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Security of an Ethnographic Museum: A Case Study of the Naga Heritage Museum and Cultural Centre

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***Abstract:** The Naga Heritage Museum and Cultural Centre is an upcoming ethnographic museum in Kohima, Nagaland. The museum focuses on collection and conservation of the rich heritage of the Angami, Konyak and Ao Naga people, who were once known for their head-hunting tradition. Its collection comprises of huge wooden panels, metal and wooden sculptures, everyday utilitarian objects, textiles, weapons, ornaments, ritual objects, etc. As the construction of the museum building is underway, the collection is presently housed in two different buildings. Presently one caretaker, a local person, is present for taking care of the collection, who does not have any training for handling cultural objects. This has caused serious threats to the collection as apart from not taking proper care of the objects, he is also using some objects for his personal use. As a result, objects are deteriorating day by day and some of them are totally damaged.*

Besides, the museum does not have any security measures yet. As a result some priceless objects have got stolen. But of late, superstitious belief regarding a coffin has turned out to be guarding force for the entire collection. The coffin, which was used for burying a young boy once, is believed to be haunted and hence people are now afraid of approaching the collection. Thus, without having the least amount of security measures and being surrounded by walls made of bamboo, cane and masonry, objects are much more secure now. To what extent such beliefs are acceptable is a different matter, but this unique security code of this unique museum is indeed interesting.

While speaking of security of museum objects, one can look into the subject matter from two different perspectives. One is security of the physical features of the objects and the other is prevention from external threats like vandalism, thefts, natural disasters, etc. This paper is all about my personal experience of ensuring both types of security in an ethnographic museum of Nagaland.

The Naga Heritage Museum and Cultural Centre, an upcoming ethnographic museum in Kohima, Nagaland, focuses on the collection and conservation of the rich heritage of the Angami, Konyak and Ao Naga people, who were once known for their head-hunting tradition. Its collection is comprised of huge wooden panels, metal and wooden sculptures, everyday objects, textiles, weapons, ornaments, ritualistic objects etc. Being new to the field, it was a golden opportunity for me to work with a lot of freedom for the documentation of the collection. As a student of museology, I somehow managed the documentation part, but the biggest challenge was to prevent the deterioration of the objects by all possible means. There, the situation was different; means were limited and most importantly, the Centre lacked manpower who have knowledge on the subject. As a result, I had to plan and implement some preventive conservation measures as per the existing situation.

The Centre is a museum built out of the personal collection of a middle-aged Naga gentleman, Mr. Francis Belho. He is based in Kohima and throughout his life he has been trying his best to collect artifacts associated with the rich, yet dying tradition, of the Naga tribes. At present he has in his possession many valuable objects related mainly to the lives of the Angami and Konyak people. Angamis and Konyaks are among the most famous tribes of Nagaland, which were once known because of their head hunting tradition. These tribes have their own unique beliefs, rituals, customs, etc, which are now vanishing fast due to globalization and rapid development. Mr. Belho, being a representative of the Angami tribe, assumes it to be his moral duty to preserve both the tangible and intangible heritage of his State. As a result, he is collecting objects by all possible means. Today, he is the proud owner of a collection which consists of wooden panels and sculptures, valuable jewellery and textiles, utensils, ritualistic objects, weapons, bronze artifacts, etc.

The museum is now under construction and hence the objects are distributed in its two storages. One of the storages is located on the foot of a hill and surrounded by a rocky yet small spring. This storage is constructed of cane, bamboo and brick and contains thousands of priceless wooden as well as earthen artifacts (Storage-1). The other one, located on the top floor of a concrete building, is full of some very old as well as rare miniature artifacts (Storage-2).

While speaking of the security of the museum objects (which are in the storage at present), it can be divided into two categories; their physical deterioration and the external threats to them.

Deterioration of the objects :

Although the collection of the museum is very rich, it is suffering from serious conservational problems, especially the wooden objects. Almost 60% of the wooden collection has been attacked by termites and some of them are completely damaged. In the same way, the textiles, jewellery and metal collections are also suffering from serious problems. As the climatic condition of this region is very cold and damp, the condition is worsening day by day. The main cause behind this is the lack of knowledge required for safeguarding such objects. The objects are not stored properly and even mishandled and there are also no arrangements for their security against external threats.

Storage-1 is a house which has eight rooms. Each room has one or two shelves for hanging the objects. Most the objects are dumped one over the other, and as the floor is not even, they are tied together to some poles. For tying the objects, jute ropes have been used. Except one room, the remaining seven have got earthen flooring and not even a floor covering is provided. The roofing is made of tin and thick plastic sheets. Storage-2 is located on the top floor of a building. Most of the collection stored here, being miniature in nature, is kept inside big boxes. The condition of Storage-1 is worse when compared to Storage-2.

