations found in this report and those found in the individual reports of other team members.

1.4 Importance of an integrated, interdisciplinary approach

When the UNDP and the Bahrain Ministry of Municipalities and Agriculture identified the need for creating a strategy for the Urban Conservation Zones in Manama and Muharraq, near the top of the priority list was the creation of strategies to address the economic opportunities in the area and to devise means to attract the investment of private capital.

What is not often clearly understood, however, is that economic change does not come about through economic forces alone. In basic real estate economics (and, after all,

ultimately heritage buildings are real estate) there are identified the *Four Forces of Value*. These are: social, economic, political, and physical.

While this document is the report of the economics consultant, it is important to recognize that it is but part of a larger set of reports from experts in other fields. In the team that was assembled, expertise in three of the four Forces of Value was included: Political (legal consultant, IT consultant, protective zoning consultant, coding consultant), Physical (restoration consultant, urban design consultant), and Economic (economic consultant). Because all of the consultants are external to Bahrain, it is appropriate that the ramifications of the Social force of value be integrated into implementation strategies by the local staff as they move forward.

Having said that, the efforts of each of the consultants tried to incorporate social factors as well. Some of the most important economic and regulatory recommendations are a direct outgrowth of social factors that are affecting economic viability.

Further, the expertise and conclusions of the other consultants were essential in creating economic strategies, and the recommendations of the other consultants will have a direct impact on the likelihood of sustained economic success. Probably the most obvious example is parking. Parking was identified as near the top of problems in attracting desired investment into the areas. There is no doubt that how and where automobiles are accommodated will have a major impact on economic viability. But the creation of parking, how it is built, where it is built, how it fits into the urban context, the trade-offs between parking and heritage buildings are all areas beyond simply economic expertise. The optimum response to parking needs to include the urban design consultant, the coding consultant, the legal consultant, and the protective zoning consultant. Simply put – a satisfactory economic strategy could not be created without addressing parking, but parking cannot be satisfactorily addressed without the expertise far beyond what an economic consultant provides.

2.0. Why Heritage Conservation is Economic Development

In many parts of the world, "heritage conservation" and "economic development" are still deemed to be mutually exclusive – "Either we have economic development *or* we save those old buildings."

But fortunately, the number of cities and nations and their leaders that are stuck on that false premise is declining. In fact, more and more places worldwide are recognizing that the phrase "economic development *or* heritage conservation" should be replaced with "economic development *through* heritage conservation."

The Ministry of Community, Aboriginal and Women's Services of the Government of British Columbia in Canada spelled this out clearly:

For many years our society has equated economic development with progress and progress with new construction. Yet heritage management and economic development

are not mutually exclusive. Enlightened conservation of a heritage resource or resources can contribute significantly to the economic development of an area.²

It was mentioned earlier that economic interests tend to place emphasis on the short term, while cultural, educational and environmental advocates tend to stress the long term. But even in an economic context, the value of heritage resources is not limited to the short term. The following paragraphs are meant to provide examples from around the world about some of the short-term economic impacts of historic preservation, followed by the larger, more long-term implications of heritage's economic importance.

Beginning with the short term are the five major, measurable economic impacts of heritage conservation: 1) jobs creation and household income; 2) center city revitalization; 3) heritage tourism; 4) property values; and 5) small business incubation.

2.1 Job Creation

First, jobs and household income. Usually the top priorities for government-led economic development efforts are creating jobs and increasing local household income. The rehabilitation of older and heritage buildings is particularly potent in this regard. As a rule of thumb, in the US new construction will be half materials and half labor. Rehabilitation, on the other hand, will be sixty to seventy percent labor with the balance being materials.

This issue of labor intensity is not limited to North America. In projects funded by the Swedish International Development Agency in the West Bank in Palestine, they found that every \$100,000 project typically provides 3000 to 3500 workdays with labor constituting around 70% of the total expenditures. In Australia, they've concluded that heritage conservation is more labor intensive than new construction and also stimulates the maintenance and development of traditional trades and skills.

In Norway, they've found that historic rehabilitation creates 16.5% more jobs than new construction. They've also calculated that every direct job in the cultural heritage sector creates about 26.7 indirect jobs, compared to the auto industry where the factor is only 6.3 to 1.

This labor intensity affects the local economy of Bahrain on two levels. First, we buy an electrical system from India and lumber from Jordan, but we buy the services of the plumber, the electrician, and the carpenter locally. Further, once the electrical system is installed, the electrical system doesn't spend any more money. But the plumber gets a haircut on the way home, buys groceries, and contributes to his local Mosque – each re-circulating that salary within the community.

The restoration and revitalization of the old city of Darb al-Ahmar, a densely-built, historic area in the middle of Cairo, is a socio-economic development project that also includes the restoration of the Ayyubid city wall and the transformation of a 500 year old pile of rubble into Al-Azhar Park. At its busiest time, the construction of the park employed 400 workers daily, including 3 main contractors, 15 specialized contractors, and 35 full-time engineers and inspectors. Permanently, the park project is expected to create over 250 on-site jobs, and still more for vendors and suppliers.

² *Heritage Planning: A Guide for Local Government*,
http://www.mcaaws.gov.bc.ca/heritage_branch/hp/hpcon.htm

In the long term there is even a subtler issue regarding jobs in heritage conservation – they are generally good, relatively well paying jobs, and worldwide there is a scarcity of the required skills, meaning more opportunities in the future. In the United States, there are training programs in heritage craftsmanship run through the National Park Service, by a handful of colleges and technical schools, and now a specialized high school curriculum in New York City. This specialized training is driven in part by a growing scarcity of trained craftsman. An excellent study recently released in Great Britain identified the need for an additional 6,500 workers in just the next 12 months to meet immediate demand. The Norway Directorate of Heritage identified a huge backlog of necessary maintenance work, and too few trained people to do it.

The significance and the opportunities for restoration artisans cannot be overstated. In France 40,000 craftsman work on repairs and maintenance of the cultural heritage. In England an estimated 86,000 people are employed to preserve nearly 4 ½ million historic houses and another 550,000 historic commercial buildings. The Aga Khan Trust for Culture has noted that the preservation projects they are funding in the Islamic world are reviving traditional skills, generating new jobs, and providing on-the-job training. In Halmstad, Sweden, restoration work has put long-term unemployed back to work and provided training for immigrants, young apprentices, and women. The restoration and revitalization of the old city neighborhood of Darb al-Ahmar in Cairo provided significant employment and job training and at its peak employed 400 workers.

Hopefully the training of workers through the Craftsman Center in al-Jassra will prepare more workers in the specialized skills required for the conservation of Bahraini heritage and traditional buildings.

Ultimately, economic development is about jobs, and heritage conservation not only provides jobs, but good jobs and many more trained workers are needed.

2.2 Center City Revitalization

The second broad area of the economic impact of heritage conservation is center city revitalization. The Urban Conservation Zones of Manama and Muharraq have historically played the role of center city – or as one participant in the interview process for this report said, "the heart of the city."

In most of the developed and rapidly developing world, the pattern of departure from the center city is common. That departure by families and businesses triggers a cycle of decline that is manifested in reduced levels of maintenance, decreased levels of public services, disinvestment, and abandonment. The victims of this center city departure nearly always include the historic buildings of the area. They are typically poorly maintained, demolished by bulldozer or by neglect, and move from being an economic and cultural asset to being seen as an economic and social liability.

But this cycle of disinvestment and the loss of heritage resources need not be permanent, is not inevitable, and, indeed, has been reversed in cities in every part of the world.

The ongoing efforts in the old medina in Tunis show remarkable results. The middle class is returning, both as residents and as business and property owners. The rates of return on

private investment have been high and the leverage of public funds to private funds has been around 3 to 1.

In British Columbia in Canada, they've concluded that downtown heritage revitalization has increased economic prosperity without requiring large-scale new development. Both Damascus and Cairo are seeing the return of young professionals, both singles and families, to center city areas long thought to be deteriorated beyond repair.

There really is a resurgence of city centers in towns and cities of every size all over the world. In America, it would be difficult to identify a single example of a sustained success story in center city revitalization where historic preservation wasn't a key component of that strategy. Conversely, the examples of very expensive failures in downtown revitalization have nearly all had the destruction of historic buildings as a major element.

Cities that have experience remarkable economic growth in the last two decades – Singapore, Dubai, and Shanghai, for example – today all express regret that their "progress" was at the expense of their heritage resources and all are diligently working "after the fact" to preserve what little is left.

In the United States by far the most cost effective program of economic development - not just of heritage conservation or center city revitalization - but the most cost effective program of economic development of any kind, is a program of the National Trust for Historic Preservation called Main Street. Main Street is commercial district revitalization in the context of historic preservation. Main Street started as a program for downtowns of small towns. In the last 25 years, some 1700 communities in all 50 states have had Main Street programs. Over that time, the total amount of public and private reinvestment in those Main Street communities has been \$23 Billion. There have been over 67,000 net new businesses created generating over 308,000 net new jobs. There have been nearly 94,000 building renovations. Every dollar invested in a local Main Street program leveraged nearly \$27 of other investment. The average cost per job generated - \$2,500 - less than a tenth of what many state economic development programs brag about.

This is in the US, what about elsewhere? The Inter American Development Bank has had a major initiative over the last several years in the 72 square block city center of Quito, Ecuador. There are multiple indicators of the success there – new businesses, restaurants and cultural activities; reinvestment by existing and new residents; increased property values; and net economic benefits well above expenditures.

Much of the effort in Quito was led by the Inter-American Development Bank. Project leader Eduardo Rojas from the IADB wrote this:

Using urban heritage conservation as a catalyst for urban rehabilitation expands the urban development impact of conservation fostering its legitimacy and its long-term sustainability.³

³ *Urban Heritage Conservation in Latin America and the Caribbean: A Task for all Social Actors* and www.centrohistoricodequito.com

Public resources available for center city revitalization are always scarce. But using the redevelopment of heritage buildings as a key component of the strategy consistently leverages those limited funds and serves as a catalyst for other sources of investment. In the United Kingdom, they learned:

A study of the impact of these [regeneration] schemes found that every £10,000 of heritage funding generated an additional £45,000 of matching private investment and together this acts as a catalyst for creating or sustaining jobs.⁴

Center city revitalization is a critical element in a comprehensive economic development strategy, and successful, sustained center city revitalization needs to include the reuse and reinvestment in the heritage resources located there.

2.3 Heritage Tourism

The next of the major impacts is heritage tourism. This can be a complex area. While tourism will be one of the fastest growing segments of the world's economy in the 21st century, not every city can or should look to tourism as a major portion of its economic base. There are cultural, economic, logistical, and sometimes even religious reasons why tourism isn't appropriate for every community. Further, it would be a mistake to only connect historic buildings with tourism — there are many more ways that historic buildings can be used as a local resource. In the US, for example, 95% of all of the historic resources in productive use have nothing whatsoever to do with tourism.

At the same time, when tourism is identified locally as a component of an overall economic development strategy, the identification, protection, and enhancement of the city's historic resources will be vital for any successful and sustainable tourism effort.

The impact of heritage-based tourism has been analyzed throughout the world. Here is what the Chair of the Australian Heritage Commission had to say:

Heritage is an asset for any country – for many in the Asia/Pacific region it is a key area for future economic development. Significant heritage places are valued as tangible links with the past, as major tourist ...and business generators.⁵

In a study in the US state of Virginia, the patterns of heritage visitors were compared to those tourists who did no heritage-based activities. What was found was that heritage visitors stay longer, visit twice as many places, and on a per trip basis spend 2 ½ times as much money as other visitors. Worldwide, wherever heritage tourism has been evaluated this same basic tendency is observed: heritage visitors stay longer, spend more per day, and, therefore, have a significantly greater per trip economic impact.

Some individual historic sites have done their own analysis. Biltmore, a great historic estate in the mountains of Western North Carolina in the United States commissioned a study of their

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Heritage Counts 2003, English Heritage, 2003

⁵ Tom Harley, Chairman Australia Heritage Commission, *The Value-add of Cultural Heritage*, at AUSHeritage/AUSTRade Export Seminar, 2003

local impact and learned that for every \$1 a visitor spent at Biltmore itself, over \$12 was spent elsewhere – hotels, restaurants, gas stations, retail shops, etc. Biltmore was the magnet that drew visitors to the city, but for every dollar that Biltmore reaped, others garnered another \$12 – impressive leveraging of resources.

Analyses from Norway were totally consistent with the US findings. They found that only 6-10% of the spending involved in visiting a cultural heritage site was spent at the site itself; the balance was spent in the community around the site.

But with all these numbers, an even more important conclusion emerges: **when heritage tourism is done right, the biggest beneficiaries are not the visitors but the local residents who experience a renewed appreciation for and pride in their local community and its history.**

There is a valuable lesson that's been learned around the world regarding heritage tourism:

If you do it for the locals, tourists will come; if you do it for the tourists, only tourists will come.

The strategies and recommendations in this report are geared toward making the Urban Conservation Zones attractive and desirable for local citizens. If they are successful, tourists will be attracted and spend their money, but the Urban Conservation Zones will still belong to Bahrainis, not become "tourist areas."

2.4 Impact on Property Values

Internationally, nearly every sustained and successful strategy for maintaining the historic fabric of a city has required the establishment of a protection zone for those resources. Usually these heritage districts will have some limitation on demolition, requirements on how heritage buildings are to be treated when they are rehabilitated, and guidelines for how new buildings are to be built in the heritage area. Other individual reports from this overall project will discuss the recommendations for such rules, regulations, and guidelines for the Urban Conservation Zones of Manama and Muharraq.

But there is nearly always a concern among property owners and investors when such regulations are proposed, that this additional layer of regulation will diminish the value of their property. Fortunately, that has not proven to be the case.

In England, they've found that a pre-1919 house is worth on average 20% more than an equivalent house from a more recent era and the premium becomes even greater for an earlier historic home. On the commercial side, the Royal Institute of Chartered Surveyors has tracked the rates of return for heritage office buildings for the past 21 years and has found listed buildings have consistently outperformed the comparable unlisted buildings.

Analyses in Canada demonstrated that heritage buildings had performed much better than average in the market place over the last 30 years, that there is no evidence that designation reduces property values, and that the price of heritage houses was not affected by cyclical downturns in property values.

In the United States this issue has been evaluated in towns and cities in all parts of the country. By far the most common result is that properties within local historic districts appreciate at rates greater than the local market overall and faster than similar non-designated neighborhoods. Of the several dozen of these analyses, the worst-case scenario is that housing in historic districts appreciates at a rate equivalent to the local market as a whole.

But this isn't just true in the most advanced economies. Again, from Quito a six-year study showed land value appreciation in the targeted heritage area of 44% as compared to nearby areas of less than 10%.

Far from being a damper on property values, the long term impact of the regulations on historic districts enhances values, because individual owners understand that the value of their property will be protected because other property owners will not be allowed to diminish the overall character of the area through demolition, inappropriate rehabilitation, or intrusive and insensitively designed new construction.

2.5 Small Business Incubation

A frequently underappreciated attribute of heritage buildings is their role as natural incubators of small businesses. It isn't the Fortune 500 who are creating the net new jobs in America. 85% of all net new jobs are created by firms employing less than 20 people. In the later developing world, that percentage often rises to 99%. Bahrain has specifically targeted small and medium sized enterprises (SMEs) as critical to the Kingdom's economic future. Special programs have been created for SMEs at the Economic Development Board and through the Bahrain Development Bank.

What is not always clearly understood is that heritage buildings are a superb place to house those businesses. One of the few costs firms of that size can control is occupancy costs – rents. A major contribution to the local economy is the relative affordability of older buildings. It is no accident that the creative, imaginative, small start up firm isn't located in the corporate office “campus” the industrial park or the shopping center – they simply cannot afford the rents there. Older and historic commercial buildings play that role, nearly always with no subsidy or assistance of any kind.

In Ningbo, China over the last decade, a series of dilapidated, overcrowded and unsanitary buildings has been converted to the Fan Center filled with small businesses selling antiques, books and art. The restoration of the Souq al Saghir in Damascus has stimulated both new small businesses and more activity from existing businesses, selling to both tourists and local residents. In Macao 60% of their retail revenue comes from the heritage conservation zones.

Pioneer Square in Seattle is one of the great historic commercial neighborhoods in America. The business management association there did a survey of why Pioneer Square businesses chose that neighborhood. The most common answer? That it was an historic district. The second most common answer? The cost of occupancy. Neither of those responses is accidental.

So there are the five major measurable impacts – jobs, center city revitalization, heritage tourism, property values, and small business incubation. Other areas of impact are also discovered in some analyses – revenues from the movie industry, enhancement of arts and crafts businesses, the connection between historic facilities and the performing arts,

neighborhood stabilization, the economic integration of neighborhoods, tax generation, leverage of public resources, and others.

2.6 Response to Globalization

Those are some of the measurable, mostly short-term economic impacts of historic preservation. But it is even more important to consider the larger scale and longer term economic role of heritage conservation. And that means beginning with globalization.

Bahrain has more than 5000 years of history of active trade beyond its borders, so probably doesn't need to be convinced of the economic advantages of globalization. The recent Free Trade Agreement between Bahrain and the United States further recognizes the advantages of being active participants in the global marketplace. But in other parts of the world – both developed and developing – there are many groups who express vociferous opposition to globalization.

What neither the supporters nor the critics of globalization understand is that there is not one globalization but two – economic globalization and cultural globalization. For those few who recognize the difference, there is an unchallenged assumption that the second is an inevitable outgrowth of the first. But these should be considered as two different phenomenon, which while interrelated, are not inexorably linked. Further, while economic globalization has many positive effects, cultural globalization has few if any benefits but has significant adverse social and political consequences in the short term, and negative economic consequences in the long term.

If cities are to succeed in the challenge of economic globalization, they will have to be competitive not only with other cities in their nation or region, but worldwide. **However, their success will be measured not just by their ability to foster economic globalization, but equally in their ability to mitigate cultural globalization.** In both cases, a city's historic built environment will play a central role.

