Risk Management Strategy for Protecting Cultural Heritage: Case Study of the Institute of Egypt

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Abstract—Egypt has a countless heritage of mansions, castles, cities, towns, villages, industrial and manufacturing sites. This richness of heritage provides endless and matchless prospects for culture. Despite being famous worldwide, Egypt’s heritage still is in constant need of protection. Political conflicts and religious revolutions form a direct threat to buildings in various areas, historic, archaeological sites, and religious monuments. Egypt has witnessed two revolutions in less than 60 years; both had an impact on its architectural heritage. In this paper, the authors aim to review legal and policy framework to protect the cultural heritage and present the risk management strategy for cultural heritage in conflict. Through a review of selected international models of devastated architectural heritage in conflict zones and highlighting some of their changes, we can learn from the experiences of other countries to assist towards the development of a methodology to halt the plundering of architectural heritage. Finally, the paper makes an effort to enhance the formulation of a risk management strategy for protection and conservation of cultural heritage, through which to end the plundering of Egypt’s architectural legacy in the Egyptian community (revolutions, 1952 and 2011); and by presenting to its surrounding community the benefits derived from maintaining it.

Keywords—Cultural heritage, legal regulation, risk management, preservation.

I. INTRODUCTION

CULTURAL heritage forms a deep and fundamental part of the identity of peoples and nations. It is expressed, whether be it tangible or intangible, in social customs, traditions and rituals, and unique physical objects, monuments, historical places and archeological sites. To visit these places in times of peace validates humanity’s shared civilization; however, in times of conflict, it is often damaged and hardest to repair.

Cultural heritage has been protected by a number of charters, treaties, concords and edicts. These are essentially legal tools developed by the international community and adopted by almost all countries; prior to their application in any country, must be ratified locally by each of its signatories [1].

Egypt has witnessed two revolutions in less than 60 years; both had an impact on its architectural heritage. Following the first; (July 1952 revolution) the government introduced several of incorrect statutes to regulate Urban Egyptian Heritage; one of which was the conversion of many of heritage buildings to become government and/or school buildings. During the second revolution (Arab Spring of January 2011), many heritage buildings were destroyed due to the absence of security.

II. METHODOLOGY

In order to achieve the postulated aim, this paper traces the following steps:

- Defining Issues and challenges
- Review Legal and Policy Framework to protect the cultural heritage.
- Present the risk management strategy for cultural heritage
- Review selected international models of devastated architectural heritage in conflict
- Development of a strategy to stop the plundering of architectural heritage.

III. ISSUES AND CHALLENGES

A. Cultural Heritage

Cultural Heritage is an expression of the means of living developed by a community and turned over from generation to generation as shown in Fig. 1, including customs, practices, values, places; objects and artistic expressions [2].

B. Different Types of Cultural Heritage

Cultural Heritage can be differentiated into:

- Intangible
- Tangible
- Built Environment (buildings, townscapes, Archaeological remains),
- Natural Environment (agricultural heritage, landscapes, coasts, shorelines),
- Artifacts (documents, objects, pictures, books).

IV. CULTURAL HERITAGE AND ITS CHALLENGES

Egypt’s architectural heritage is an unequaled resource, an irreplaceable expression of the wealth and diversity of the country’s past. Through the real quality, continued existence, and familiarity of the built heritage. Structures and places can, over time, acquire their character and unique interest. To enjoy this inheritance, it is necessary to ensure it is protected from harm or loss in order to be passed on to our successors [3].

Appealing maintenance, adaptation, and re-use can allow the architectural heritage to give aesthetic, environmental and economic benefits where the original use may not be possible. The creative challenge is to find suitable ways to fulfill the requirements of a structure to be safe, long-lasting and useful.
on the one hand, and while on the other, it is to maintain its character and unique interest [2].

The conservation-minded approach requires changing norms about existing buildings and thinking carefully about how to use it or improve them to protect and focus on their qualities. Regarding the process of designing for re-use, emphasis should be put on recognizing and holding on to the inherent character of the structure and its physical and aesthetic strengths as early as possible. Sometimes old buildings can perform better than new ones in terms of the durability and flexibility of their materials or adaptability in use. The most suitable interventions tend to be low key and also financially economical. Specialized conservation techniques to protect the existence of structures usually depend on understanding the original constructional methods and materials.