The size of the objects and the condition of the storage rooms are the two main reasons responsible for this. Storage-1 has some wooden panels which measure several metres in length and breadth. Keeping such objects inside closed boxes is not possible. Besides being very big in size, they are very heavy and transferring them from one place to another is also challenging. The climate of Kohima is naturally very damp and rainfall is very heavy during summers; besides, the storage is surrounded by a lot of evergreen trees and a spring. All these factors have contributed in creating an atmosphere, which is not at all healthy for organic objects like wood and cane. There are leakages in the roof and water enters the storage during rains. In the same way, objects are in direct touch with the damp earthen flooring. All these have caused serious damages to the objects like bio-deterioration, flaking, staining, discolouring etc., along with breakage and cracks.

Mishandling:

Mishandling is a serious problem that the collection is going through at present. The main reason behind this is the lack of trained persons. The man who is the caretaker of the entire collection has neither much formal education nor any training in this field. Apart from him,

the local persons who are engaged here from time to time are also ignorant about the importance as well as the methods of proper handling of the objects, and the result of all these factors is very shocking. Some beautiful door panels have been used as door panes or support of the bamboo walls inside Storage-1, wine containers have been used to keep various electrical equipments and some old chairs were used for sitting. All this has contributed in reducing the life span of the objects.

Apart from this, the lack of knowledge regarding the scientific ways of working with cultural property has caused serious damages to the objects. Working without gloves has caused deep stains and fading of colours. Holding the objects in a wrong way has led to weakening of different parts or joints or even breakage of the objects.

External Threats:

The collection suffers from serious external threats. The reasons are the absence of security measures and lack of human resources. Theft is the most serious external threat for this collection and some valuable artifacts have already been stolen.

When I joined the museum, it was the month of May and rains had already started. The pattern of rain in hill stations like Kohima is sudden downpours at regular intervals. After taking over the responsibility, I made a close study of both the storages with the help of the existing documents, and came to the conclusion that something should be done in Storage-1 immediately. This was followed by numbering the rooms and the shelves for easy identification. It was very important to have some preventive conservation measures for these objects as soon as possible. But I, being alone and new to the field and that too a museologist by training, it was a tough task to decide on the course of action in this regard. The collection was huge, problems varied from object to object and the funds were very small. Therefore, the challenge was to achieve the best results with minimum investment and resources.

The importance of Accession Registers for storage is known to all, and I was there mainly to document the collection. So, I prepared a registration form, which contained the following information:

- Origin and local names of the object
- Use of the objects
- Detailed description of the object
- Material(s) of the object
- Dimensions of the object

- Photographs of the objects along with photo negative number
- Accession number
- Location in the storage
- Present condition of the object

This made it easier for me to categorize the objects according to their problem. Termite attack was the most serious damage caused to the objects, which was followed by staining. One of the major problems was the lack of knowledge of the caretakers, so on the very first day, I made a demonstration, where I explained to them the importance of proper handling and cleanliness inside the storage and the appropriate ways of object handling as per my knowledge.

For the prevention of external threats, there was nothing much that could be done except creating awareness in the working team. So, my concentration was to prevent physical decay of the objects. For this I applied some preventive measures like use of locally available medicinal herbs, categorization and reorganization of the objects according to shape, size, material, problems and maintenance of cleanliness etc. Details of the objects of both the storages were jotted down on labels of colored hard paper and these were tied to the objects with cotton thread for easy access and further work.

What I missed most during my days in this museum was a handbook guiding a fresher like me with all the do's and don't's applicable in such situations. I think such a handbook is the prime need for many museologists like me, who are engaged in different museums situated in different and far flung parts of the country.

Integrated Museum Security Systems

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Abstract: Museum security is one of the important functions of museums. Millions of precious antique artifacts which are housed in about one thousand museums across the country may have an unprecedented significance regarding our cultural and natural heritage, but they are grossly undervalued in Government's plans and priorities, not only in terms of their security but also in many other aspects. Usually, the concerned authorities open their eyes and make a hue and cry only when thefts occur in museums. As soon as the media hype ceases, the authorities generally forget about the follow-up action and ignore the necessary precautionary measures to be taken regarding museum security. Some of the incidents of thefts in museums across the country have exposed the inadequacies of museum security.

In the recent past, there has been a phenomenal increase in the number of thefts in museums all over the world. For instance about 18000 works of art are said to have been stolen in 1978 in the United States alone. In India, the situation may be much more alarming. Therefore, there is an urgent need to adopt sophisticated security systems with modern tools and techniques. Museum security is a complicated issue and it has to be taken up right from the planning stage of the building onwards. In fact, security does not only mean safety against theft and vandalism, but it should also address the security of visitors from fire, natural disasters and attack by terrorists.

Although various tools and techniques are available for museum security, most of the museums fail to adopt all the security systems at one time, so as to provide full security of museums. Therefore an integrated museum security system may be adopted by using all available methods, including modern gadgets, enabling a multiple security system for full security of museums.

Museum security is one of important functions of museum. Millions of precious antique artifacts which are housed in about one thousand museums across the country may have an unprecedented significance in our cultural and natural heritage, but they are grossly undervalued in government's plans and priorities not only in term of their security but also in many other aspects. Usually the concerned authorities open their eyes and make a hue and

cry only when thefts occur in museums. As soon as the media hype ceases, the authorities generally forget about the follow-up actions and ignore the necessary precautionary measures to be taken regarding museum security.