The Singaporean scholar, Belinda Yuen, has noted this:

More and more urban researchers are arguing that culture is the business of cities – the basis of their competitive advantage⁶.

The “modernization” of cities in terms of infrastructure, public health, convenience, and quality of life *does not* necessitate the “westernization” of the built environment. A copy of the built environment from elsewhere will never be as good as the original. An imitative strategy for the built form quickly leads a city from being “someplace” to “anyplace”. And the distance from “anyplace” to “no place” is short indeed.

Globalization, be it economic or cultural, means change — change at a pace that can be disruptive politically, economically, socially, and psychologically. Adaptive reuse of the historic built environment can provide a touchstone, a sense of stability, and a sense of continuity for people and societies that help to counteract the disruption which economic globalization tends to exacerbate.

⁶ *Strengthening Urban Heritage in Singapore: Building Economic Competitiveness and Civic Identity*, Global Urban Development, Volume 1, Issue 1, May 2005

Marc Weiss, the chairman of Global Urban Development – an international research and advocacy organization – writes:

*Indeed preserving and enhancing a good physical environment is now essential to the long-run economic success for any nation, region, or community. This is why investing in and enhancing physical and cultural heritage is vital for improving the overall economic climate by substantially improving quality of life not just for tourists, but more importantly, for the people who live and work in the urban region.*⁷

3.0 Using an Economic *Vision* as Strategy (Strategic Objectives)

Unless there is some statement of the ultimate goal of an economic revitalization strategy, there is no context within which to recommend incentives, regulations, marketing approaches or other components of the strategy. The statement of these goals is often described as the *Vision* for the area. It could also be considered the objectives to be achieved through the effort.

Based on lessons learned from the participants in the charrette processes, discussions with individual stakeholders, and one-on-one meetings with officials from several Ministries, the following *Vision Principles for an Economic Strategy* were established:

1. The Urban Conservation Zones of Manama and Muharraq will reestablish their role as vibrant, family neighborhoods serving the residential, commercial, social, cultural and religious needs of the residents.
2. Owners and investors in the Urban Conservation Zones will be confident that their commitment to the area will be matched by the delivery of efficient and effective public services. This expectation would include:
 - a. clean and safe streets.
 - b. automobiles appropriately accommodated.
 - c. consistent enforcement of building codes.
 - d. protection from intrusions from inappropriate buildings, roads, and activities.
 - e. Properly functioning utilities and infrastructure.
3. Businesses will be economically successful by meeting the needs of local residents, nearby workers, and visitors. They will do this by providing a wide range of goods and services. While some goods and services may be the same, the Urban Conservation Zones will provide a shopping and business environment that is not duplicated in suburbs, shopping malls or other venues.
4. The Urban Conservation Zones of Manama and Muharraq will serve as natural incubators for small businesses, creative businesses, start-up businesses, and particularly for the rapidly growing work-at-home segments of the professional services industries.

⁷ *Teamwork: Why Metropolitan Economic Strategy is the Key to Generating Sustainable Prosperity and Quality of Life for the World*, Global Urban Development, Volume 1, Issue 1, May 2005

5. Heritage tourists will be welcomed to the Urban Conservation Zones, and a level of goods and services will be provided to meet their needs. However, the heritage neighborhoods of Manama and Muharraq will be active, living neighborhoods where heritage visitors are welcome guests, rather than areas ceded as primarily "tourist attractions."
6. While the Urban Conservation Zones of Manama and Muharraq will be protected, they will not be neighborhoods in isolation but will be economically, socially, physically and culturally reintegrated into their larger urban context.

Each of the recommendations and tools that follow in this report are meant to specifically advance one or more of the above strategies.

4.0 Problems/Issues

If it has now been demonstrated that maintaining and enhancing Urban Conservation Zones makes economic sense, why have the heritage areas in Manama and Muharraq declined? That is a legitimate question and the causes of such decline are sometimes different for cities in different parts of the world. For Manama and Muharraq there seem to have been a series of steps and decisions, each one of which has led to the further decline of the areas. These downward steps (Phases) are probably somewhat oversimplified, and they happened gradually over time. However, considering the heritage areas in this context may not only help answer the question, "how have they reached their condition of today?", but will provide clues as to how the situation can be reversed.

4.1. Phases of Decline

Phase I – The heritage areas are populated by Bahraini families with a tight social network. Commonly heritage houses are occupied by multiple generations of an extended family. Buildings are well maintained.

Phase II – For reasons of crowding, desire for privacy and lifestyle changes, younger, better educated, and more prosperous generations move out of the family house into a house of their own in the suburbs or to an independent flat in another part of the city.

Phase III – Gradually the number of family members living in the house significantly shrinks, leaving behind some combination of the oldest and the least prosperous. Required regular maintenance begins to decline.

Phase IV – The oldest generation begins to die off. The ownership of the property is divided among several heirs, most of whom are no longer living in the house. Because the ownership is widely dispersed, no single individual or immediate family has either the right or the responsibility to maintain the property. Maintenance rapidly declines.

Phase V – The last of the family residents of the property either die or move out to live with their children. No one from the family is left to do even minimal maintenance. As another generation dies, the ownership is divided even further, with any one unit of ownership having negligible value.

Phase VI – In this phase, either one family member takes over the management or the building is sold to an investor. In either event, the decision is made to have the property generate as much money as possible until it falls down or is torn down. The most common strategy is to rent the rooms to as many bachelor laborers as possible – often to as many as 3 or 4 to a bedroom; 20 or 30 to a house. While any one tenant might only be able to pay 15 or 20 BD per month, the total rents are not insignificant. Because of lack of ownership and lack of resources, there is no motivation for any of the tenants to perform maintenance or improvements. In fact, it is common that to suit their own, overcrowded conditions, tenants perform ad hoc subdividing of rooms, removal of staircases, removal of walls, and division of courtyards. Each of these actions compromises the historic character and often the structural stability of the building.

Phase VII – The property reaches the "point of no return" where it can no longer be rehabilitated cost effectively, or it simply falls down for lack of maintenance. At this point the site will be cleared and a new building – typically a 6-flat rental property of mediocre quality – will be built. Again, the occupants will typically be bachelor laborers who rent a unit built to accommodate one family and instead houses 15 or 20 workers in vastly overcrowded conditions.

None of these phases would be particularly important or harmful to the area if it involved just one or two traditional houses. But each step in this downward cycle affects not just the house involved but the rest of the neighborhood as well.

In Phase I, households are stable, properties are maintained, and there are social and cultural pressures for every family to keep their property in good, livable condition.

In Phase II, the out migration of some young families encourages more to move out. As young families move out, fewer children are in the neighborhood. Parents generally want to live in neighborhoods where there are children other than their own. Families generally don't want to move into neighborhoods where the number of children is declining.

In Phase III with only the older and poorer family members still residing in the neighborhood, the quality and variety of basic goods and services declines. Fewer shops exist that meet basic family needs. More younger families move out.

In Phase IV as maintenance declines in one building there is less and less motivation to reinvest in and properly maintain nearby buildings. What minimal maintenance there is, is generally of low cost and low quality. This is when plastic pipe replaces wooden drains, broken slats in shutters are not replaced, and decorative wooden doors are replaced with metal.

In Phase V, the entire character of the neighborhood begins to change rapidly. No longer are Bahraini families meeting daily on the street. The neighborhood takes on the physical appearance of decline and disinvestment.

In Phase VI, the neighborhood begins to take on the characteristics of a labor camp. It is no longer a place for families, only for workers. It can be an unpleasant and occasionally frightening place for women. It is important to note that it is not that expatriate workers should not be welcomed in Bahrain or even that cultural differences should not be accepted and tolerated. Rather that when there is this rapid and significant change in the character of

the area, accompanied by massive overcrowding, the quality of life for families dissipates dramatically. Neighborhoods that once housed multiple generations, both genders, and households of a variety of income levels have become neighborhoods made up almost exclusively of low paid, bachelor workers. Bahraini families will not return to the neighborhood in this condition.

In Phase VII the new and generally inappropriate and insensitive new buildings – housing the same narrow demographic spectrum – daily reduce the opportunity for the neighborhood to recover.

Historic buildings and traditional houses in the heritage areas of Manama and Muharraq have a largely untapped, latent economic value. But unless the phases described above are reversed, that latent value will not be realized.

And the market place has penalized these properties. During the public interview process for this project, one engineer for a local real estate firm said, "When we value properties in the old areas, we look only at the value of the land. The buildings have no value."

He was wrong. The buildings *do* have value. But that value will never be obtained unless significant steps are taken to reverse the cycle of recent years.

4.2. Barriers to Bahraini families moving into heritage areas

In discussions with young professionals, both Bahraini and expatriate, both single and married, four major barriers were identified that deter their interest and willingness to move back to the Urban Conservation Zones.

1. Concentration of bachelor laborers (See discussion in following section)
2. Parking
3. Environmental quality of neighborhoods
4. High concentration/density/overcrowding

If these issues could be overcome, some of these young families would consider moving back to the Urban Conservation Zones, but additional challenges were identified:

1. Ownership is often dispersed among many family members making it more difficult to acquire a clear and sole interest in a property.
2. A lack of credibility in the government's ultimate willingness to improve the Urban Conservation Zones, since earlier commitments to the areas are believed not to have been fulfilled.
3. Lack of financial ability of young families to purchase the property, especially when there are inevitable uncertainties in the ultimate rehabilitation cost.

Two other issues need to be addressed.

1. Waqf ownership. It was widely identified by interviewees, including representatives of the Ministry of Religious Affairs, that the patterns of Waqf ownership presented a serious challenge.
 - a. The title to Waqf land is usually obscure

- b. The properties are dispersed throughout an area, not necessarily adjacent to the Mosque with which they are affiliated
- c. The decision making process regarding Waqf land is driven by different motivations than would be true of an investor or a potential homeowner.

Because of the complexity, the cultural and religious implications, and the long traditions of the Waqf, no recommendations or strategies are made in this report to address this issue. Over time, however, the government and the Waqfs will need to address this issue in a broader context.

2. There is considerable skepticism from many young professionals that because of lifestyle changes, increasing prosperity, and other attributes of modernity that any young Bahraini families would move back into these areas regardless of what is done there.

4.3 International evidence of "Pioneer families"

Of course, it is impossible to “prove” in advance that some families will. The best evidence is that, when conditions dramatically change, *some* families will, in fact, prefer the heritage areas. The evidence comes from around the globe. In China, in Syria, in Egypt, in Italy, in Brazil, in the United States, in Australia, in Tunisia, in Japan, in Spain, heritage areas once believed to be deteriorated beyond recovery are now the neighborhoods of choice of professional families.

Recognizing this worldwide trend, UNESCO official Richard Englehardt who is based in south Asia writes:

People with high levels of expertise and who can command high salaries want to live in unique and beautiful, well-preserved and well-maintained historic environments. Furthermore, they invest in these environments and expect their investment to be stable and long-term. It is no accident that Barcelona is Europe's preferred city of work and residence for bankers and software developers.⁸

It is important to keep in mind that it isn't necessary that *every* young family would make that decision. In fact, if only a very small percentage of all young families did so, a significant impact would be made on the quality and the character of the entire areas. These are the *Pioneers*. Even though there was skepticism expressed about young couples moving into the area, there is a growing appreciation of locational advantages of city centers and this is an asset that the Urban Conservation Zones of both Muharraq and Manama have. In other countries, numbers as few as 1% to 3% of young people willing to become *pioneers* have transformed entire heritage areas. Furthermore, these *pioneers* are nearly always a catalyst that encourages new businesses, business relocations, arts and cultural activities, improved retailing, and entertainment to be drawn to the area. Ultimately families and businesses that are more risk averse than the *pioneers* will feel comfortable enough to return as well.

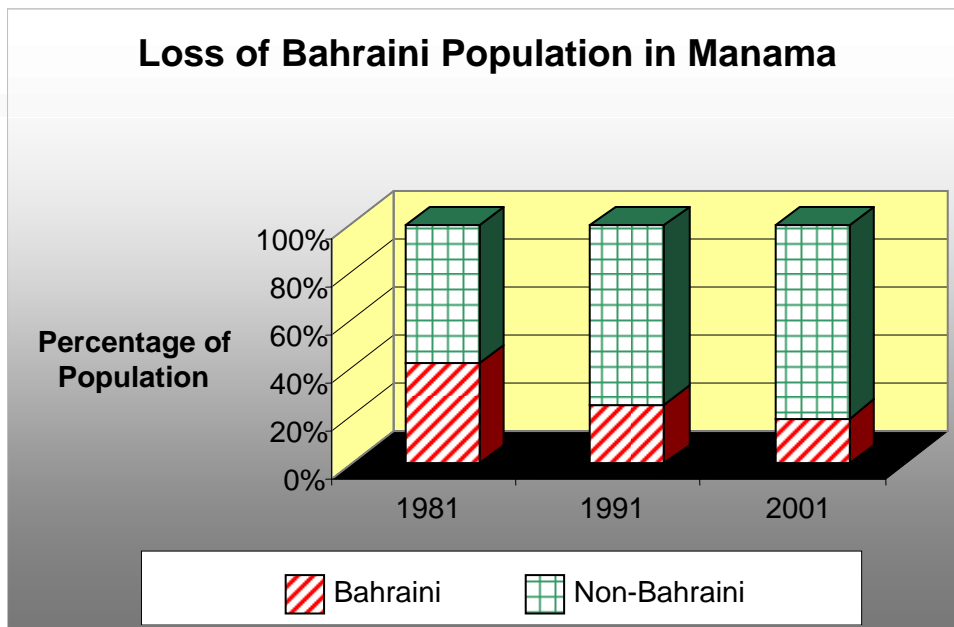
But because these *pioneers* are so critical, it is vital that many of the tools for intervention are tools directed specifically to them.

⁸ *The Star Online*, April 22, 2002

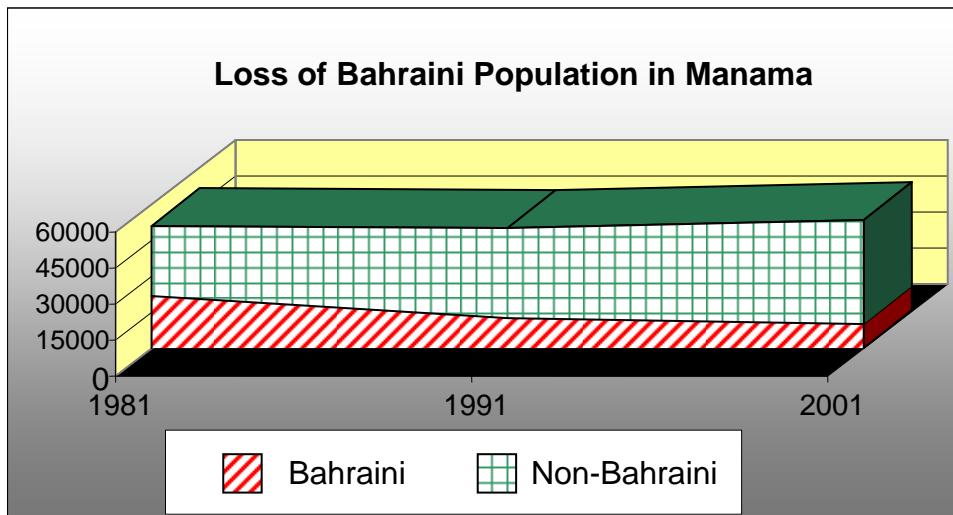
5.0 The Disappearing Bahraini Population

As was noted above, the single biggest deterrent to young Bahraini families moving into the areas of traditional houses in Manama and Muharraq is the impression that both areas are now dominated by foreign, bachelor workers. It is not, according to interviewees, that foreign workers shouldn't be welcomed to Bahrain or that the Kingdom doesn't need their labor. Rather it is that the fundamental character of the Urban Conservation Zones has become more like a labor camp than a traditional neighborhood of families.

A review of Census data demonstrates that this is more than an impression; it is a pattern that has been accelerating for at least twenty years. Looking at the data from Census Blocks in Manama reveals what has happened. In 1981 the Census Blocks (301, 302, 303, 304, 305, 306, 307) that make up that city's Urban Conservation Zone had a population of 51,617, approximately 42% of which was Bahraini. By 2001 the total population of the area had risen to 53,894, but the percentage that was Bahraini fell to less than one resident in five (18.8%)



In raw numbers, the change is even more dramatic. The number of Bahrainis living in this area fell in half, from 21,622 in 1981 to merely 10,126 by 2001.



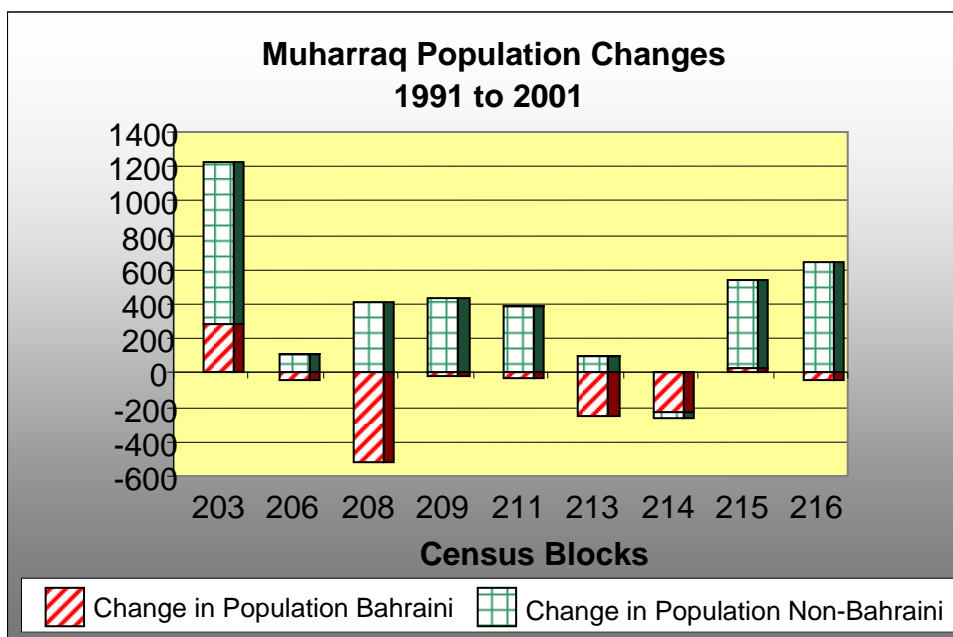
The first objective of *Vision Principles for an Economic Strategy* was:

The Urban Conservation Zones of Manama and Muharraq will reestablish their role as vibrant, family neighborhoods serving the residential, commercial, social, cultural and religious needs of the residents.