Structures act as a historic sign just like written documents and help us to understand the past conditions and society developments. Social history is discovered by structures such as market houses, stables, public water-pumps and servants’ staircases in 18th century houses. There are events of the distant past and personal histories that leave their mark on places. They can be mansions, grand schemes of town planning or even bullet holes. The evidence which is presented by a remaining structure must be carefully examined for clues to the understanding of the building themselves [1].

The countless variety of the existing built environment is available to us for inspiration and precedent. Decisions that are made to the siting and construction of buildings are a result of practical applied knowledge. They also represent the skill and insight of their creators. Historic villages, towns, and cities can be living urban environments of high quality to the advantage of their users. It should protect them wherever they exist.

Cultural tourism is growing and playing a great role in the tourist economy. The conservation of our built environment leads to the attractiveness of our country as a place that can adore and invite other people to visit. The advertising of local history for tourism purposes plays a great role in the economy and must be closely tied to a genuine appreciation of the historic environment that is the backdrop for all national and foreign alike visitors [3].

V. LEGAL AND POLICY FRAMEWORK TO PROTECT THE CULTURAL HERITAGE

International charters and conventions have informed government policy and regulations to protect architectural heritage. These documents were mainly formed in the late 20th century and appeared from a sustained trail to articulate, at the international level, principles that would inform decisions about how the cultural value of the built environment is to be conserved. There is a broader set of priorities and values in these principles which are related to social, economic and cultural life. The different charts need all that interventions which respect the historical, physical and aesthetic character and integrity of the cultural property.

A. UNESCO’s Convention

Since 1972, the cultural and natural heritage of the world was begun to conserve by UNESCO through the convention. This convention notes that cultural and natural heritage is increasingly endangered with destruction. Each state party to the convention realizes that the duty of ensuring identification, conservation, protection, presentation and transmission to upcoming generations of this heritage belongs basically to that state. In addition to the Granada Convention (1985) of the European Architectural Heritage which provides:

- The origin for our national commitment to architectural heritage protection.
- The convention is a way of dissemination of conservation
principles, containing a definition of architectural heritage.

- It searches to set a European standard of architectural heritage’s preservation.
- It highlights the importance of ‘handing down to upcoming generations a system of cultural references’.
- It relies for its effectiveness on its signatory countries that implement their own national protective government.

B. The Hague Convention

The Hague Convention of 1899 and the Roerich Pact signed in Washington DC in 1935 were the first great international covenants to create procedures which were aimed to conserve cultural heritage during the conflict. They were followed by the convention of the cultural heritage preservation in the event of war.

The Hague Convention was set at a conference in 1954 under the supports of UNESCO. This Convention acts as a result of the wide-scale destruction of cultural heritage during World War 2 and to ensure that cultural property that is both movable and immovable. Cultural property and organizations were to be saved in armed conflicts provided they were not put to military purposes. The Convention's definition of cultural property including architectural monuments, artworks, books or manuscripts of artistic or historical importance, museums, libraries, archaeological places and historic buildings. In 1977, there were additional protocols related to the protection of international armed conflicts victims which supported to the Geneva Convention. Today, 114 member states out of the 191 United Nations are participants to the Convention.

C. International Initiatives

It is in the framework of international initiatives such as the Granada Convention, that:

- Increasing awareness.
- Increasing protection of the architectural heritage with Ireland legislation.
- Wider recognition of the requirement to protect the built heritage.
- Realizing the social and economic benefits of protecting our common inheritance.
- The place of conservation in policies of sustainable development.

D. The State Responsibility

The state is directly responsible for:

- The attention and care of Egypt’s architectural heritage that is built by governmental departments, offices or agencies, or inherited by them at the founding of the state.
- The government’s policy on architecture needs to accommodate the much, sometimes conflicting, responsibilities in relation to architectural heritage in its own building stock and to develop the conservation strategy where possible.
- The government should start a number of activities in this regard in its policy, to make sure that the state authorities are aware of the historic building stock within their own inventory and have information on formulating a protection strategy [2].