It is highly unlikely that that objective can be reached without a significant reversal of the patterns seen in the charts above.

Muharraq is evidencing a similar pattern. Nine Census Blocks make up the Urban Conservation Zone in Muharraq (203, 206, 208, 209, 211, 213, 214, 215, 216). In the decade between 1991 and 2001 this area grew in population around nine percent (from 30,339 to 32,715) but the Bahraini population fell nearly five percent (from 17,029 to 16,224). Even more significant is that the area moved from being majority Bahraini in 1991 to being majority non-Bahraini in just ten years.

Based on the patterns of accelerated departure of Bahrainis from the Urban Conservation Zone of Manama between 1981 and 1991, this loss of majority population in the area is likely to be the “tipping point” in Muharraq as well. **Without significant intervention in the immediate future, the chances of repopulating this area with Bahraini families would appear remote.**



In sum, of the sixteen Census Blocks within the two areas, fourteen saw a decline in the Bahraini population over the last ten years; one other had virtually no change. There was one Census Block where there was a growth in Bahraini population, but even there, the growth of the non-Bahraini population was nearly four times as much.

A series of strategies are recommended in a later section to respond to this issue. None of the strategies are without difficulty in implementation. Unless, however, the patterns demonstrated above are mitigated, implementation of other efforts may well be moot.

6.0 The Five Tools of Government

In 1995, a group of experts and academics from around the world gathered in Salzburg, Austria to consider how governmental policies in various countries affected the preservation of heritage resources. From that symposium emerged a publication entitled, *Preserving the Built Heritage: Tools for Implementation*⁹. Perhaps the most valuable contribution of the conference and the ensuing publication was identifying the categories of *tools* that governments can use to affect historic properties. While one might quibble with some of the categories or modify others, the basic framework provides an excellent organizing structure to identify and recommend tools.

The conference and its publication concluded that there were five categories of tools that governments had at their disposal. These are very briefly described below, but are further used as the organizational structure for the recommendations in this report.

The following descriptions of the various tools are taken directly from the publication, *Preserving the Built Heritage: Tools for Implementation*.

⁹ *Preserving the Built Heritage: Tools for Implementation*, J. Mark Schuster with John de Monchaux and Charles A Riley, editors; University Press of New England, Hanover and London, 1997

1. **Ownership and operation.** The state might choose to implement policy through direct provision, in this case by owning and operating heritage resources.

The State will do X.

2. **Regulation.** Alternatively, the state might choose to regulate the actions of other actors, particularly those private individuals or institutional entities that own and occupy heritage resources.

You must (or must not) do X.

3. **Incentives (and disincentives).** The state might provide incentives or disincentives designed to bring the actions of other actors with respect to heritage resources into line with a desired policy.

If you do X, the state will do Y.

4. **Establishment, allocation, and enforcement of property rights.** The state can establish, allocate, and enforce the property rights of individual parties as these affect the preservation and use of heritage resources.

You have the right to do X, and the state will enforce that right.

5. **Information.** Finally, the state can collect and distribute information intended to influence the actions of others who might be engaged in the preservation or use of the built heritage.

You should do X or You need to know Y in order to do X.

The following section lists and defines a series of strategies meant both to address the problems identified above and to begin to reverse the phases of decline in the Urban Conservation Zones of Manama and Muharraq. In each instance the strategy is identified as being one of the five tools above. Most of them are incentives, a few of them are regulations, and others are property rights or information strategies.

Very few of the recommended strategies are Ownership and Operation strategies. This is not because Ownership and Operation cannot be effective, but rather that the consultant team was informed from the beginning that the Kingdom of Bahrain and the Ministry of Municipalities did not consider it feasible to acquire, rehabilitate, and maintain all of the heritage resources that merited preservation.

However, some interim, transitional ownership strategies are recommended. This is particularly true in five types of situations:

1. For pilot projects.
2. For instances where the consolidation of ownership is critical to the building in question being rehabilitated.
3. In the early stages where the viability of rehabilitation needs to be demonstrated.
4. When properties need to be stabilized to a minimal condition before being resold and completed by the new owners.

5. Where significant properties are so deteriorated if there is not acquisition by the government, the properties are highly likely to be lost.

In most cases, this ownership should be seen as temporary. The government's ownership is a transitional one pending resale to a private owner. In some cases, particularly early in the process, it will likely be the case that the government resells the property for less than it has invested in it. This "loss leader" approach will be essential to attract the *Pioneers* but in the end will be a modest investment that will be highly leveraged by the investment of others.

7.0 Strategies recommended for consideration

This section constitutes the recommendations for specific strategies to address the identified needs in the Urban Conservation Zones of Muharraq and Manama. There are many strategies and necessarily, the description of each of them will be brief. Some of the strategies are modifications of existing government programs, others suggest the creation of new programs; some are incentives, some are regulations.

No single strategy would be sufficient to obtain the results that are desired. Different strategies address different issues. They need to be viewed as a comprehensive group of strategies necessary for the desired outcomes. Does this mean that if some strategies cannot be implanted for fiscal, political, or bureaucratic reasons that the program cannot succeed? Certainly not. But trying to effectively and efficiently implement a program for the revitalization of the Urban Conservation Zones of Manama and Muharraq by selecting a strategy or two on a piecemeal basis is unlikely to be successful

Does this long list of strategies mean that no other strategies are necessary or would be useful? Again, certainly not. The Kingdom of Bahrain, the relevant Ministries, and the other stakeholders in the Urban Conservation Zones will no doubt come up with other effective strategies as time goes on. The revitalization of Urban Conservation Zones is inherently a "learn by doing" process and the participants need to be willing to do that.

One particular element, however, that should be incorporated in every strategy is the design guidelines that have been recommended by other members of the consultant team. All incentive programs should require as a prerequisite to receiving the assistance, a commitment to rehabilitate the heritage buildings consistent with the design guidelines.

The strategies are each presented in a standard format which includes: name of the strategy, which governmental tool that strategy represents; which problem the strategy is intended to address; when it should be implemented; whether it is a *Pioneer Strategy* (i.e. a strategy to get the earliest families to return to the Urban Conservation Zones); and whom the strategy is directed toward. This is followed by a generally brief description of what is meant by the strategy and occasionally why that particular strategy was included.

For purposes of this report the time frames are: immediate, short term (begin within 1 year), and intermediate term (begin within 3 years). As these efforts move forward and additional lessons are learned, it is likely that longer term strategies will naturally emerge

7.1 The Strategies

7.1.1 Immediate Strategies

STRATEGY # 1a: Occupancy limits for rental property

Which governmental tool: Regulation

Which problem(s) does it address: Concentration of bachelor laborers; overcrowding

When should it be implemented: Immediately

Is it a *Pioneer Strategy*: Yes

To whom is the Strategy directed: New residents, overall character.

Description of the Strategy: More than any other barrier identified, the concentration of relatively low paid, primarily bachelor laborers living in overcrowded conditions in the Urban Conservation Zones is deterring Bahraini families from returning to the Urban Conservation Zones. **If this issue is not addressed it is highly unlikely that the other strategies will have a meaningful impact.**

Occupancy in non-owner occupied dwellings should require at least 12 square meters of personal space per tenant. Further it should be required that there be no more than five persons per bathroom.

It is important to recognize that this is not, and should not be interpreted as precluding bachelor laborers from living in the Urban Conservation Zones. Rather it is precluding them from living at such a level of density and overcrowding that the Urban Conservation Zones become monolithic labor camps rather than economically, ethnically, generationally, and culturally integrated neighborhoods.

Nor does this suggest that the Kingdom of Bahrain does not have a responsibility for addressing the housing and affordability issues of expatriate laborers. But the present concentration, density, and overcrowded conditions in the Urban Conservation Zones not only represent health, sanitation and public safety issues for the workers themselves, but is putting the heritage resources at critical risk.

With proper coordination among Ministries, the implementation of this policy can be possible. Permission for foreign work visas require fixed addresses. The addresses within the Urban Conservation Zones should be identified and crosschecked for allowable levels of occupancy.

There will need to be a transition period for compliance with this regulation, perhaps six months. All property owners and major employers of bachelor laborers need to be informed of the new regulations, the time allowed for transition, and the penalties for non-compliance.

When the regulation is in full effect there will need to be a concerted effort for inspection and enforcement. This needs to be visible and consistent. There should be substantial penalties for violation and it should be the property owner(s) who are subject to the penalties, not the laborers. The penalties should be immediate upon finding of violation and should be substantially increased for a second violation and more so for subsequent violations. When the penalties for violating the regulation significantly outweigh the revenue generated by renting properties far beyond their capacity to safely house tenants, the activity will stop. Once families begin to move back into the area they will provide an

ongoing monitoring system and will report apparent violations requiring less active inspection on the part of the designated Ministry.

This regulation could be considered an interim strategy. The need for this provision may be eliminated over time either by market forces when Bahraini families begin to buy, rehabilitate and live in the traditional houses in these areas and/or when the Kingdom of Bahrain makes other provision for foreign bachelor workers.

Note that the regulation only applies to non-family residents. There is a long tradition in the Urban Conservation Zones of Manama and Muharraq of multiple generations of an extended family living in a traditional house. This regulation should not discourage the reestablishment of that tradition.

This provision applies only to rental property, not owner occupied property. An owner could rent out portions of his house if he remains as a resident.

STRATEGY # 1B: Companion Incentives

Description of the Strategy: It is recognized that there may be legal and political difficulties in implementing Strategy #1. It is appropriate, therefore, that a range of incentives “the carrots” be attached to the regulations, “the sticks”. Rather than create a specific incentive to address this overcrowding, bachelor housing issue, it is recommended that the properties falling into this category be given priority in receiving certain incentives identified below. Specifically, this category of property should receive highest priority for utilizing Strategies # 3 (First Right of Refusal), Strategy # 8 (Land Swap), Strategy #11 (Specialized Loan Program), and Strategy #12 (Design Assistance). Further, this category of property should be given first priority for Funding Strategy #2 (Transferable Development Rights), and for any Pilot Projects that are initiated.

STRATEGY # 2: Fee waiver for traditional houses in neighborhood

Which governmental tool: Incentive

Which problem(s) does it address: Affordability and Disinvestment cycle

When should it be implemented: Immediate

Is it a *Pioneer Strategy*: Yes

To whom is the Strategy directed: New owners in Urban Conservation Zones

Description of the Strategy: There is presently a municipal fee levied on residents for electricity and municipal services. It is currently charged at a monthly rate of 3% of rent for Bahrainis and 10% of rent for non-Bahrainis. This fee is paid as part of the electric bill. While this is a relatively small incentive, it would be one more inducement for early *Pioneers* to move in. This should only apply to traditional houses that have been or are being rehabilitated, and should be for a limited time period, say two to three years.

This implementation would require the concurrence of several Ministries and departments who receive portions of the Municipal Service Fee.

STRATEGY # 3: Government has first right of refusal to purchase traditional houses in Urban Conservation Zones.

Which governmental tool: Property rights, Ownership (short term), regulation

Which problem(s) does it address: Dispersed ownership

When should it be implemented: Immediate

Is it a *Pioneer Strategy*: No

To whom is the Strategy directed: Urban Conservation Zone as a whole, properties occupied by bachelor laborers in overcrowded conditions

Description of the Strategy: Almost daily, traditional houses in the Urban Conservation Zones are being sold. Often this sale is made to GCC investors buying these older houses, tearing them down, and building new units. A *First Right of Refusal* is an acquisition device that allows one party the priority opportunity to acquire a property on the same terms and conditions that the seller is willing to sell to another party.

This regulation would work as follows: anytime an owner(s) of a traditional house in the Urban Conservation Zone was "ready, willing, and able" to sell the property to a third party, the Kingdom of Bahrain, through the appropriate Ministry, would be given the opportunity to purchase the property on the same terms and conditions that had been agreed to by the parties to the proposed transaction. That Ministry would then have a finite time period – say thirty days – to meet that offer. If the Ministry chooses to exercise its First Right of Refusal then the seller receives the same amount of money on the same terms as they were otherwise willing to accept. If the Ministry waives its First Right of Refusal, or if the time period expires, then the transaction can go forward as originally proposed.

What prevents a seller from finding a friend to make a false offer at a high price just to try to extract more money from the Ministry? Two things: 1) if it is ever demonstrated that the purchase offer was not legitimate, but only for the purposes of receiving more money from the Ministry, fraud has been committed that should be punishable as a civil or criminal offense; 2) if the Ministry declines to use its First Right of Refusal and the purported transaction does not in fact take place (as it would not if the offer was bogus to begin with) then the First Right of Refusal is reestablished.

As with similar strategies recommended where ownership passes into public hands, it is not anticipated that this will be permanent government ownership. Rather properties acquired through this strategy might be resold to an owner willing to rehabilitate the property, might be used as a pilot project of the Ministry and then resold, might be part of a "rent to own" program (See Strategy # 19) or other form of transaction to get the property both rehabilitated and back in the hands of a private owners.

Sales or conveyances between family members would be exempt from the First Right of Refusal provisions that would apply to non-family buyers.

Furthermore, the principle of Shufa which essentially gives the first right of refusal to adjacent property owners need not be replaced. The government's first right of refusal could come into effect only after the abutting property owners have declined to purchase the property.

STRATEGY # 4: Two year freeze on demolition

Which governmental tool: Regulation

Which problem(s) does it address: Ongoing loss of traditional houses

When should it be implemented: Immediate

Is it a *Pioneer Strategy*: No

To whom is the Strategy directed: Urban Conservation Zone as a whole

Description of the Strategy: Every day more of the traditional houses of Bahrain are being lost, mostly through demolition. Traditional houses are *not* a renewable resource. **These are irreplaceable assets that once demolished are gone forever.** Many of the recommendations and strategies of both this report and the companion reports will take time to begin to implement. Therefore, it is critical that there be a moratorium for an extended period on demolition.

This does not necessarily mean that no house can ever be demolished during this period, but rather that any request to demolish a traditional house in the Urban Conservation Zones is subject to review and denial by the appropriate Ministry. Ultimately, urban design guidelines for the Conservation Zones will likely impose significant restrictions on demolition of traditional houses. If there is not a moratorium on demolition between now and when those guidelines can be implemented, property owners will rush to demolish before the new regulations are in place.

In those circumstances where demolition is approved, the property should still come under the provisions of Strategy # 14, which requires both the documentation of the property being razed and a process of salvaging those traditional building components that could at a later date be reincorporated into the rehabilitation of another dwelling.

7.1.2 Short Term Strategies (Implement within 1 year)

STRATEGY # 5: Priority for housing loan for those moving into traditional buildings

Which governmental tool: Incentive

Which problem(s) does it address: Disinvestment cycle

When should it be implemented: Short term

Is it a *Pioneer Strategy*: Yes

To whom is the incentive directed: Young families, live/work entrepreneurs

Description of the Strategy: There currently exists a program of the Bahraini government to provide housing loans up to 40,000 BD to young families to buy their first home or flat. It is estimated that there are between 30,000 and 40,000 families on the waiting list for this program and that it takes from 4 to 5 years to reach the funding stage.

Moving applicants to the top of the priority list if they are willing to move into a traditional house in the Urban Conservation Zones could have a major impact on those areas without having a net cost to the Ministry of Housing. This program would specifically target the *Pioneers* who would be willing to move into the areas, even before they are fully satisfactory for families, in exchange for receiving their allocation sooner.

The other target market for this program would be young entrepreneurs interested in moving into a traditional house as a live/work space (See Strategy # 13).

STRATEGY # 6: Priority for Mortgage Guarantee Program

Which governmental tool: Incentive

Which problem(s) does it address: Disinvestment cycle, affordability

When should it be implemented: Short term

Is it a *Pioneer Strategy*: Yes

To whom is the Strategy directed: Young families

Related to the housing loan identified above, the Housing Bank of the government of Bahrain has recently announced a *mortgage guarantee* program. This would encourage commercial banks to make real estate loans for prospective homeowners by providing assurance of government payments in the event of default on the loan. Like the provision of Strategy #5, potential homeowners willing to buy in the Urban Conservation Zones would receive priority for the mortgage guarantee program.

STRATEGY # 7: Two lifetime loans instead of one if the first loan is for a traditional house in the Urban Conservation Zones.

Which governmental tool: Incentive

Which problem(s) does it address: Disinvestment cycle

When should it be implemented: Short term

Is it a *Pioneer Strategy*: Yes

To whom is the Strategy directed: Young families

Description of the Strategy: The loan program identified in Strategy # 5 is only available once per family. Allowing a family the opportunity for two such loans has several impacts. First, it gives those *Pioneer* families the confidence that if the Urban Conservation Zones are not improved over time as promised, they are not stuck there for life but can have the opportunity to move elsewhere. Second, even if the family decides to move by utilizing the second housing loan, at a minimum there is now one more traditional house that has been rehabilitated and brought up to modern and livable standards. Third, if for family or lifestyle or other reasons the initial family decides to move elsewhere, an opportunity for another family to move in is created.

There should be a minimal time period, however, before receiving the first loan and receiving the second – perhaps five to seven years. This requires the initial occupants to remain in the neighborhood to provide stability in the early years of revitalization.

STRATEGY # 8: Land swaps to consolidate ownership

Which governmental tool: Property rights

Which problem(s) does it address: Dispersed ownership, overcrowding

When should it be implemented: Short term

Is it a *Pioneer Strategy*: No

To whom is the Strategy directed: Families with multiple members holding shares of ownership; owners of properties currently occupied by bachelor laborers in crowded conditions

Description of the Strategy: Land swaps have a well-established history in the Kingdom of Bahrain, often for highway expansion or other public projects. It is acknowledged that the size, topography, climatic conditions and ownership patterns may mean that there is some limitation on where the "traded for" property might be, and that land swaps are a tool that must be used sparingly. However, heritage resources are also in very short supply, and the issue of dispersed ownership creates a major barrier to rehabilitating the traditional houses. Because a number of "new towns" are being developed, some residential lots in those towns could be designated as potential land swap parcels for traditional houses. But the program need not be limited to "new towns" but could be a parcel at any other location that is acceptable to both parties in the transaction. The property to be received would need to be of equal or greater value than the property being traded.

This strategy can also be effectively utilized to acquire and subsequently resell houses that are currently being rented to bachelor laborers in overcrowded conditions.

After the land swap, the government obviously becomes the owner of the property, but that ownership should not be considered permanent. The government should use this period of ownership to: a) use that property for a pilot project; b) stabilize the property and sell it to an owner who would complete the rehabilitation (see Strategy # 18); or c) fully rehabilitate the property and sell it to a new owner.

If the strategy was utilized to consolidate ownership, members of the original owners of the property should be given a *First Right of Refusal* to reacquire the property on a less dispersed ownership basis. A *First Right of Refusal* is an acquisition devise that allows one party the priority opportunity to acquire a property on the same terms and conditions that the seller is willing to sell to another party. (For a slightly more detailed explanation of a *First Right of Refusal*, see Strategy # 3).

For example, the government acquires a traditional house through a land swap because the ownership is dispersed among many members of a family, the property is deteriorating, and the family is unwilling or unable to make the necessary reinvestment to rehabilitate the property. The government decides that the best strategy for this particular house is to fully rehabilitate it and then resell it to an interested family for, say, 50,000 BD. The family that had owned the property includes one young couple who would be interested in moving into the heritage area. The members of the family would have the first opportunity to purchase the house on those terms. If no one in the family is interested, the government could sell to anyone. There is a social and cultural value in the ownership of a property by a single family over multiple generations. Giving the family the *First Right of Refusal* allows this tradition to continue.

STRATEGY # 9: Training program for craftsmen

Which governmental tool: Information

Which problem(s) does it address: Shortage of workers to appropriately rehabilitate traditional houses.

When should it be implemented: Short Term

Is it a *Pioneer Strategy*: No

To whom is the Strategy directed: Urban Conservation Zone as a whole

Description of the Strategy: There appears to be a shortage of craftsmen in Bahrain who are familiar with and competent in the building methods and appropriate materials for the rehabilitation of traditional houses. If the attention to the Urban Conservation Zones is going to be ongoing, rather than a short-term effort, it is vital that there be many more workers trained in the proper techniques and methods.

Hopefully the Craftsman Center in al-Jassara will perform that function. There needs to be, however, a formal relationship between that Center and the efforts within the Urban Conservation Zone.

A variation of this strategy could be to provide seed money to individuals with the skills to open training centers within the traditional areas, thereby reestablishing the Mu 'alim and apprentice relationship. It may be appropriate for the government to subsidize this training and/or pay a nominal salary to the apprentices undergoing training.

One possible direct connection is to use Pilot Projects that should be undertaken by the appropriate Ministries in conjunction with the Urban Conservation Zone efforts as a "hands-on" opportunity for those being trained. The benefits of this relationship would be: a) the trainees get direct experience on a real project of the type they are training for; b) there should be some cost savings through using these apprentice workers; and c) the rehabilitation work itself should be periodically open to visitors (contractors, architects, investors, current and perspective property owners) so that the work itself is a demonstration of what can and should be done elsewhere.

STRATEGY #10: Step-down rent subsidy for young couples

Which governmental tool: Incentive

Which problem(s) does it address: Affordability

When should it be implemented: Short Term

Is it a *Pioneer Strategy*: Yes

To whom is the Strategy directed: Pioneer families

Description of the Strategy: Not all young families who would be willing to live in the Urban Conservation Zones are financially prepared to become owners. Furthermore, some of the *Pioneer Strategies* need to be directed to renters as well as owners.

At the same time, people who buy and redevelop properties may need rather significant rents to have justified the investment required. Assuming that the occupancy limits strongly recommended in Strategy # 1 are implemented, they will not be able to get those rents by significantly overcrowding units with bachelor laborers.

A step-down rent subsidy would work like this: Say the market rent for the unit was 120 BD per month considering the cost of acquiring and rehabilitating the property. As an enticement to get a *Pioneer family* who wished to rent to opt for a traditional house in the Urban Conservation Zone they would sign, for example, a five year lease at 120 BD per month. But the first year they would only have to pay 80 BD per month, with the appropriate Ministry paying the difference. The second year the tenants would pay 90 BD while the Ministry paid 30. In year three tenants 100 BD, the Ministry 20 BD; year four tenants 110 BD, Ministry 10. This program could also work with properties directly owned by the government.

This strategy accomplishes two goals. First, there is a financial incentive for a young family to move into the area before it has improved to the level that they would normally find acceptable. Second, it makes their rental unit more affordable as their own financial condition and income improves.

STRATEGY # 11: Specialized loan program for rehabilitation

Which governmental tool: Incentive

Which problem(s) does it address: Lack of necessary tool

When should it be implemented: Short term

Is it a *Pioneer Strategy*: No

To whom is the Strategy directed: Urban Conservation Zone as a whole

Description of the Strategy: There seems to be an absence, either in commercial banks in Bahrain or in the financial institutions directly connected to the government, of any real estate loan programs directly focused on the rehabilitation of older and traditional buildings. Lenders would prefer to lend on new buildings where the costs are more predictable. Furthermore, it seems that most real estate lending is based only on the income of the applicant, not the real estate asset they are trying to acquire. In other words the loans are income based, not asset based.

There is certainly a justification for both of those positions. Lenders need a degree of predictability as to costs. It is generally true that until the skills of architects, contractors, tradesmen, and related professions are improved with experience, rehabilitation can be widely variable as to costs. The good news is that **once experience has been gained and some members of the design and building professionals have made the rehabilitation of traditional buildings their specialty, both the costs will fall and the predictability of the costs will improve.**

One of the reasons that lenders are looking only at income rather than a more balanced approach of looking both at income and the value of the asset being lent against, is that the lender assigns little value to the asset, particularly in the case of older and traditional buildings.

There may also be implications in the foreclosure process in Bahraini civil law and/or under Shari'a law. Both of those issues are beyond the scope or the expertise of the Economics Consultant on this project and need to be addressed by local authorities who understand these issues.

But some financial mechanism needs to be developed to finance the rehabilitation of traditional buildings. This needs to be done either by creating a specialized loan program within one of the Ministries or a government-related financial institutions or in one or more of the commercial banks. It might need to be combined with a mortgage guarantee program as recommended in Strategy # 6). **But without a customized loan program directed toward the rehabilitation of traditional buildings, the likelihood of private investment in those structures is significantly reduced.**

STRATEGY # 12: Office of design assistance

Which governmental tool: Information

Which problem(s) does it address: Lack of knowledge about appropriate treatment of heritage buildings

When should it be implemented: Short term

Is it a *Pioneer Strategy*: No

To whom is the Strategy directed: Urban Conservation Zone as a whole

Description of the Strategy: It is clearly evident that there is a lack of broad understanding about the appropriate treatment for traditional buildings in the Urban Conservation Zones. Some of this comes about by trying to do repairs, maintenance, rehabilitation and/or modification as cheaply as possible. But in other instances, a number of people interviewed during the charrette process and in one-on-one meetings wanted and were willing to "do the right thing" but literally did not know what the "right thing" was.

A design assistance office would be a department of the appropriate Ministry but preferably physically located in a shop building within the Urban Conservation Zone. The program's purpose would be to broadly educate the public on how the appearance of any traditional, non-traditional, or planned infill structure is an irreplaceable individual piece of the overall character of the Urban Conservation Zone. The persons involved in design assistance could either be government employees or individuals contracted to provide these services. Contracted consultants would have to be paid and there would need to be assurance of performance and perhaps an incentive by these individuals to be actively engaged.

The design manager would schedule and conduct free site visits at the request of building owners, architects, contractors, or members of the Municipal Council to discuss appropriate rehabilitation alternatives for these structures. The manager would provide, at no charge, technical information on preservation techniques and products that would facilitate the rehabilitation work. In addition, for a nominal fee, the manager would produce a design concept consisting of a colored rendering of a building's exterior with accompanying façade notes.

Consideration could be given to establishing a Qadi for each Urban Conservation Zone who could assist in resolving conflicts in property design matters but who would also add community credibility to the office of design assistance.

Seminars, workshops, slide presentations and other materials would also be offered by the design manager to inform building owners, merchants and the general public about proper Urban Conservation Zone design, traditional buildings, and building rehabilitation and maintenance.

Copies of the design guidelines for the Urban Conservation Zone would be available and free at the Office of Design Assistance.

STRATEGY # 13: Zone for mixed use, especially live/work

Which governmental tool: Regulation

Which problem(s) does it address: Cycle of disinvestment

When should it be implemented: Short term

Is it a *Pioneer Strategy*: Yes

To whom is the Strategy directed: Entrepreneurs

Description of the Strategy: In the world economy there is a rapidly emerging segment of business activity made up of small (1-4 person) firms providing professional services. Among the categories of these firms are consultants on a variety of subjects, architects, technical writers, software writers, graphic artists, advertising firms, and others. This is happening worldwide but is particularly growing in well-educated and increasingly prosperous countries like the Kingdom of Bahrain. Some have identified this economic phenomenon as the *Rise of the Creative Class*.

As varied as these firms are in the focus of their economic activities, many of them possess five common denominators: 1) they are small; 2) they are very entrepreneurial; 3) they often work on a global, or at least a regional level; 4) they rarely have client contact **in their office** but rather deal with their client at the client's office, on the phone, over the internet, and through other electronic means. And perhaps most importantly, 5) they have a

strong preference for the "differentiated" neighborhoods, for locations with distinctive character, for a "sense of place". Thus, frequently these firms are attracted to older, historic and traditional areas.

Moreover, many of these professionals (both young and not-so-young) prefer to have their home and their office in the same place. Many parts of the world refer to this as live/work space. Unlike shops selling retail goods, or firms with significant client traffic going in and out of the office, these live/work firms have very little negative impact on the neighborhoods in which they are located. On the contrary, they usually provide an excellent market for nearby shops, restaurants, and other professional service providers.

Many of the traditional buildings (both residential and shops with a second floor) are well suited for this type of live/work space. That use should be encouraged. There can certainly be appropriate limitations, for example prohibiting more than 3 outside employees from working in one of these units and that neighbors could be assured that no dramatically increased levels of pedestrian or vehicular traffic would be generated.

Zoning laws should be adjusted to specifically allow this live/use activity in most areas within the Urban Conservation Zones.

STRATEGY # 14: Architectural salvage

Which governmental tool: Regulation

Which problem(s) does it address: Loss of traditional building materials and building components

When should it be implemented: Short term

Is it a *Pioneer Strategy*: No

To whom is the Strategy directed: Urban Conservation Zone as a whole, potential private sector business.

Description of the Strategy: Even if a demolition moratorium as recommended in Strategy # 4 is imposed, over time some traditional buildings will still be ultimately demolished. In those cases, two requirements should be imposed: 1) there needs to be a complete documentation of the structure, based on guidelines established by the appropriate Ministry, and to present that documentation before the permit for demolition is issued. 2) Elements of traditional construction – timbers, shutters, decorative wood, doors, and especially coral, will be salvaged and retained for reuse in other traditional buildings.

The most important role for the government is to fully encourage the recycling of materials from these buildings and establishing the regulatory framework that is necessary. The process of collecting, storing, and reselling these salvaged materials could be done within a Ministry. However to minimize government involvement it could be done by an NGO established specifically for this purpose, or by a private company. But there needs to be some mechanism identifying who has the responsibility over these salvaged materials.

STRATEGY # 15: Parking permits for residents only

Which governmental tool: Regulation

Which problem(s) does it address: Parking

When should it be implemented: Short term

Is it a *Pioneer Strategy*: No

To whom is the Strategy directed: Urban Conservation Zone as a whole

Description of the Strategy: Parking has been identified as one of the most challenging barriers that prevent Bahraini families from moving back into the Urban Conservation Zones. While the parking issues will be addressed in other of the team members' reports, it needs to be kept in mind that even though parking is a function of physical planning and urban design, it has major economic ramifications.

This proposed strategy would limit parking within the Urban Conservation Zones (or in particular areas within the UCZs) to residents of the Zone only. Applicants would go to the appropriate Ministry and provide evidence that they were residents of the Urban Conservation Zone. This evidence could be a lease or a municipal services bill or other residency document. When that evidence is provided, a sticker would be given to identify that car as belonging to a resident. This could be further limited by only allowing one or two stickers per household. The stickers would have to be renewed each year, and could be part of the same process as renewing licenses for the automobiles. This provision applies only to parking, and not the right to travel through on public rights-of-way.

This strategy alone, however, is insufficient to resolve the pressing parking issues. Additional strategies are identified in other consultants' reports.

STRATEGY # 16: BDB Service Centers in districts

Which governmental tool: Information

Which problem(s) does it address: Attraction of businesses, information to businesses, government credibility

When should it be implemented: Short term

Is it a *Pioneer Strategy*: Yes, for businesses

To whom is the Strategy directed: Entrepreneurs

Description of the Strategy: The Bahrain Development Bank (BDB) has an excellent program of Service Centers to provide information and technical assistance to potential businesses. They currently have plans to expand the Service Centers to additional locations in the future. Having one or two of those Service Centers located in the Urban Conservation Zones in Manama and Muharraq could be a valuable contribution to the future economic success in those areas. Further, since there seems to be a skepticism on whether the government is serious about taking steps to revitalize these areas, having a Service Center in the UCZs would be a positive indicator of the government's seriousness. Ideally the Service Center would be located in a rehabilitated traditional building that could serve the additional role of demonstrating how buildings can be appropriately rehabilitated yet still meet current needs.

7.1.3 Intermediate Term (Implement within 3 years)

STRATEGY # 17: Technical assistance to establish family ownership companies

Which governmental tool: Information

Which problem(s) does it address: Dispersed ownership

When should it be implemented: Intermediate term

Is it a *Pioneer Strategy*: No

To whom is the Strategy directed: Families with multiple members holding shares of ownership

Description of the Strategy: Some families have resolved the problem of multiple ownership by forming a company that owns the property. From a legal, financial, and management perspective, it is much easier to deal with the issues of multiple ownership if that ownership is represented by *shares in a company* rather than *shares in a property*. Lines of authority can be established, individual responsibility assigned, transfer of interests is simplified, financing becomes much easier.

This can be a very effective means for families to maintain ownership over multiple generations and yet not have the problems of management and maintenance that are very visible today. Under both Bahraini civil law and Shari'a law, there are mechanisms to form such companies. The problem is that this can be a somewhat complex process for which not every family is prepared to undertake.

Providing technical assistance on legal and financial issues, through the appropriate ministry or by a Qadi established for this purpose, could encourage more families to undertake this approach that may be reluctant to do so today.

STRATEGY # 18: Stabilized shell with stub-in mechanicals for young couples (*finish it yourself*)

Which governmental tool: Ownership (temporary), Incentive

Which problem(s) does it address: Affordability

When should it be implemented: Intermediate Term

Is it a *Pioneer Strategy*: Yes

To whom is the Strategy directed: Young families

Description of the Strategy: An alternative that could be very attractive to some young *Pioneer* couples is to acquire a property in "shell" condition and finish it themselves. Under this program the government would acquire a traditional house, stabilize the exterior, and install basic mechanical systems (water, sewer, electrical, air conditioning) but no interior finish and no fixtures (sinks, bathtubs, etc.). The couple can then acquire the property more cheaply than a finished house, and complete it themselves, doing the finish work by themselves, their friends, and their family over time as they are able.

Once the existence of a market demand is established, this is a function that could easily be taken over by a private sector company, eliminating the need for an on going government role in this regard.

STRATEGY # 19: Rent to own programs

Which governmental tool: Ownership (intermediate term), Incentive

Which problem(s) does it address: Affordability

When should it be implemented: Intermediate term

Is it a *Pioneer Strategy*: Yes

To whom is the Strategy directed: Young families

Description of the Strategy: Even if the loan program identified in Strategy #5 were available, some young *Pioneer* couples may not be ready or able to buy a house, but would like to live in the area. Under this program, the government would acquire a traditional house, complete the rehabilitation, and rent the building to a Pioneer couple. For a period of time (five to ten years) a portion of the rent they pay would apply to the ultimate purchase price if they eventually choose to buy the house. For example if the agreed rent is

120 BD per month, perhaps 10 BD per month would apply to the ultimate purchase price. After five years, then, if they choose to buy, they have already accumulated 600 BD to apply to the purchase.

Since this would be the payment of rent, some of which would apply to the ultimate purchase price, it should not be considered the payment of interest under Shari'a law. In this strategy as well, once a market demand is established, the private sector should be encouraged (and may well find it very profitable) to replace the government's role in this activity.

STRATEGY # 20 : Shared Equity Investment

Which governmental tool: Incentive

Which problem(s) does it address: Affordability

When should it be implemented: Intermediate term

Is it a *Pioneer Strategy*: Yes

To whom is the Strategy directed: Pioneer families

Description of the Strategy: Many of those who will choose to be *Pioneers* will be young families who have not yet accumulated significant wealth. Perhaps they are eligible for the 40,000 BD housing loan, but to purchase their unit will cost, say, 80,0000 BD, but they only have 20,000 BD to apply as down payment.

A governmental or quasi-governmental entity would agree to participate for an intermediate term period – probably 5 to 10 years – as an equity investor in the project. In the above example, the young couple would put in 20,000 BD as equity and the government entity would put in 20,000 as equity. The right of occupancy and all of the responsibilities of ownership would remain with the couple. This would include making all of their loan payments, the Municipal fees, regular maintenance, and all other costs of occupancy.