E. The Government Has Taken Important Steps

Towards the conservation of the architectural heritage through the:

- The introduction of comprehensive and organized legislative provisions that are included in the planning code, of which these guidelines form a part.
- These new legislative measures are supported by both architectural heritage advisory service at the national level, and the establishment on a statutory basis of the National Inventory of Architectural Heritage (NIAH).
- Scheme of Grants for protected structures.
- Support for employing the conservation officers by local authorities.

VI. Risk Management Strategy for Cultural Heritage

Dealing with such emergencies need an understanding of the role and use of cultural heritage in conflict (Fig. 2), how to keep and preserve sites and objects, logistics, planning and communication strategies.

Risk management strategy for cultural heritage includes:

- Consideration of powerful threats.
- Developing plans to avoid expected problems arising.
- Mitigating threats wherever it is possible.
- Training staff to be capable of dealing with emergencies and dangers.
- Developing emergency strategies if threats happen.

A. Closedown

The first step is close down (Fig. 3). This is a normal practice recorded in every disaster preparation plan and includes closing an affected or at risk institution or site as soon as possible in case of an emergency. This is to avoid casualties rather than to protect the site, monument or collection, as the iron rule of risk management is to set the interests of human beings as priority. Once the gates are shut and the staff is safe, full attention should be given to secure the holdings [5].

B. Safe Haven

Once the institution is closed, there are several choices to secure the holdings according to how much time is left. One option is to move (some or all of) the collections to a safer...
place outside the institution or even outside the country (Fig. 4). Of course, such an operation takes time and creates powerful new risks.

The objects may be damaged in transit or as a result of improper storage in the new building, which can place the collection at threat of damage from humidity, pests, and etc. This highlights the importance of a solid contingency plan in which an evacuation is anticipated and planned for. Often, a library, archive or museum has enough space in another location to safely store their collection in case of emergency. In all cases, the mistake is usually made of transmitting materials to surroundings that do not meet the minimum preservation standards [5].

C. Safekeeping Within the Walls or Site

In most cases, there will not be enough time to move the collection to a secret location outside of the institution or the country. In the case of a lack of emergency program, often the only way to deal with this difficult situation is to find a solution inside the location or institution itself, because to move sites or monuments is next to impossible. In particular, art objects need great attention as a result of lack of the general safety of a store, and so are the most fragile. Some objects need to be preserved in situ because of their size and cannot usually be moved and vice versa the small objects can be covered up, packed and carried to stores, which can then be secured.

Some museums showed great finesse in preserving and protecting large objects from conflict damage. One such example is the National Museum of Lebanon which used plastic, sand, and concrete to cover their valuable ancient mosaic floors during the civil war, as shown in Fig. 5, in addition to using a wooden frame to cover a big statue located in the entrance hall and turning it into a pillar. The rule which is explored from this example was that the fewer people who know about the object caches, the better it will be [5].

Cultural properties that are at risk from conflict by military occupation or looting may be protected by employing several measures. To start with, if the edges of the site are fenced off and secured. In some cases, it will be possible to work with the occupying force. For example, when Cuidad Perdida in Colombia was occupied by government troops in 2007, no attention was given to the weakness of the archaeological ruins. Finally, the administrator was able to get guidelines issued to the troops on suitable behavior inside the park. Anyway, some parts of the site were destroyed and had to be rebuilt to maintain the strength of the site. Unfortunately, an absence of documentation meant that the reconstructions were not totally accurate. It is useful for such institutions if such guidelines are already prepared to speed up their adoption.

D. Electronic Files

It is normal for being safe to backup the electronic files of cultural institutions (e-catalogues, registration systems, site documentation, and business files) and send them to a server outside the building. It is unfortunate that some institutions keep their electronic data inside the building or site. If danger approaches, it is important to make a backup copy of all electronic files or computer files and send them to a server of the premises that cannot be reached by the conflict [5].

The electronic files are considered as the major source of information in documenting the heritage and importance of the objects in the collection. In addition, a database provides a fundamental tool in tracing stolen parts of a collection if the worst is to happen. Another action or method of storing something for future use is saving the electronic files on an external hard disk drive (HDD) that can be taken off-site. Some of them have a storage space of 4 TB (terabyte) and via USB 3.0 data transfer is easy and fast.

If the internet is available, consider backing up online as much information as possible – although this process is often slow, and will need time to upload.