If during the specified period the couple decides to sell the property, one-half of the equity (i.e. the selling price less the amount required to pay off the mortgage loan) would go to the couple, and the other half would go to the government entity.

Therefore, if the property were ultimately sold at a profit, the profit would be divided. If the property were sold at a loss, both sides would share in the loss.

If by the end of the period the family had not yet sold the property, then the government entity would be entitled to be repaid the amount of their shared equity plus a reasonable profit. For structuring the transaction consistent with Shari'a law, the equity participation programs now available through the Bahrain Development Bank could be consulted.

Why have an equity participation rather than simply a loan? Because under a loan regular payments have to be made. This arrangement allows more young couples to qualify to buy houses without overburdening them with too high of monthly payments.

STRATEGY # 21: BDB Incubators in districts

Which governmental tool: Incentive, Information

Which problem(s) does it address: Attraction of businesses, information to businesses, affordability, government credibility

When should it be implemented: Intermediate term

Is it a *Pioneer Strategy*: No

To whom is the strategy directed: Entrepreneurs

Description of the strategy: The Bahrain Development Bank (BDB) has a business incubator program that has had measurable success. They currently have plans to create additional business incubator locations. At present, the plans are to locate these incubators in industrial areas of Bahrain. As an alternative or an additional location, this recommendation is to locate one or two business incubators within the Urban Conservation Zones of Manama and/or Muharraq.

Here is how the BDB describes a business incubator:

Business incubator is an organization that helps through its programs to accelerate the successful development of entrepreneurial companies via an array of business support resources and services, developed or orchestrated by incubator management and offered both in the incubator and through its network of contacts.

In the current location, the BDB business incubator provides the facilities to assist the new businesses to get started. These include:

- Independent Work Space
- Reception Area
- Conference Hall
- Meeting Room
- Business Center
- Business Service & Communication center
- Prayer Hall
- Cafeteria

All of these facilities could be developed within a rehabilitated traditional building.

Some of the businesses that have located in the BDB incubator certainly need to be in an industrial setting. These include a manufacturing firm producing non-metal gaskets and another dealing with the casting and cutting of aluminum. This type of industrial processing does not fit well within the Urban Conservation Zones. However, there are other kinds of tenants of the current business incubator whose location within the Urban Conservation Zones would be an asset not a liability. Examples of this type of business include a tech firm who specializes in providing MS Excel productivity solutions and another that develops web pages and e commerce innovations. This is not meant to mean that those particular firms would be relocated into the UCZ incubator branch, but rather that those are the kinds of firms for which a location in the traditional areas could be compatible and beneficial for both the firm and the neighborhood.

Since business attraction needs to be part of the overall revitalization strategy, getting businesses to locate in the UCZs initially in the BDB incubators would be a major first step in that process. Further, since there seems to be a skepticism on whether the government is serious about taking steps to revitalize these areas, having an incubator in the UCZs would be a positive indicator of the government's seriousness. Ideally the incubator would be located in a rehabilitated traditional building that could serve the additional role of how

buildings can be appropriately rehabilitated yet still meet current needs. It may well prove sensible to co-locate the incubator and the Service Center (Strategy # 16) in the same rehabilitated traditional building

7.2 Funding sources strategies

All successful projects need funding. Most of the strategies above do not require major outlays of funds, but most will require at least some financial resources. Recommendations in the reports of other members of this team, particularly those dealing with physical, design, and infrastructure projects, could require significant funding. Three strategies are identified below that could be a starting point for funding.

FUNDING STRATEGY # 1: Earmark fees generated from area for reinvestment in area

Description of the Strategy: A municipal fee (electric and municipal services) is charged monthly at 3% of rent for Bahrainis and 10% of rent for non-Bahrainis. Paid with electric bill. These funds go to pay for electrical service, but also to pay for other municipal services and other activities of the Ministry of Municipalities. If, for a finite period, all of the funds raised were committed to be reinvested inside the area (earmarking of funds) there would be both a predictable source of funds and a representation of the government's long-term commitment to the Urban Conservation Zone.

The implementation of this strategy would require the concurrence of several departments and Ministries, including the Ministry of Finance and National Economy. Politically and legally it may be more appropriate for each affected Ministry to make a commitment that it would invest in the area an amount no less than its share of the Municipal Service fee it received. This commitment would be limited to the agreed upon transitional period.

FUNDING STRATEGY #2: Transferable development rights

Description of the Strategy: Transferable development rights (TDRs) are used to move density of development from areas that need some protections (usually heritage areas or rural agricultural properties) to areas where greater density is desired or acceptable. The protected areas are referred to as *sending areas* and the development areas are called *receiving areas*. Sending areas are protection zones and receiving areas are growth zones

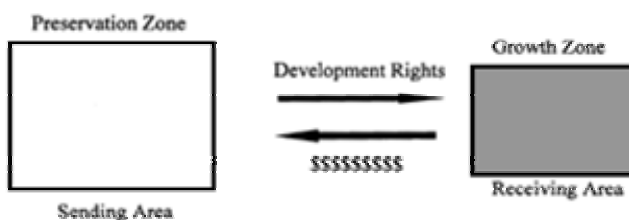


Figure 1. Transfer of Development Rights (Platt, 1996)

In simplest terms, it works like this: Property Owner A owns a lot in a protected area that is 1000 square meters and has a two story traditional building that covers the entire lot. However, the zoning would allow for a four-story building to be erected on the site.

Therefore, the existing lot has 2000 square meters of unused development rights. (1000 m² per floor X 2 floors).

In a receiving area a developer (Property Owner B) plans to construct a five story building of 2000 square meters per floor or a total of 10,000 square meters. This area has a height limitation of five stories **But**, the zoning law has designated this area as a *receiving area*. This allows a building to be built one extra floor (the bonus) if the developer acquires the *development rights* from the *protection zone* (the sending area).

The developer then purchases the development rights from Property Owner A and adds the extra floor. In exchange for this payment, the parcel of land in the *protection zone* is **permanently** limited to two stories of development.

Thus, in exchange for a payment, Property Owner A gives up his right (and the right of subsequent owners) to develop a four story building on that site. This dramatically reduces the motivation to demolish a smaller scale traditional house.

In an active market that is experienced in using TDRs, these transfers can take place directly between Property Owner A and Property Owner B. In the Kingdom of Bahrain, however, that is unlikely to be the situation. Furthermore, the relatively small size of the parcels within the Urban Conservation Zones may make it difficult for a developer in the receiving zone to acquire enough development rights from enough individual property owners to make it worth the time, effort, and money.

Therefore a second method is recommended. An appropriate Ministry in the government would serve as an intermediary between the parties. The government would negotiate and buy directly the development rights from property owners in the Urban Conservation Zones, bundle those development rights in larger units, and sell them to developers in the receiving zones. The receiving zones might be in new town developments that could accommodate one or two floors more than current zoning allows and for which there is strong anticipated growth. The greater the value of the land in the receiving areas, the more valuable to a developer the purchase of additional development rights will be.

This is a complicated tool and would need study and analysis as to how it might work in Bahrain. **There are both cultural and legal reasons why it is highly unlikely to be implemented in the near future. Further, it is possible that the current zoning may change in the future.** But if and when the time is right, TDRs would become a very valuable tool for protecting traditional buildings in the Urban Conservation Zones.

The area of Transferable Development Rights has received much attention in the west, and there are abundant materials that will explain the concept in greater detail than this report allows. Attached as an addendum to this report is an expanded explanation of TDRs. (See Appendix 1 for additional explanations)

FUNDING STRATEGY #3: Bahraini Heritage Endowment

Description of the Strategy: Maintenance of traditional houses is an ongoing process. Even if all the money were available today to rehabilitate every traditional house in Manama and Muharraq, if there is not ongoing maintenance, in a decade or less those houses would again be on their way to demolition.

If the market is repositioned so that most houses are owner occupied by Bahraini families, many of them will have the motivation and the financial means to make those ongoing repairs that any building – old or new – requires. However, there will also always be some long-time owners who simply cannot afford to make the expenditures for proper maintenance of these traditional houses. There will also be projects that require an additional injection of funds if they are going to be completed in a timely and appropriate fashion.

Therefore, it is recommended that the Bahraini Heritage Endowment be created. This would be an ongoing fund to assist those who need financial help to properly maintain their traditional houses, to rehabilitate heritage structures, and to pay for other activities related to the built heritage of the Kingdom of Bahrain.

The Bahraini Heritage Endowment would be funded by a 1BD fee, payable at the airport when visitors arrive. The amount per person is very modest, but with hundreds of thousands of arrivals per year in just a few years, the Bahraini Heritage Fund could have significant resources. Visitors are privileged to be allowed to share the great built heritage of the Kingdom of Bahrain; having to pay 1BD upon departure (or arrival) is a very low price to pay for that privilege. Because of GCC agreements, citizens of other GCC countries would be exempt from this additional visa fee.

The specifics of implementation of the Bahraini Heritage Endowment need to be well thought out by officials at the appropriate Ministries and other stakeholders. The criteria and distributions described below are not meant to be the final answer of how this proposed program be organized, but only to provide a framework for thinking about these important issues.

The Bahraini Heritage Endowment (BHE) would distribute the funds received in approximately the following proportions:

- 10% for program administration
- 30% for public improvement projects within the Urban Conservation Zones by the government of Bahrain and/or Municipal Councils
- 30% for non-interest bearing loans
- 30% for grants

Eligible recipients would be:

- Municipal Councils
- Institutions, religious organizations, and NGOs
- Private sector businesses
- Individual property owners

Awards would be made twice annually, following a round of grant and loan applications. The applications would be reviewed by a grant and loan panel made up of Ministry officials and other knowledgeable stakeholders. The criteria for selecting the recipients of funds would include:

- Ability of applicant to complete the project
- Historic significance of the proposed project
- Relationship of the project to heritage conservation efforts

- Urgency of the project
- Community support for the project
- Ability of the project to leverage funds from other sources
- Benefit of the project to the overall community
- In the case of grants, financial need of the applicant

Again, the above criteria are not meant to be final, but rather to identify the three main areas that need to be decided: 1) how is the money divided; 2) who are eligible recipients; 3) what are the criteria to make the award decisions.

There are numerous grant and loan and assistance programs focused on heritage conservation around the world. It would be beneficial to obtain information from several of them to use as models.

One of the most flexible, well funded, and successful historic preservation funding programs in the United States, is in Colorado. Further information about that program can be found at: <http://www.coloradohistory-oahp.org/programareas/shf/shfindex.htm>.

7.3 Pilot Projects

7.3.1 The Importance of Pilot Projects

Early pilot projects of a variety of types will be crucial to getting a solid start on the revitalization of the Urban Conservation Zones. Pilot projects in Manama and Muharraq will serve at least five important purposes: 1) they will demonstrate that the government is serious about making major improvements in the area; 2) pilot projects usually serve as catalysts for nearby property owners to make their own improvements; 3) pilot projects will serve as examples as to how rehabilitation of traditional buildings will take place; 4) pilot projects will provide "hands on" training for apprentices in traditional building crafts and trades; and 5) several strategies above (especially Strategy # 3 , 8, 18, 19, and 20) require that the government acquires and makes some rehabilitation on traditional buildings for an interim period. Each of these Strategies should themselves be seen as pilot projects.

Other team members' reports will have their own recommendations for pilot projects. In addition to the Strategies noted in the paragraph above that should be seen as pilot projects, the two below merit consideration as well.

7.3.2 Possible Pilot Projects

Pilot Project #1: Create "family block". The government should identify a reasonably intact block of traditional houses that could be acquired and rehabilitated at one time. These properties would then be resold (as suggested in Strategies # 3, 8, 18, 19 and 20) to young Bahraini families. This "critical mass" of *Pioneer families* could demonstrate the viability of the Urban Conservation Zones.

There is an alternative in the situation where most properties are still owned by Bahrainis and, if currently rented, would be reoccupied by Bahraini families. In this alternative the government would do the exterior rehabilitation and necessary improvements in building systems without the acquisition and resale of the property.

Pilot Project #2: Redevelop a traditional building as a "Heritage Conservation Service Center". Several of the strategies recommend a physical presence within the Urban Conservation Zones of various governmental or governmentally supported activities. These include: an Office of Design Assistance and perhaps a Qadi (Strategy # 12); BDB Service Centers in the districts (Strategy # 16); BDB Incubators in districts (Strategy # 21). Additionally there are other recommended service that could be more effectively provided if the appropriate office were located within the Urban Conservation Zones. These include: Specialized Loan Program for Rehabilitation (Strategy # 11), Resident Parking Permits (Strategy # 15), Technical Assistance to establish family ownership companies (Strategy #17) and others.

It would be very beneficial if all of those services were located together in a "one stop shop" for issues dealing with the Urban Conservation Zone.

The appropriate Ministry could acquire and rehabilitate a traditional building in one or both of the Urban Conservation Zones (one of the larger, courtyard style houses would be ideal) to serve these functions. When merchants' association, a residents' association, a property owners' association, etc. are formed they could meet and, if necessary, have offices in this Center as well. Additionally information about the available incentives and special programs for the Urban Conservation Zones and information about the Bahraini Heritage Endowment would be available here.

A Heritage Conservation Service Center located within the Urban Conservation Zones would truly demonstrate the governments sustained commitment to revitalizing the traditional buildings and the older neighborhoods of Manama and Muharraq.

Pilot Project #3: This recommendation is more than a single proposed pilot project, but rather a suggestion that the two Urban Conservation Zones be used themselves as a "laboratory" for an entire range of government programs. They could be the "testing grounds" for ideas from various Ministries that seem to be viable but need to be tested on a small scale before being adopted Kingdom wide.

An excellent example of this is a program that has been proposed but not yet formally authorized and is mentioned in Strategy 6. This is a program wherein the risk would be shared between the government and commercial banks against foreclosure of mortgage loans. In many parts of the world this type of program is called *mortgage insurance*. In the United States, it began as a government program, but subsequently private firms entered the mortgage insurance business as well.

A program such as is being suggested could be a very valuable housing strategy for the entire Kingdom. Using the two proposed Urban Heritage Zones as the "laboratories" to test the idea would be an excellent way to begin.

7.4 Marketing, Promotional and Organizational Strategies

The strategies identified and recommended earlier in this report are primarily economic and financial strategies. But the revitalization of older residential areas – both commercial and residential – is more likely to be successful sooner if there is an accompanying marketing and promotional strategy.

This is not an area of particular expertise of the Economic Consultant on this project, but a handful of suggestions are listed below for the consideration of the implementing entity.

- There need to be established **annual events** in the neighborhoods. These might be celebrations, festivals, special market days, or ethnic gatherings. These bring people into the area who then notice the improvements that are being made. They also give a sense of vitality and life to emerging neighborhoods.
- There needs to be the public **celebration of even small improvements**. It matters less the size of the improvement or how much is left to be done, then some symbol of the reversal of the present condition. A new sidewalk is installed, or a new business opens, or the façade on a traditional house is repaired – each of these represents an opportunity for the celebration of a small success. At these celebrations the news media, local politicians, businessmen and residents should all be invited and introduced.
- Businesses will generally do better, last longer, and be more profitable if there is an established **merchants' association**. That organization also then becomes the vehicle through which the needs and concerns of business owners are raised to the members of the Municipal Councils and appropriate Ministries.
- Likewise, it would be useful if a **residents' association** were established. This is particularly important in the early years when the *Pioneer Families* are moving in. They need to know that their issues and problems can be raised to the government with more than a single voice.
- Building owners in the Urban Conservation Zones in Manama and Muharraq are usually different than either the business owners or the residents. Building owners will have their own set of issues. They will all do better if they work in a cooperative manner so the creation of the **property owners association** may be warranted.
- Much of the success of the revitalization of the Urban Conservation Zones in Manama and Muharraq will depend on the strategies to attract the *Pioneers*. Once they have come, however, it will be in their best interests – both from a social and financial perspective, if other families follow them. Organized efforts should be undertaken to **use early pioneers** as an essential component of an overall marketing strategy.
- Every pilot project and every property rehabilitated by the Ministry in charge of the revitalization of the Urban Conservation Zones should hold **open houses**. This is most easily done before the occupants (owners, renters, or businesses) have taken possession. It is in seeing the "before and after" of these projects that will begin to change peoples' minds about the opportunities that both the traditional buildings and the Urban Conservation Zones represent. Again the general public should be invited through news media, brochures distributed in the neighborhood, and whatever other channels of communication are available.
- Simple signals should be given to people that tell them "you are entering a special place" In the Urban Design report there are some recommendations in that regard. One simple and relatively low cost devise is to change the color of the **street signs and building numbers** within the Urban Conservation Zones.
- There will need to me an aggressive marketing campaign to attract the *Pioneer Families* into the Urban Conservation Zones. One group that should be specifically targeted in these marketing efforts is **families who used to live in the area** themselves, or who have a family connection to the area. They may have a positive memory of the area from earlier days and wish to play an active role in revitalizing the area.

8.0 Conclusions

The Kingdom of Bahrain and especially the old cores of Manama and Muharraq are rich in heritage assets. However those assets are extremely fragile and are being lost daily. An immediate and concerted effort needs to be undertaken if those valuable resources are not to be lost forever.

At the beginning of this report were identified the *Four Forces of Value* that affect in both directions, the economic worth of a given asset. Those forces are: social, economic, political, and physical. Today each of those forces are working against the conservation of Bahrain's heritage resources.

While there are multiple examples, it is sufficient to give a single example in each category.

Social. The concentration of generally low paid, foreign bachelor laborers in overcrowded conditions is a major deterrent to young Bahraini families moving into the Urban Conservation Zones. This reduces the value of the heritage resources.

Economic. The ability to raze a two-story traditional house and replace it with a four-story, multi-flat building is manifested in only the land being given economic value. This reduces the value of the heritage resources.