E. Twinning

If help is required from or offered by various organizations, fragmentation of assistance can lead to duplicated efforts and a lack of information. To avoid that, heritage institutions that are in danger could be linked up with one foreign heritage partner only. This idea has already been practiced by the American Museum organization and Middle East Librarians organization. The familiar work between Twin and Sister Cities is called twinning [5].
VII. REVIEW SELECTED INTERNATIONAL MODELS OF DEVASTATED ARCHITECTURAL HERITAGE IN CONFLICT

A. The National Library, Lebanon

At the beginning of the Civil War (1975-90) the collection of the National Library of Lebanon, built in 1921, was relatively safe though in poor condition. In 1979, the government arranged the evacuation of the whole collection to the UNESCO headquarters in Verdun, France. Later, the 3,200 boxes were returned to Lebanon and stored in Sin al-Fil, a suburb of Beirut. There they lay for 15 years until the 200,000 books and documents were unearthed and protected from appalling climate conditions, and what was left was sent to the better-acclimatized depots of the University of Lebanon, southeast of Beirut (Lebanese National Library Rehabilitation Project). It is not clear why the books were moved from France back to Lebanon.

Since 1920, the National Museum of Lebanon in Beirut was established and maintains the biggest part of the collection of the Antiquities Department. It also contains finds from archaeological sites. The building is located on the corner of a very significant junction of three major arteries that lead into the city.

During the first days of the civil war, as shown in Fig. 6, the manager ordered staff to move all the collections that they had no suitable place for in the warehouses to the Department's stores in other parts of Beirut and some to the Central Bank [6]. Safe-keeping was provided by the French Archaeological Institute in Damascus for the most precious objects, gold, and other major pieces. Other objects were located in the underground chambers of the Crusader Castle in Byblos, north of Beirut. The remaining objects stayed in the museum and were buried later.

B. The Swat Museum, Pakistan

The Swat Valley has been the place of valuable culture throughout the changing perspective of its history. A large number of destroyed sites and memorials convey the art of art and architecture; it was the cradle of the valuable Gandhara civilization. The anthropogenic conflict in the Swat valley was sparked in November 2007 when the Taliban challenged the Pakistan Armed Forces, and resulted in the widespread destruction to buildings and deaths of local people by way of suicide attacks (Figs. 7 and 8), kidnappings and arson. Later in July 2010, it was destroyed by a natural flood disaster.

The Swat Museum is the only platform for saving and preserving these historical artifacts and antiquities. The museum acts as an architectural landmark, having detailed architectural features. Both disasters severely destroyed the rich cultural heritage and public property of Swat – once the valley of peace and a center of great learning, with a 2,000 year-old history, and the place where the glorious civilization of Gandhara flourished. The army evacuated objects and materials such as books, archival records, and the museum collection in a safe, secure manner and then removed all these valuable objects to the Taxila Museum in Islamabad, the capital of Pakistan.

The challenge was how to rehabilitate or rebuild the museum, and for this special target, a number of grantees have so far made contact and offered their financial and technical services. The Italian government confirmed to “rebuild Swat Buddhist Museum and create a school of archaeology there to provide Pakistani archeologists and researchers with the new techniques of excavation and preservation (Fig. 9).

The building of Swat Museum was destroyed partially and showcases were totally destroyed during the conflict. The head of the project and co-director of Istituto Italiano per l'Africa e l'Oriente (ISIAO), has recommended a traditional style of architecture for the reconstruction. In this regard, the cultural park will be a landmark in Swat’s history, and clearly, the archeological sites will be protected there. It will develop tourism and increase public attention about the protection of cultural heritage. Protection should be given to all the adjoining places where archaeological sites stupas are located.
C. The case of Iraqi Libraries

Efforts began four months before the war to save the vast and extremely valuable manuscript collection at the House of Manuscripts and continued right up to the week immediately prior to conflicts in April 2003. In the course of these efforts, all 50,000 manuscripts were taken to an air-raid shelter, while microfilms and CD-ROMs were taken to various undisclosed locations.

These protection methods were undertaken even though the staff did not have official Ministry agreement. Today, the shelter contains nearly 800 steel trunks filled with valuable handwritten books collected in the 1990s from libraries all over the country (Figs. 10 and 11). Thieves have tried to break into the library; however, neighbors were able to keep them away and burned their vehicles.