Political. There is no regulatory protection given even to identified historic buildings, meaning they can be demolished with a minimum of difficulty. This reduces the value of the heritage resources.

Physical. Needed repairs are often not undertaken on traditional houses, and when they are done it is often with materials and workmanship that adversely affects the sustainability of the structure. This reduces the value of the heritage resources.

The *Forces of Value* are today working against the survival of Bahrain's heritage resources. Comprehensive measures need to be taken if those forces are to be reversed.

A comprehensive strategy to do so, however, can be successful. It must include both incentives (carrots) and regulations (sticks). The recommended strategies within this report and its companion reports, if implemented, will make a significant and in many cases immediate difference in the value of the heritage resources, and the likelihood of their survival.

At the beginning of this report were also cited some of the economic consequences of a concerted effort at heritage conservation that have been identified around the world. These included: job creation, center city revitalization, heritage tourism, enhanced property values, small business incubation, response to globalization and others. **Each of these will be economic benefits to the Kingdom of Bahrain if serious efforts to conserve its historic fabric is undertaken.**

The great urbanist Jane Jacobs once wrote, "Economic development is a do-it-yourself process. Either you do it yourself, or you don't develop." The conservation of heritage resources is not the alternative of economic development. The conservation of heritage

resources *is* economic development. But no one else is going to do it. It needs to be undertaken as the responsibility of the Kingdom of Bahrain and its citizens.

This paper began by citing a British economist. It will end by citing an American one. John Kenneth Galbraith once wrote: "The preservation movement has one great curiosity. There is never retrospective controversy or regret. Preservationists are the only people in the world who are invariably confirmed in their wisdom after the fact."

In protecting and enhancing their heritage resources, the wisdom of the leadership and the people of Bahrain will be confirmed after the fact.

Donovan Rypkema

February 23, 2006

Addenda

Appendix #1 -- Recap of Recommended Strategies					
Strategy #	Strategy	Tool	Problem	Pioneer?	Focus
IMMEDIATE					
1	Occupancy limits	Regulation	Overcrowding	No	Overall character
1a	Companion Incentives	Incentives	Overcrowding	No	Property owners
2	Fee waiver	Incentive	Affordability	Yes	New owners
3	First Right of Refusal	Property rights, Ownership, Regulation.	Dispersed ownership	No	Urban Conservation Zone overall
4	Demolition freeze	Regulation	Loss of traditional houses	No	UCZ overall
5	Priority loan	Incentive	Disinvestment	Yes	Young families, entrepreneurs
SHORT TERM					
6	Mortgage Insurance	Incentive	Disinvestment, affordability	Yes	Young families
7	Two lifetime loans	Incentive	Disinvestment	Yes	Young families
8	Land swaps	Property rights	Dispersed ownership, overcrowding	No	Family ownership, property owners
9	Training program	Information	Skills shortage	No	UCZ overall
10	Rent subsidy	Incentive	Affordability	Yes	Young families
11	Rehab loan program	Incentive	Lack of loan product	No	UCZ overall
12	Design Assistance	Information	Lack of knowledge	No	UCZ overall
13	Mixed Use Zoning	Regulation	Disinvestment	Yes	Entrepreneurs
14	Architectural salvage	Regulation	Loss of materials	No	UCZ overall
15	Parking permits	Regulation	Parking	No	UCZ overall
16	Service Centers	Information	Business recruitment	Yes	Entrepreneurs
INTERMEDIATE TERM					
17	Ownership technical assistance	Information	Dispersed ownership	No	Family ownership
18	Stabilized shell	Ownership, incentive	Affordability	Yes	Young families
19	Rent to own	Ownership, incentive	Affordability	Yes	Young families
20	Shared equity	Incentive	Affordability	Yes	Young families
21	Incubators	Incentive, information	Variety	No	Entrepreneurs

Appendix 2 – Transferable Development Rights

(from <http://ohioline.osu.edu/cd-fact/1264.html>)

Transfer of Development Rights

CDFS-1264-98

Land Use Series

Timothy J. Lawrence

Current concern over the rapid and increasing loss of farm land has led to explorations of ways to protect our valuable land resources. One of several options being considered is called the transfer of development rights (TDR). Transfer of development rights refers to a method for protecting land by transferring the "rights to develop" from one area and giving them to another. What is actually occurring is a consensus to place conservation easements on property in agricultural areas while allowing for an increase in development densities or "bonuses" in other areas that are being developed. The costs of purchasing the easements are recovered from the developers who receive the building bonus.

The transfer of development rights is not a new concept. TDRs have been used in other areas of the country for the preservation or protection of open space, natural resources, farmland, and urban areas of historical importance. TDRs also have been used to secure land for solid waste facilities and for the protection of golf courses. More than 20 states have enacted or amended statutes accommodating the TDR concept. Currently, seven states have TDR statutes specific to farmland protection. A brief explanation of the general principles of TDRs and their current use is essential to understanding how they could be used to protect Ohio farmland, natural resources, and open space.

The Rights of Ownership

Property ownership can be described as a bundle of individual rights. The ownership of land includes rights pertaining to minerals, timber, agriculture, riparian rights, surface and ground water, air, and development, to name the most common. Use of these rights is not absolute. Governmental entities do have the right to constrain, to a certain extent, a property owner's use of these rights and thus the economic value that the property owner can derive from the property. The most commonly used restraint has been on the exercise of the individual's use of development rights primarily through zoning.

Development Rights Are Independent of Land Ownership

The concept of TDRs provides for financial compensation to property owners while society imposes land-use regulations to control growth and development. This approach involves severing the right to develop an area that the public wishes to preserve in low density or open space and transferring those rights to another site where higher than normal density would be tolerated and desirable. The development right is independent of land ownership. The development right becomes a separate article of private property and can be shifted from one area to another and can have economic value.

Facilitating Land-Use Planning

TDRs are regulatory tools designed to facilitate land-use planning. Unlike most community comprehensive plans, the transfer of development rights requires much more certainty of where development will happen and where it will not. TDR programs do more than preserve farmland, natural resources, and open space; they change the way development occurs in a community. However, TDR programs cannot be established in the absence of a comprehensive plan. Implementation of a TDR in the absence of true comprehensive planning represents a failure to recognize that development credit values depend on a stable and predictable real estate environment.

Buying Development Rights

TDRs are very similar to the more commonly known purchase of development rights (PDR) programs (see OSU Extension Fact Sheet CDFS 1263-98, Purchase of Development Rights). The value of the PDR or development easement is the difference between the agricultural or open space value and the development value. For example, if the value of the land for agriculture is \$2,000 per acre and the developer would pay \$6,000 to buy the property for development, the value of the easement or development right would be \$4,000. However, market forces will determine the ultimate value of the development right. PDR programs require that a governmental agency or land trust purchase the development rights to a particular property. The development rights on the piece of property are then "retired" through deed restriction.

The difference between a TDR and a PDR is that the TDR is done in more of a controlled setting where areas are predetermined as "sending" or "receiving" areas. Private developers or local governments purchase the development rights from within the sending areas and transfer them to an area to be developed; this area is known as the "receiving" area. The owner of the preserved site retains existing use rights while receiving compensation for the development value of the land. As a result, the development potential of the property is, in effect, frozen. By lessening the economic impact of protectively zoned property and enabling the owner to recoup the economic value of the property's frozen potential, the TDR is designed to minimize the objections to such zoning.

Buying and Selling Rights, Not Land

Thus, TDR makes it possible for there to be a free exchange (buying and selling) of development rights without having to buy or sell land. The down zoning (changing of the allowed density to a higher number of acres per unit, i.e., going from one unit or home per five acres to one unit or home per 40 acres) a government entity may impose on a sending area does not necessarily reduce the economic value of the property within that area, because the development rights remain in the landowners' hands and can be used on other properties of the owner or sold to others for use elsewhere.

Two Types of TDR Programs

The most common TDR program allows the landowner to sell the development rights to a developer who then uses those development rights to increase the density of houses on another piece of property at another location (i.e., going from 1/4 acre per unit to 1/6 acre per unit). A variation of that type of a TDR would be a situation in which the developer transfers the development rights from one property to another property the developer owns. The higher density that developers are able to realize is the incentive for them to buy development rights.

A second method allows a local government to establish a TDR Bank to transfer development rights. In this method, developers, who wish to develop at a higher density than current zoning

allows, would purchase development rights from the local government. Again, the higher density is the incentive for the developer to purchase the development rights. The local government could then use these funds to purchase development rights of properties in areas that it wants to protect from urban development. The receiving area could not increase in density higher than some maximum set within the comprehensive land-use plan. The difference between the density with or without the TDR credits would be the permitted "bonus" that the developer could realize.

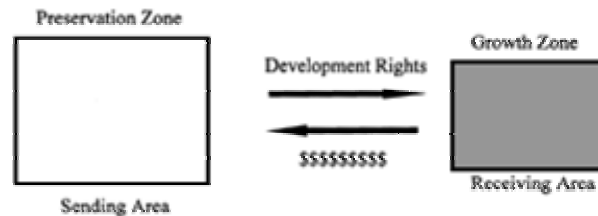


Figure 1. Transfer of Development Rights (Platt, 1996)

Components of a TDR Program. There are four main elements of a TDR that must exist in all successful programs:

1. A designated preservation zone (the sending area, described earlier).
2. A designated growth area (the receiving area, described earlier).
3. A pool of development rights that are legally severable from the land.
4. A procedure by which development rights are transferred from one property to another.

Without these components, landowners will have trouble finding a buyer for their development rights. The lack of a market for landowners who are mandated to sell their development rights to realize the economic development value of their property could be grounds for legal action. Under a voluntary TDR program, the lack of a receiving area would result in development occurring in the sending area just as before and with little land being protected.

Incentives. It is essential that developers have an incentive to purchase development rights (i.e., a density bonus). As part of the comprehensive plan, a TDR program must provide incentive for the government to increase the building capacity within the receiving zones when TDRs are used. This extra capacity is approved only after the developer transfers the development rights he or she may own, or purchases those rights from landowners in the sending areas, or from the TDR Bank. It is recommended that receiving areas should provide for about 30 to 50 percent more building units that the actual number of transferable rights would allow. This creates a competitive market among landowners wishing to sell development rights, and among developers needing to purchase those rights. It is important to note that receiving areas do not have to be contiguous to the sending area nor do they have to be in one large mass. However, wherever the receiving/sending areas are, the use of TDRs should be consistent with a community's comprehensive plan, future land-use map, zoning, and capital improvement program.

Features of an Effective TDR Program

TDR programs are very complex and can be very difficult to administer. They can be an effective tool in the preservation of farmland and natural resources; however, they are appropriate only in very limited areas and circumstances. Several features are important in determining the effectiveness of a TDR program.

- **Ease of understanding**

To be effective, a TDR program should be simple and easy for landowners and the public to understand. There must be a strong commitment to the TDR program by the political leadership of the community. A TDR program takes time to work and must be mandatory, rather than voluntary, for landowners in the sending area and for the higher density building in the receiving areas. Smart developers usually can gain extra density through variances or other means and will have little incentive to purchase development rights unless the zoning process is relatively inflexible and incorruptible. Political pressure to change back to the old ways, before the program has had a chance to work, may be very strong.

- **Managed Growth**

The TDR program should be part of a growth-management program. The county, municipality, or regional planning area must have a solid comprehensive plan and tight zoning ordinances in order to support a TDR program. The ultimate purpose of a TDR program is to create more efficient growth patterns. However, it is just as important for there to be long-term growth expectations to assure landowners in the sending area that there is value in their development rights. TDRs will not work in very rural areas where there is little or no development pressure on the area to be preserved. Within the receiving areas, the county, municipality, or regional plan must include policies, zoning ordinances, and capital improvement programs that will assure communities in the designated growth areas that a public facility overload will not result from the TDR density bonus.

- **Adequate Incentives**

Farmers need adequate incentives to sell their development rights just as developers need adequate incentives to purchase the development rights. Also, the density bonus in the receiving areas must be attractive enough for developers to want to purchase the development rights. The value of the development rights should be predictable and should adequately reflect the true value of the development rights in order to encourage farmers to participate. The establishment of a TDR Bank can help keep a program active during slow economic times and provide a floor for TDR prices. In addition, developers may find it easier to purchase development rights from a governmental entity, rather than from individual landowners.

- **Careful Management**

Finally, a well-trained planning staff must carefully manage the program. Staff members must be well-skilled not only in the fundamentals of planning but also in public relations to explain the program to politicians, landowners, developers, and the public.

Ups and Downs of TDRs

Unfortunately, what works well in theory may not be effective in practice. While TDRs appear to be an effective method of preserving farmland, open space, and natural resources, the reality of the situation is that they have been primarily effective within urban settings. There are a few successful TDR programs in rural areas. Most notably Montgomery County, Maryland, and the Pinelands in New Jersey stand out as programs that have preserved thousands of acres. However, even within these success stories, the use of TDRs is not without problems or controversy. There must be clear sending and receiving areas. Where considerable sprawl exists within the sending area, it may be too late for a TDR program to be successful. Residents within the receiving areas may object to the higher density necessary for a TDR program. Tom Daniels, in his recent book on the subject, *Holding Our Ground: Protecting American Farms and Farmland*, notes that "Next to establishing effective agricultural zoning on the urban fringe and the political struggles that involves, TDR is the most difficult farmland preservation technique to establish."

The distribution of development rights is the distribution of wealth, and distribution formulas raise equity issues at least as severe as those involved in rezoning. TDR programs may not provide the type of protection that a community might expect and may not provide the equitable distribution of the wealth that the landowners might expect. It has been argued that the only equitable basis for the distribution of development rights is in proportion to the losses landowners suffer due to change in land-use controls. Based on the current farmland TDR programs operating around the country, it is questionable if TDRs can satisfy those losses except in very limited and specific circumstances.

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United Nations
Development Program



Kingdom of Bahrain



Ministry of Municipalities
and Agriculture Affairs

مشروع

بناء القدرات لتحسين الإدارة الحضرية
(الحفاظ على المناطق والمباني التراثية)
المرحلة الأولى: الاستراتيجيات والسياسات

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**Capacity-Building for Enhancement
Of Urban Governance**
(Conservation Urban and Architectural Heritage)

Stage One: Strategies & Policies

Legal Consultant Report 1
Audun Engh / Norway

February 2006

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1.0. Introduction

The main objective for the Legal Framework Consultant is according to the Terms of Reference to “develop the legal framework that will enable the economic regeneration of the culturally and historically rich sites and buildings already designated and identified in the districts of Manama and Muharraq...”. The scope of work will include reviewing, assessing and preparing outlines for the improvement of “the current laws, regulations, programs, procedures and framework for the protection of urban cultural heritage sites”, in collaboration with the other consultants and local staff.

It has been agreed with the project coordinator that proposals for the future management structure of the two historic districts will have to be integrated in the development in the legal framework.

1.1. Short summary of the main proposals from the charrette.

It was generally agreed during the charrette that it will not be sufficient to protect individual historic buildings in Manama and Muharraq. It will be necessary to define the two historic towns as special urban conservation zones, within specific boundaries. The protection of the two areas will have to cover regulations for buildings of different categories, from historic and traditional buildings to recent and future infill projects, public spaces, economic development, traffic and parking, municipal services and infrastructure.

The challenge will be to propose a legal framework and management systems that can cover all these aspects of community development, and ensure that urban conservation considerations *will have the priority in all fields*.

The proposals for legal reform and improved management will therefore have to go beyond conventional urban conservation, and include a number of public and private stakeholders in the two communities, such as but not limited to several ministries, the municipalities and the Municipal Councils.

It will be essential to supplement reform in the "top-down" legal framework for heritage protection, governmental management structures and public funding with incentives and legislation for "bottom-up" local participation in the regeneration process.

The traditional urban communities of Manama and Muharraq were developed with participation from the private sector, government and religious institutions. Families and small businesses have during the last decades to a large extent left the traditional neighbourhoods for the suburbs and other modern developments. A revitalization of the two historic centers will necessarily involve the return of traditional stakeholders, and inclusion of new segments of Bahraini society as residents and investors in the two communities.

Even if government implementation of a coherent legal system for protection of the two future urban conservation zones will be essential to prevent further destruction and

inappropriate interventions, the sustainable economic regeneration and rehabilitation of the communities will depend on the active participation of the private sector and local NGOs. A program for regeneration will require legal reform and incentives in many fields.

1.2. Summary of activities:

November 9 - November 18.

The first two days of my stay in Bahrain were primarily used for extensive walking tours of Manama and Muharraq with the project coordinator, who already knew the cities from an earlier visit. Our focus during the visits was on identifying urgent and long term needs for an improved legal framework and management structure, based on the current situation regarding maintenance of historic buildings, urban infrastructure and municipal services.

The week before the charrette (held November 19 - 23) I was based at the MOMAA, and worked closely with the project coordinator in the preparations for the charrette. I have experience in the planning and management of charrettes, and contributed to the planning regarding invitations, program, participation of local stakeholders, presentations, etc. I went to the charrette venue for discussions on practical issues with staff at the Municipal Training Center.

I also participated in several meetings with the project director and staff at the Research and Study Section, and in a briefing with Mr. Mohammed Abdulaleem Abu Alroos, the Legal Advisor for the Minister of Municipalities and Agricultural Affairs. Additional site visits and meetings with selected officials and citizens were also arranged (see the report on meetings and tours from the project coordinator)

I prepared a 15 minute power point presentation for the Opening Ceremony of the charrette on November 19, with special focus on international networks for heritage protection and traditional culture, and on the charrette process as a tool for planning and public participation. I briefly presented charrettes I have organized or attended in India, Romania, USA and Norway.

At the request of the project director, I developed parts of my power point presentation into a small exhibition in the lobby of the charrette venue, with translations of the captions to Arabic.

I also prepared distribution of selected international documents regarding cultural heritage protection and the charrette process, for distribution to the participants.

Charrette, November 19 - 23

On Day 1 of the Charrette, I organized and led the first legal session, with 20-30 participants, in addition to the power-point presentation during the Opening Ceremony.

Day 2, I participated in a tour of selected buildings and institutions in Manama, organized with the assistance of Mr. Shamlan, member of the Manama Council, and other participants in the legal workshop. There were 15 participants. We visited a school, a crafts center, a typical old family house inhabited by elderly family members only, and in need of renovation (Bani Radi House), the souq area, a mosque, the La Fontaine building, and the Bay al-Shaykh Bin Salman building. The tour was very useful for establishing an active collaboration with key members of the legal workshop, and for discussing on site relevant legal issues, i.e. complicated ownership structures, and the lack of enforcement of building regulations.

Day 3 and Day 4, I was responsible for the second and 3rd legal workshops, with 20 - 25 participants. I also participated in other workshops (Financial, Zoning Codes and Building Regulations, Owners and Tenants), emphasizing the integrated approach of the project

On Day 5, the legal and coding workshops were combined into a final session of the charrette, co-chaired by the project coordinator and myself.

Throughout the five days, I offered my assistance on a number of practical issues regarding the running of the charrette.

I also participated in daily morning and afternoon coordination and findings meetings with the consultants, project coordinator and project director.

November 25 - 30:

During this period I participated in several meetings and briefings, including:

- SOM and Atkins regarding the master-plan for Bahrain,
- The Sheikh Ibrahim Bin Mohammed Al-Khalifa Center for Culture and Research,
- The MOMAA Planning Department and other officials.
- UNDP

Additional site visits together with other consultants were conducted.

I then began the process of summing up the outcome of the charrette, communicated with other consultants on their initial recommendations and consequences for the legal proposals, and made plans for follow-up activities in Bahrain until my departure December 7.

December 1 - 7:

During the final week of my stay in Bahrain, I developed alternative draft proposals for legal reform and improved management of the heritage sector and the future cultural heritage zones. I had additional meetings with legal consultants in MOMAA, and with other legal practitioners. My initial proposals are to be circulated by the project director for comments

from selected Bahraini officials.

Based on these findings, the initial reports from the other consultants and suggestions from the project coordinator and project director, I have during December and January revised the report.

1.3. Summary of the outcome of the Legal Workshops:

The four legal workshops had the character of open sessions with a large number of participants from different professions, including civil servants, politicians, architects, preservationists and other practitioners, and private sector representatives.

To my knowledge, no Bahrainis with an education and profession in law participated in the workshops (several were invited).

The structure of workshops made it unrealistic to go into detailed discussions on legal technicalities and interpretations of existing laws. The focus had to be on the participants' experience of shortcomings in the existing legal framework, and on their proposals for issues to be solved in the development of proposals for new legal instruments and an improved management of the relevant public sectors.

Normally, a charrette will have a limited number of public meetings and brainstorming sessions. The rest of the time, the expert consultants will work intensively to develop proposals into an agreed plan for future action. The plan will be presented in the final session.

The November 19-23 charrette was based on an alternative model, mainly due to the complicated issues involved. The charrette was a five day brainstorming session, with open workshops and public participation all day (except for the consultants' morning and afternoon briefings).

In light of the many-faceted and complicated project, this model was necessary and proved successful, considering the restrictions imposed

It was however impossible to develop the large number of proposals and issues into drafts for new legal documents during this intense five day arena for public participation.

The legal workshops made significant progress in clarifying the important challenges in legal reform, but it was unrealistic to present draft legislation for discussion during the charrette, even if this was requested by some participants.

Draft legal documents and proposals for a future management structure will be developed during the first week of December, and circulated to the project team and key officials,

experts and workshop participants for comments.

Comprehensive proposals, coordinated with the other consultants, will be presented for the January public presentations in Manama and Muharraq.

2.0 Legal framework for protection of urban cultural heritage: preliminary findings

2.1. Existing laws and regulations.

Existing laws and regulations of importance for the two communities and proposals for future reform include:

a) Decree Law No. (11) of 1995 Concerning the Protection of Antiquities.

This law is administered by the Ministry of Information. As of today, only approx. 5 buildings in Bahrain are protected by this law.

An unofficial translation to English is available, see attachment. Some of the most important articles are quoted here:

Article 1: “The Ministry of Information is the concerned authority in charge of supervising all matters related to antiquities, particularly conserving and protecting them in its museums, warehouses, sites and archeological and historical places. It is to undertake in the exploration of antiquities found in the ground of Bahrain and its territorial sea. The ministry alone shall be responsible for deciding the archeological and historical nature of things, sites and buildings, and determine the importance of every monument, and decide what monuments should be registered in accordance with the provisions of this law.”

Article 2: “Anything passed on from civilizations or left over by previous generations explored or discovered whether that be a building or a moveable object relating to the arts, sciences or literature or ethics or beliefs or daily or public events or anything that is at least 50 years of age that has an artistic or historical value is considered a monument.”

>From Article 3: “Monuments are of two types:

(i) Immoveable Monuments:

These are antiquities attached to the ground such as archeological mounds, remains of settlements and burial grounds, fortresses and bastions, historical houses and buildings, pools and qanats, religious buildings such as temples, mosques and others whether on ground or beneath it or in the territorial sea.”

b) Decree Law No. (2) of 1994, on Planning, supplemented with regulations in Decree No. (1) of 1994

Under the MOMAA Planning Department.

Regulates planning, zoning etc in all cities and villages of Bahrain. Covers social, economic and environmental needs. The law has no regulations specific for cultural heritage.

The law is in Arabic language only.

c) Act No. (35) 2001, The Municipalities Act.

Regulates the responsibilities of the municipalities and the Councils. English translation available.

d) Law No. (27) 2005, on Building.

Under the MOMAA, administered by the municipalities.

Covers all of Bahrain and has regulations on how to build. Article no. 97 regulates special areas and projects, and can be of relevance for future cultural heritage zones. Special projects or areas can be approved by the Planning Dept. and be granted exceptions from ordinary regulations, if approved by a Committee (not yet established).

The law is available in Arabic language only. However, we have on November 30 received translations of articles 96, 97, 98, 99 and 100, regarding Areas of Special Constructional Character, as these articles can be of relevance for projects regarding important heritage sites, buildings and areas.

e) Court orders for demolition of unsafe buildings.

Laws regulating the private sector will also be of importance:

f) Declaration No. (9) 2004 (?), concerning shared ownership of buildings (typically apartment buildings).

g) Laws for inheritance and wills (relevant to solve problems regarding shared ownership of traditional buildings)

h) Regulations in Commercial Law for family firms (to offer families a more efficient legal instrument for the management, maintenance and restoration of traditional houses)

2.2. Alternatives for the future legal framework for protection of traditional buildings and Urban Conservation Zones.

In their initial progress reports from the project, the other consultants have defined problems and proposed actions and programs with implications for the legal and administrative

framework. Their recommendations will have to be the basis for many of the proposals for legal reform.

See for example:

- Progress Report from Daniele Pini, with proposals for urban culture heritage zones within defined perimeters, and for improved planning, building permit and management procedures.
- Progress Report from Alaa El-Habashi, with proposals for introduction of codes to prevent inappropriate interventions to traditional buildings, and for improvement of the infrastructure of the old towns.
- Progress Report from Donovan Rypkema, with a number of proposals for legal and administrative reform to support economic regeneration in the old urban areas.

2.2.1. Alternative A: Use existing laws.

It might be possible to allow the existing Law of the Antiquities to cover a large number of historic and traditional buildings, not just a few buildings of exceptional value for Bahrain. Responsibility would remain in the Ministry of Information.

The Urban Conservation Zones and the needs for integrated community development within the zones would have to be covered by other existing laws, administered by other ministries, mostly MOMAA.

The Urban Conservation Zones in Manama and Muharraq could be defined by the MOMAA Planning Dept. as Special Zones, according to Art. 97 of the Building Law, No. (27) 2005.

Additional new regulations necessary for improved institutional structure, management and financing of regeneration programs could come in the form of Resolutions from HUDC. (See 2.4.8, Alternatives H and I, the private sector models).

2.2.2. Alternative B: A new law for the protection and development of Urban Conservation Zones.

A new law could give authority to a ministry for the implementation. However, the procedure for approval of new laws by the National Assembly (parliament) is complicated and time-consuming (several years).

The proposal and draft for a new law would have to be made by a minister, based on a draft prepared by legal advisors, and submitted to the Prime minister. The final text will be drafted by the Cabinet's Office of Legal Affairs. The legal office will also assess the proposal for any conflicts with existing laws.

If the Council of Ministers (government) supports the proposal, the King will give the final approval, in some cases after submission to the National Assembly.

The procedure to change an existing law could be faster.

Comments:

A new law would have to be supplemented by other immediate and short-term measures, for example a freeze on all demolitions and building permits in the two future Urban Conservation Zones. According to Mr. Shamlan, member of the Manama Council, The municipal councils could impose a freeze, by the authority granted to them in the Municipalities Act.

There is an urgent need to introduce an improved legal protection of traditional buildings in Manama and Muharraq, and to wait several years for a new law would probably mean the loss of a large number of buildings by demolition or neglect during that period.2.2.3.

2.2.3. Alternative C: A Decree regarding the definition and protection of traditional buildings, and for the definition and management of special Urban Conservation Zones in Manama and Muharraq.

A Decree could also be used as the legal framework to establish Urban Conservation Zones in other towns and villages later.

A Decree has the force of law, and can be officially approved in a much shorter time than a law (one year has been suggested).

The Minister decides if a proposal for new legislation should have the form of Law or Decree. The Ministry's legal advisor will prepare the draft proposal.

If other ministries will have to implement the new Decree, they should be consulted. A committee could be established with representatives from the ministries.

The King or the Prime Minister will give the final approval of a Decree.

Comments:

There seems to be a general agreement that a Decree will be sufficient to create the legal framework needed for the protection of traditional buildings and to establish a future integrated management structure for the Urban Conservation Zones, based on a priority for cultural heritage considerations.

2.2.4. Recommendation:

It is recommended that the MOMAA initiates a process for the introduction of a new Decree, with a set of codes attached, to establish and manage Urban Conservation Zones in Manama and Muharraq.

In collaboration with HUDC, an ad-hoc committee with representatives from other involved ministries (Information, Works and Housing, and others) should be established during the process of enacting of the Decree to prevent or resolve possible conflicts between the proposed Decree and existing laws.

2.2.5. Proposals for additional legal reform in the private sector.

In his report, the economics consultant, Donovan Rypkema, has proposed a number of incentives and reforms that will require changes or additions to existing laws and regulations, often in combination with government incentives or disincentives:

- Regulation of overcrowding of traditional buildings.
- Fee waiver for traditional houses in neighborhood.
- Government first right of refusal to purchase traditional houses in urban conservation zones.
- Two year freeze on demolition.
- Land swops to consolidate ownership.
- Step-down rent subsidy for young couples.
- Specialized loan programs for rehabilitation.
- Zone for mixed use, especially live/work.
- Architectural salvage regulation.
- Parking permits for residents only.
- Shared Equity Investment.
- Earmark fees generated from area for reinvestment in area.
- Bahraini Heritage Endowment.

The implementation of some of these strategies will require changes in existing laws, or new legislation. This process could in some cases take several years. Other strategies and

proposals could probably be implemented with less extensive adjustments to current regulation.

Implementation of these and similar strategies will be essential to mobilize the active involvement of the local community and private sector in the regeneration process, and subsequently reduce the need for government interventions and government funding of restoration work.

2.3. Draft proposal for a Decree on Urban Conservation Zones in Manama and Muharraq.

2.3.1. Existing Draft for a Decree:

The Research and Study section of the ministry's Research and Development department has recently produced a draft for a Declaration to supplement the existing Decree Law No. (11) of 1995 Concerning the Protection of Antiquities. The draft is still to be considered an internal working document in the Section. See attachment in Arabic.

A translation of the document to English has been requested, and was received November 30. The draft should be studied closely and discussed with staff at the section.

The draft is developed from proposals from Manar Mohaamed Sirriyeh from the section's staff, and her initial proposals should be considered with other suggestions for improved legislation from participants at the charrette.

It is my understanding that the proposal mainly covers definitions and priorities regarding the protection traditional buildings and urban structures, not additional legal reforms and administrative coordination needed for an integrated development of future Urban Conservation Zones in Manama and Muharraq (infrastructure, social issues, economic development, etc).

Elements of the existing draft should be included in a more comprehensive future draft Declaration.

2.3.2. Elements of a New Decree.

A Decree on Urban Conservation Zones should include but not be limited to:

- 1) The purpose of the Decree. This could include: protection of the cultural heritage, including traditional buildings and the urban fabric, to improve the quality of life of the citizens of the zones, to improve infrastructure and municipal services, to encourage economic development in the areas, and to encourage public participation in the sustainable development of the communities).
- 2) Definitions of the zones (Manama and Muharraq).

- 3) Definitions of traditional buildings and urban structures.
- 4) Relationship to other laws and regulations.
- 5) Administrative structure (under what ministry and department, steering committee, supervising committee, etc.).
- 6) Collaboration between ministries involved.
- 7) Collaboration with the HUDC.
- 8) Collaboration with the municipalities.
- 9) Collaboration with private sector and NGOs.
- 10) Instruments for implementing the goals.
- 11) Funding of projects and the administration of the zones.
- 12) Codes for:
 - Restoration of historic and traditional buildings (materials, techniques).
 - Protection of urban structure and character.
 - Streets and public spaces.
 - Architectural and urban codes for infill projects and new developments within the Urban Conservation Zones.

2.3.3. Recommendations for legal reform.

Short and medium term legal measures:

A moratorium on demolitions and permits for large developments is imposed by the municipalities for the proposed zones, for the time until the Urban Conservation Zones are defined and a management structure for the zones established.

To implement locally strategies proposed by the consultants (economics, zoning, building etc), and encourage "bottom-up" control and participation, it will be necessary to revise a number of existing private sector laws and regulations.

Long term legal measures:

The Minister of Municipalities and Agricultural Affairs develops a proposal for a Decree regarding the definition and protection of traditional buildings, and for the definition and management of special Urban Conservation Zones in Manama and Muharraq (2.3.3.).

2.4. Future management structure for the integrated development of the Urban Conservation Zones:

Several alternative options have been defined and could be considered for the future management of an integrated urban regeneration program for the two zones:

2.4.1. Alternative A: A sub-committee under HUDC.

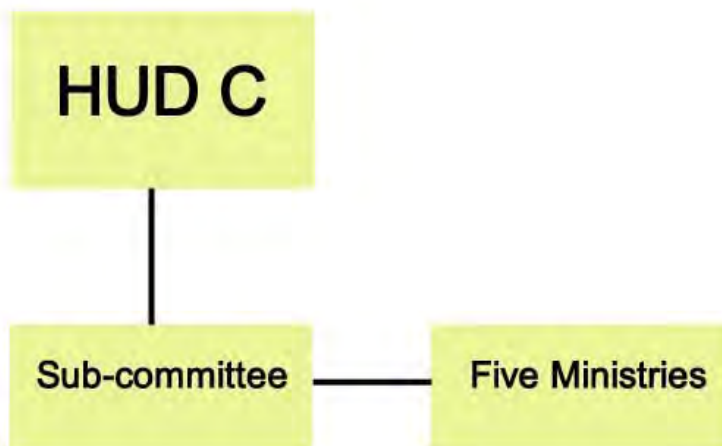
The Housing and Urban Planning Committee is headed by the Crown Prince and has representation from five ministries: Housing and Works, Financial, Information, Electricity and Works, and Municipalities and Agricultural Affairs.

The five governors are also members.

The HUDC has made improvement of urban living conditions a priority, and has given its support to the Capacity Building / Conservation of Traditional Buildings project

HUDC currently has several projects under development; including the the SOM master-plan for Bahrain, and the project "Capacity Building for Enhancement of Urban Governance".

We have been informed that there is a proposal to establish a Technical Committee under the HUDC, for implementation of all the HUDC projects, and with Under-Secretaries of the five ministries as members.



2.4.2. Alternative B: An inter-ministerial Steering Committee, with a mandate from one HUDC, combined with a Technical Committee under the leadership of one Ministry; MOMAA

This administrative model has been introduced for the management and development of the UNDP - MOMAA project for protection and development of the historic centers of Manama and Muharraq. A similar model could also be applied for the long-term implementation of a regeneration program.

We will recommend to include representatives of the municipalities or municipal Councils of Manama and Muharraq in the Technical Committee.

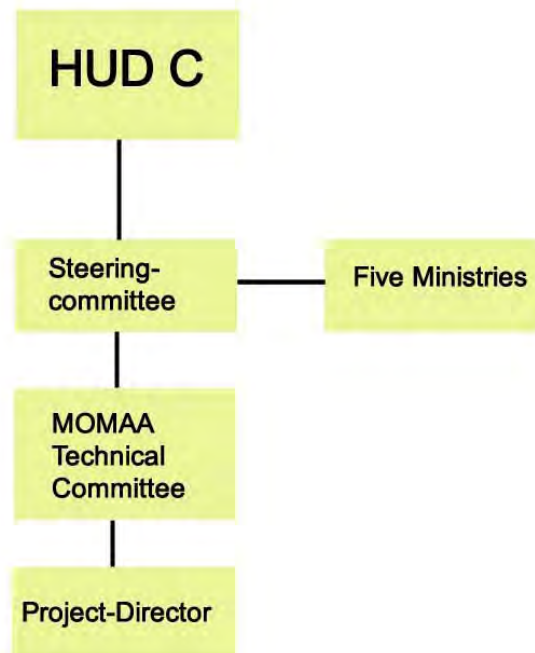
Draft proposal for an institutional structure:

The project will be executed by the Ministry of..... Other agencies may be utilized in implementing agencies for supporting execution of the project. The institutional management of the project will be composed of two layers:

- a) A Steering Committee (SC) will be headed by an Under-Secretary of the Ministry of....., having senior ranking officials from the other Ministries to oversee and support the implementation plan of the project. The SC will meet times during the year.
- b) A Technical Committee (TC) composed of representatives of the Ministries of, and the municipalities / Councils of Manama and Muharraq, will be headed by....., to conduct the technical work in collaboration with other agencies. .