The US forces who were granted access to the shelter demanded that the treasure be taken to the Iraq Museum. Again when the military vehicles showed up the local crowd prevented them from loading the trunks on to their trucks. Later, the CPA confirmed that their current policy was not to duplicate protection services in situations where local security measures appear to be sufficient [9].

Once the most terrible fighting in Baghdad was over and looting crowds took to the streets, Shiite clerics, helped by local residents, opened the doors of the National Library and loaded their trucks with anything they could lay their hands on. The rescued books were soon accumulated against the wall of the local mosque and guard posts were set up. Some of the collections were kept inside boxes and distributed around Shiite neighborhoods [10]. It is not exactly obvious what has really been saved from the National Library that is because after a few days, the entire library, including all the catalogs, were destroyed by fire (Fig. 12).

VIII. THE CASE STUDY OF INSTITUTE OF EGYPT

The Institute of Egypt was an educational academy established by Napoleon Bonaparte to undertake research during his Egyptian campaign (Figs. 13 and 14). It first met on 24th August 1798, with Gaspard Monge as a president, Bonaparte as vice-president and Joseph Fourier and Costas as secretaries. It had 46 famous scholars, and as with the Institute de France, these were divided into sections as follows:

- 12 members - mathematics section, including Bonaparte himself, Costas, Fourier, Malus, Monge.
- 10 members - physics and natural history section, including Berthollet, Desgenettes, Dolomieu.
- 6 members - political economy section, including Cafarelli, Tallinn.
- 8 members - literature and arts section, including Denon.

The Institute financed the work of scholars and technical professionals of the Commission des Sciences et des Arts. On 22nd November 1799, the Institute decided to collect and publish its scholarly work as the Description of Egypt. The Institute continued till its 47th and last meeting on 21st March 1801.

The Institute of Egypt’s activities restarted in 1836 under the title of The Egyptian Society, with French, German and English scholars continuing the work. The Institute was
transferred to Alexandria in 1859, and its name was changed this time to the Institute Egyptian. The new Institute worked under the auspices of Egypt's viceroy Sa'id Pasha and had many outstanding members, notably German botanist Georg August Schweinfurt, as well as Egyptologists Auguste Mariette and Gaston Maspero. Later members included Ahmed Kamal, Egypt's first native Egyptologist, as well as Ahmad Zaki Pasha, a pioneering philologist.

Since 1880, Cairo recovered the Institute. By royal decree in 1918, the Institute returned to its former name and came directly under the care of the Royal Palace. Since then, some of the Institute’s more recent members include famous scholar Taha Hussein.

The Institute was destroyed by on 17th December 2011 as part of the Egyptian revolution that began in January 2011. Protesters were involved in an exchange of missile fire outside the Shura Council building nearby. A Molotov cocktail thrown by a protester went through one of the windows of the Institut accidentally or deliberately. As a result of the lawless conditions on the streets, firemen attending the blaze arrived at the scene late. However, 30-40,000 works had been saved by protesters and soldiers who rushed into the burning building.

Before the fire, the warehouse had held over 200,000 antique texts, many dating from the Bonaparte era.

It was reported incorrectly that the original manuscript of the 20-volume Description de l’ Égypte (1809–29) was damaged during the conflicts in 2011 (Fig. 15). Most of the original manuscript material for the description resides in the Paris National Library and National Archives.

The international community must work more to communicate the issue and importance of saving cultural heritage during conflicts. Plans should ready before conflicts escalate. The more than 100 countries that have signed the Hague Convention should examine the opportunities of more strenuous enforcement. In the immediate aftermath of conflict, neutral bodies should isolate and protect cultural sites from further destruction. The following table shows the three phases for cultural heritage in post-conflict situations:

### TABLE I

<table>
<thead>
<tr>
<th>Threats and safety features</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are there sprinklers inside the building?</td>
<td>If yes: regular check system</td>
</tr>
<tr>
<td>Are there smoke/heat alarms?</td>
<td>If no: provide</td>
</tr>
<tr>
<td>Are there fire extinguishers?</td>
<td>check fireproof materials</td>
</tr>
<tr>
<td>Are there fireproof materials?</td>
<td>regular check system</td>
</tr>
<tr>
<td>Is the electrical wiring sound?</td>
<td>restore materials away from heating source</td>
</tr>
<tr>
<td>Are historic materials/artifacts stored away from heating sources?</td>
<td>heating source none</td>
</tr>
<tr>
<td>Is the library in a safe location?</td>
<td>check cleaning plan for regular rubbish disposal</td>
</tr>
<tr>
<td>Are historic materials stored away from rubbish arid combustible materials</td>
<td>make surrogates or back-ups for materials that have none</td>
</tr>
<tr>
<td>Are there surrogates, duplicates, or back-ups for the materials?</td>
<td>provide safe storages for surrogates and back-ups</td>
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<tr>
<td>If so, are they stored remotely</td>
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Table II

<table>
<thead>
<tr>
<th>Threats and safety features</th>
<th>Action</th>
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<tbody>
<tr>
<td>Raise cultural attention</td>
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<tr>
<td>Peace-keeping for cultural improvement</td>
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<tr>
<td>Evaluate cultural needs</td>
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<tr>
<td>Prioritize cultural needs</td>
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<tr>
<td>Protect the tangible and intangible heritage</td>
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<tr>
<td>Regulations to stop forbidden of art objects trade</td>
<td></td>
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<tr>
<td>Save of basic cultural services (education, media).</td>
<td></td>
</tr>
<tr>
<td>Cultural measurements-building (education and training).</td>
<td></td>
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<tr>
<td>Support the civil community.</td>
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<tr>
<td>Open decision-making process by participatory methods.</td>
<td></td>
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<tr>
<td>Training (of local society) in fundamental skills as a condition for cultural improvement.</td>
<td></td>
</tr>
<tr>
<td>Take heritage as a whole; recognize both tangible and intangible.</td>
<td></td>
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<tr>
<td>Peace-building long-term (as a condition for cultural improvement).</td>
<td></td>
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<tr>
<td>Cultural exchange and dialogue.</td>
<td></td>
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<tr>
<td>Aiming at conviviality (peaceful co-existence) through reconciliation</td>
<td></td>
</tr>
<tr>
<td>Signing international cultural conventions.</td>
<td></td>
</tr>
<tr>
<td>Supporting cultural institutions.</td>
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<tr>
<td>Activating definitions of identity.</td>
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In this paper and guided by the maxim that: “local problems call for local solutions”, the authors made an effort towards the formulation of a risk management strategy for the protection and conservation of cultural heritage through which to end the plundering of Egypt’s architectural legacy; calling for it to be put in place immediately in the case of any possible quandaries yet to be faced in times of any future conflict; calling upon cultural heritage organizations to develop their own strategies for protection of their prized collections in the event of any conflict.

The paper proposes a three-tier strategy based on the following:

- **International level**
  - Increasing urban heritage awareness within society.
  - Increasing protection of the architectural heritage.
  - Wider recognition of the requirement to protect the built heritage.
  - Realizing the social and economic benefits of protecting our common inheritance.
  - The place of conservation in policies of sustainable development.

- **National level**
  - Improve the policy on architectural heritage.
  - More attention and care for tangible architectural heritage
  - Improve the conservation strategies.
  - Documentation of the historic building inventory at the governmental level.
  - Scheme of financial grants for protected structures.
  - Support for employing conservation officers by local authorities.
  - Granting the benefits which derived from it to its surrounding community in order to solicit their participation in its security and upkeep.
  - The Methodology Developed for its Implementation:
    - Plans should be prepared and in place well ahead of any conflicts arising.
    - Developing ideas to cope with unforeseen complications
    - Developing substitute strategies to manage unexpected threats (Closedown, Safe Haven, Safekeeping within the walls or site …).
    - Consideration of potent dangers and preparing safety structures.
    - Mitigating threats wherever it is possible.
    - Training staff to be capable of dealing with crises and risks.
  - Finally, cultural heritage institutions should develop their own plans for the protection of their prized cultural heritage collections in the event of any conflict.

The Second Protocol of the Hague Convention (1999) gives the controlling authority the legitimate charge to do so. ‘Local problems need local solutions’, of course, is the guiding principle that should be applied in the development of these plans which are carefully chosen to resolve problems of protection.

**REFERENCES**