A Project Director, assigned by the Minister of, will supervise and coordinate the daily work of the project.

It will have to be decided which Ministry should have responsibility for the future execution of the regeneration program. Our preliminary recommendation will be to assign the program to the MOMAA.



2.4.3. Alternative C: A Supervising Committee, with a mandate from HUDC, managed by one ministry, with participation from several ministries, departments and municipalities.

With a clear mandate from HUDC regarding priority for heritage preservation and regeneration in the two zones, and with participation from several ministries, it might not be necessary to establish a two layer institutional structure are proposed in Alternative A.

A single Supervising Committee under one ministry could be responsible for the coordination of programs and initiatives. The Committee could be headed by an Under-Secretary from the ministry assigned to the project, or by a senior staff member appointed by him.

The Director of the project and the Supervising committee could work in close collaboration with the proposed HUDC Technical Committee, see 2.4.1. above.

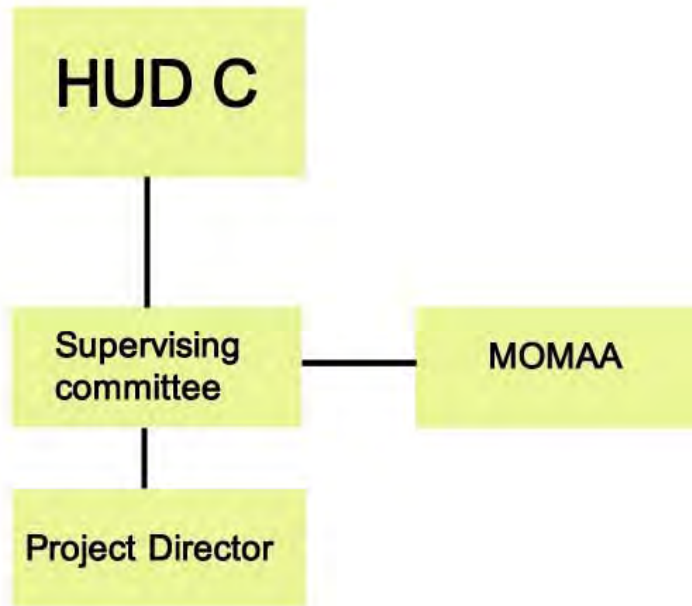
Draft proposal for an institutional structure:

The project will be executed by the Ministry of..... Other agencies may be utilized in implementing agencies for supporting execution of the project.

The institutional structure of the project will be based on an Supervising / Technical committee, headed by an Under-Secretary of the Ministry of..... and composed of representatives of the Ministries of, and the municipalities / Councils of Manama and Muharraq, to conduct the administrative and technical work in collaboration with other agencies.

A Project Director, assigned by the Minister of, will supervise and coordinate the daily work of the project.

It will have to be decided which Ministry should have responsibility for the committee and the execution of the regeneration program. Our preliminary recommendation will be to assign the program to the MOMAA.



2.4.4. Alternative D: A new Ministry for Culture, Cultural Heritage and Urban Conservation Zones.

Establishing a new Ministry for cultural heritage development and protection of the Urban Conservation Zones would send a strong message from the government and the National Assembly. If a new ministry is given the resources and mandate needed, Bahrain would have a powerful institutional framework for the development and implementation of regeneration programs.

A new ministry should have the responsibility for implementation of a general cultural heritage policy for Bahrain, as described in item (e) below for an institutional model based on a Directorate. In addition, the ministry could have responsibility for an integrated community development of the two special Urban Conservation Zones. Under Alternative D, responsibility for protection of certain heritage objects, according to Decree Law No. (11) of 1995 Concerning the Protection of Antiquities, would have to be transferred from the Ministry of Information to the new Ministry. This would require a change in Article 1 of the Law.

In setting up the new Ministry, the Government and National Assembly would also have to resolve any other conflict with existing laws and institutional structures, especially regarding the responsibilities of MOMAA and the municipalities

2.4.5. Alternative E: A new Directorate for Cultural Heritage, under the Ministry of Information or MOMAA.

The Ministry of Information today has a Culture and National Heritage Directorate, with responsibility for specific historic buildings and archeological finds protected by the law of Antiquities.

The Directorate's responsibility could be limited to cultural heritage (not culture in general), but expanded to cover additional aspects of cultural heritage, including all traditional buildings and the traditional urban fabric of Manama and Muharaq.

Several countries have established Directorates for Cultural Heritage, under the authority of an existing Ministry. As an executive agency for the Ministry, the directorate will be responsible for the formulation and execution of cultural heritage management policies. The effective and responsible management of these resources would have to be shared among many government agencies.

The Directorate could provide cultural heritage management expertise and technical advice to existing ministries for use in the development of policies for the integration of cultural heritage as an integral aspect of the overall government policy.

A Directorate could also support the participation of municipalities and municipal councils in cultural heritage management.

A Directorate could also establish and maintain close contacts with international cultural heritage institutions, and represent Bahrain in relevant international organs. The Directorate could have the responsibility to guarantee the implementation of international binding laws and conventions regarding the protection of cultural heritage.

Regarding the economic and social development of the Urban Conservation Zones, the Directorate for Cultural Heritage would have to work in close collaboration with ministries, government agencies and municipalities.

If the Directorate is under the authority of a Ministry other than the Ministry of Information, responsibility for protection of certain heritage objects, according Law No. (11) of 1995 Concerning the Protection of Antiquities, would have to be transferred from the Ministry of Information to the new Ministry. This would require a change in Article 1 of the law.

In setting up the Directorate, the Government and National Assembly would also have to resolve any other conflict with existing laws and institutional structures.

Comment:

In the Law or Decree establishing the Directorate, it will be necessary to give the Directorate the authority to order other Ministries and agencies to carry out work related to the protection of cultural heritage objects, and to put projects in support of heritage protection on top of their priority lists.

If the Directorate's responsibilities are limited to Cultural Heritage, it will be difficult for the Directorate to be fully involved in integrated regeneration programs for the special Urban Conservation Zones proposed for Manama and Muharraq. These programs will, in addition to protection of traditional buildings and the urban structure, have to include social and economic dimensions, planning, building, and improvement of the technical infrastructure of the communities (traffic, water, electricity, municipal services, etc.)

Alternatives F and G below could address these challenges:



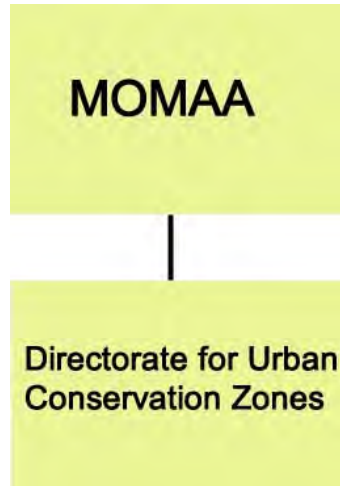
2.4.6: Alternative F: A new Directorate for the management of the Urban Zones, under MOMAA

Alternatively, a new Directorate, under MOMAA could have responsibility for the integrated community development of the two Urban Conservation Zones, but not historic buildings (Law of antiquities)

The Directorate would be responsible for the coordination of all initiatives for the regeneration and protection of the zones, and ensure that heritage considerations are given first priority from all involved government and municipal agencies.

The regeneration programs should, in addition to protection of traditional buildings and the urban structure, include social and economic dimensions, planning, building, and improvement of the technical infrastructure of the communities (traffic, water, electricity, municipal services, etc.).

With this model, responsibility for historic buildings, as defined by the Law of Antiquities, would remain with the Ministry of Information.



2.4.7. Alternative G: A new Directorate for Cultural Heritage and the Urban Conservation Zones, under MOMAA.

The Ministry of Information today has a Culture and National Heritage Directorate, with responsibility for historic buildings and archeological finds protected by the law of Antiquities.

If a new directorate should have responsibility also for the Urban Conservation Zones, a transferal of responsibility for the law of Antiquities to MOMAA would have to be considered and probably implemented. The integrated conservation and development of the zones will involve a number of tasks under the responsibility of the municipalities and MOMAA. The new Directorate should therefore be part of MOMAA.

The tasks of the Directorate would to a large extent be identical to the new Ministry discussed above in Alternative D.



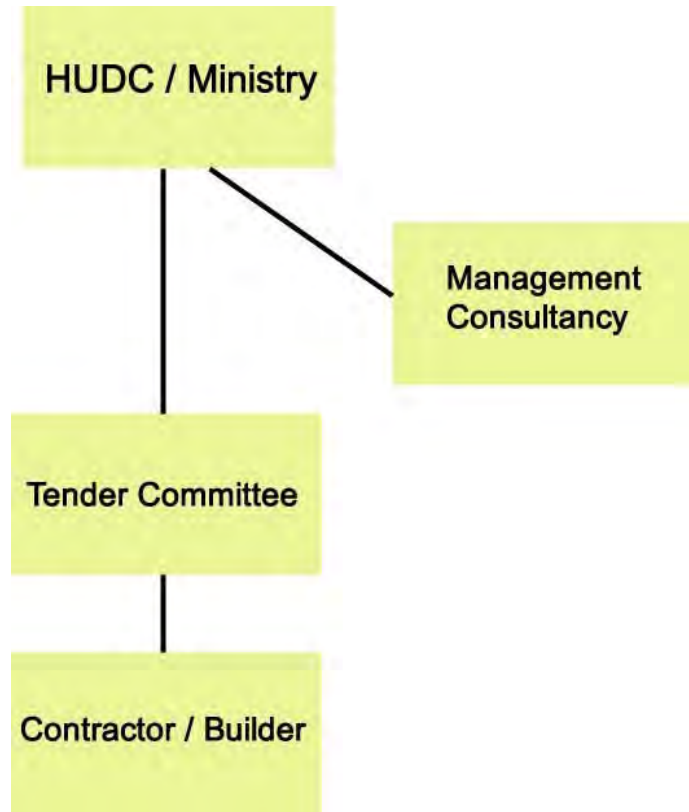
2.4.8: Alternative H: Private Sector Model: A management consultancy contract with HUDC.

It has been proposed to increase efficiency in the implementation of projects for the zones by developing a management model based on collaboration between the HUDC and the private sector.

One alternative would be a management / consultancy contract between HUDC and a firm established for the implementation of the programs. This firm could be 100 % private or a “joint venture” with private/government ownership.

By tender (government tender committee), one firm is selected to plan and manage a specific number of interventions in the conservation zones. A total budget for the firm’s management services, to be funded by HUDC, is specified in the contract.

The firm will develop the projects, to the point of preparing tender packages for builders and contractors. HUDC or an assigned Ministry will be the contract partner, and conduct the tender process as well as the supervision of construction. . It will be necessary to apply the government routines for tender for all contracts.



2.4.9: Alternative I: Private sector model: A management consultancy, design and build contract with HUDC

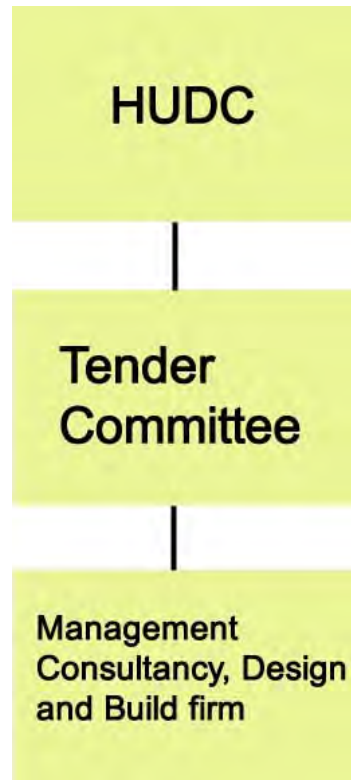
An alternative private sector model: A management consultancy, design and build firm is established for the implementation of the programs. This firm could be 100 % private or a “joint venture” with private/government ownership.

By tender (government tender committee), one firm is selected to plan and build a specific number of interventions in the conservation zones. A total budget, to be funded by HUDC, is specified in the contract.

The firm will be responsible for the design and development of the project, preparation of tender packages, conducting the tendering process, awarding contracts and supervising the construction.

It will not be necessary to apply the government routines for tender.

This would be the least bureaucratic model.



2.5. Recommendations for management reform:

The urgent need for establishment of urban conservation zones and implementation of programs for the protection of threatened buildings and areas in Manama and Muharraq will make it necessary for the government of Bahrain to move forward quickly.

Establishment of a new Ministry or Directorate would require a complicated administrative and political planning process. It could be necessary for the Government and HUDC to plan for differentiated immediate, short-term and long-term solutions.

2.5.1. Short- and medium term management measures:

Two alternative models presented in this document for management of the regeneration process are recommended for further assessment; a government and a private sector model. One of the models should be selected for implementation as soon as possible.

Government Model (2.4.3. Alternative C):

The Government of Bahrain and the HUDC starts a 3-year project under the authority of MOMAA for the development and implementation of a program for protection of the traditional buildings and urban structure of Manama and Muharraq, and a regeneration of the two communities.

A Project Director is appointed, with good authority to implement the program and instruct other agencies, ministries and municipalities involved in the project.

A Supervising Committee with members from the involved ministries at director general level is organized by MOMAA.

The Project Director works in close collaboration with the HUDC Technical Committee, if such a committee is established.

A priority task for the Director will be to develop a proposal for the Urban Conservation Zones in Manama and Muharrac, and the necessary codes for the implementation of a conservation policy.

The Director could also develop programs for:

- The economic regeneration of the zones.
- Improved infrastructure in the zones.
- Improved municipal services in the zones.
- Public participation.
- Education and public awareness.
- Collaboration with municipalities and government agencies.
- Privatization or revised organization of services today provided by municipalities and government agencies.
- New sources of income and funding for services and projects.

Private Sector Model (2.4.9; Alternative I)

For immediate measures to protect the built heritage of Manama and Muharrac and implementation of pilot projects in the period between the completion of the UNDP / MOMAA project and the implementation of new long-term legal and management structures, it is recommended to develop one of the private sector models described in 2.4.

To minimize the need for new bureaucratic structures, utilize national and international private sector competence and increase efficiency in the implementation of the programs, the private sector model described above under 2.4.9; Alternative I is recommended; a management consultancy, design and build contract with a firm established for the implementation of the programs.

The Government and HUDC should provide the necessary funding for the implementation of the programs.

A Steering Committee under the authority of HUDC (see 2.4.1.) , and with a clear mandate from the HUDC for the implementation of the regeneration programs, could be the government contract partner.

According to Mr. Mohammed Abdulaleem Abu Alroos, Legal Advisor for the Minister for Municipalities and Agriculture Affairs, this private sector structure could be established by a resolution from the HUDC. A Law or a Decree will not be necessary.

Funding for the programs could according to him also be made available by a Resolution.

2.5.2: Long-term management measures.

The proposed short-term measures, for example a private sector model, could prove to be the most efficient instrument even for the long-term protection and development of the two zones.

Parallel to the implementation of the short- and medium term measures and reforms, the government of Bahrain should also consider one of the following measures for the long-term management of the proposed Urban Conservation Zones and the cultural heritage of the country.

1) A new Ministry for Culture, Cultural Heritage and the Urban Conservation Zones should be considered as a long-term solution (see 2.4.4. Alternative D).

2) A Directorate for the management of the Urban Conservation Zones, under the authority of the MOMAA, could be introduced as an alternative, maybe on a shorter term, and still have the necessary authority for an efficient implementation of a heritage-based development of the two zones (see alternative 2.4.6. Alternative F).

If established, a Directorate should have responsibility for the cultural heritage management for all Bahrain. The available human resources with relevant expertise in heritage protection are limited. The two proposed zones could be models for future establishment of new conservation zones in other parts of Bahrain (see alternative 2.4.5. Alternative E).

Any conflicts with existing administrative structures would have to be resolved in the Declaration establishing the Ministry or the Directorate.

3.0. Administrative Resources:

It is to be discussed to what extent a Steering, Supervising or Technical committee or a new Directorate should have its own staff of experts to cover various fields of community development, management and preservation, or if the new administrative body should rely on existing expertise in Ministries, Departments and Municipalities.

If the preferred short- or long-term model will be a Supervising or Steering Committee under the leadership of MOMAA to coordinate existing programs and responsibilities of several ministries, departments and municipalities, the committee should have a small staff of experts for coordination of input from all involved agencies and stakeholders.

4.0. Public participation and awareness:

Participation of citizens, religious organizations, the private sector, local business association, citizen's organizations and NGOs will be essential to create support for the integrated development of the zones and to encourage the active participation of all stakeholders.

Organization of local participation should be the responsibility of the two municipalities and municipal Councils.

The Councils should invite representatives of religious organizations, chambers of commerce, local business associations, and other community organizations and NGOs to make proposals, discuss priorities and participate actively in the implementation of the projects for heritage protection and community development in the special Urban Conservation Zones.

The Ministry, Directorate or Committee responsible for the execution of the programs should start national and local campaigns to increase public awareness about Bahrain's unique cultural heritage and the need to protect and develop heritage as living traditions. The campaign should be combined with an educational program for key staff in municipal and government agencies with responsibility for implementation of the programs.

Without public support and general consensus on the importance of cultural heritage as an integrated and important dimension of the development of Bahrain, any legal or institutional reform could fail to achieve its goals.

Manama, November - December 2005

Oslo, 25 January 2006.

Audun Engh
Legal Consultant.



United Nations
Development Program



Kingdom of Bahrain



Ministry of Municipalities
and Agriculture Affairs

مشروع

بناء القدرات لتحسين الإدارة الحضرية
(الحفاظ على المناطق والمباني التراثية)
المرحلة الأولى: الاستراتيجيات والسياسات
2

**Capacity-Building for Enhancement
Of Urban Governance
(Conservation Urban and Architectural Heritage)**

Stage One: Strategies & Policies

**Legal Consultant Report 2
Dr. Salih Ibrahim Ahmad
College of Law, University of Bahrain-Bahrain**

February 2006

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