Some of the incidents of theft include the world renowned art object of Leonardo Da Vinci's 'Mona Lisa' stolen from the Louvre Museum in August 1911. Recent cases of major thefts in India, which include parts of the Fairy Queen locomotive from the National Rail Museum, New Delhi in 2004, Rabindra Nath Tagore's Nobel medallion from Shanti Niketan in March 2004 and General Niazi's pistol from the National Museum, have exposed inadequate security arrangement and a casual approach to security arrangements in museums.

In the recent past, there has been a phenomenal increase in the number of thefts in museums all over the world. For instance about 18000 works of art are said to have been stolen in 1978 in the United States alone. In India, the situation may be much more alarming. Therefore, an urgent need is that security in museums should be made tighter with modern gadgets and techniques; luckily, the museum professionals are concerned about it more than ever. Though about 90% of Indian museums are either owned or run by the government, problems of their poor maintenance are plenty. Apart from poor funding, inadequate staff, lack of professionalism and absence of accountability are the main reasons for this. Most often the museums are managed and run by unskilled people who do not have any expertise or skills in the field of museum security. Besides this, some of the state museums lack adequate security arrangements. Further, the state government museums do not have enough funds for modern security systems. Therefore, the urgent need for improved security mechanism in Indian museums is to be looked into by the Ministry of Culture, Government of India. However a museum should try to generate its own funds for maintenance and its survival in the future, because the Ministry has already intimated that the government would withdraw subsidy to museums after a few years.

Although various tools and techniques are available for museum security, most of the museums fail to adopt all the security systems at one time, so as to provide full security to museums. Therefore a holistic approach is required to integrate the museum security system by using all available methods, including modern gadgets, which can provide multiple security system to museums.

Integrated Approach to Museum Security

In fact, security not only means safety against theft and vandalism but also against terrorist attacks, arson, accidental explosions, fire, earthquakes, flood and other similar factors. The complexities of the multi-dimensional problems of museum security have to be tackled at various levels starting from the planning of the museum building. The design of the building should incorporate security elements such as strong fittings and fixtures, reinforced concrete roof and thick walls, etc. The discipline and motivation of dedicated security staff are equally important; human factors assume greater importance in maintaining security than it was realized earlier. Moreover in large museums like the National Museum, the security guards are deputed from the Home Ministry and the museum staff have no control over them. These security personnel are even unaware about the importance of the precious antiquities they guard. In this context, some questions arise in our mind such as who is responsible for security in a museum, the Government or Director or security staff or museum staff? Many feel that the security of museums is the responsibility of the Director, the Security Officer or at the most, the concerned security staff. Very rarely is it acknowledged that it is the responsibility of everybody who is related to the museum, including the visitors and, of course, the Government.

Protection of Museum Building and Museum Objects

There are two important elements of museum security, internal security and external security, that must be dealt separately because of their difference in timings of operation.

A. External Security: There are many ways in which the external security of a museum could be ensured. Some of the suggested methods are described as follows:

- 1. Perimeter fencing, walls and gates:** Fencing on the boundary wall is essential to ensure effective control against trespassers and burglars. It will serve as a deterrent to such elements and they will think twice before making an attempt to climb over the fenced walls. It should be barbed-wired fencing and sufficiently high to prevent jumping over it. The safest height would be about 6 to 8 feet. Walls with grills are yet another safeguard that can prevent unauthorized entry during the closed hours of the museum. In the case of a huge campus with lawns, gardens and other possible hide-outs, the gates are to be

closed only after ensuring that no one stays back inside. In no case should there be a thoroughfare through the museum premises after the museum is closed.

2. **Trees:** Many museums in India are housed in old buildings, palaces, donated or acquired from the former rulers and these buildings do have a number of trees around them. Some of these trees are taller than the buildings and the branches lean towards them. It helps the thieves to walk into the museum without being noticed at all. Such trees are a threat to museum security which should be cut and kept short.
 3. **Drain-pipes:** Most of the buildings have straight running drain pipes from top to bottom along the exterior of the walls. These pipes are generally not taken care of and become a security risk. The modern systems of concealing these pipes in the walls may not be possible in old buildings where the old pipelines exist. In such cases, barbed-wire could be used around these pipes so that foot-holds and grips are not possible.
 4. **Compound lighting:** The premises of the museum must be adequately lit so that any miscreant moving around during the night can be detected. This could be done by completely floodlighting the whole campus of the museum.
 5. **Doors:** A single door for entry and exit will be ideal for a museum. After the main door, there could be one entrance lane to the galleries and one exit lane from the galleries so that effective checking as well as clustering of visitors could be done. The main door itself should be strong enough to withstand any forcible entry.
 6. **Windows and Ventilators:** Windows and ventilators are provided in the galleries and museum building to have the air circulation as well as for light. But in many cases, these are not protected and are not even properly secured. Anyone who plans to commit theft is helped by these types of windows and ventilators. Therefore, they are to be properly secured by providing bars and grills.
 7. **Control Room and Security Posts:** At the entrance of the museum, it is very essential to have a control room to regulate the visitors and conduct inspections by using scanners and metal detectors. The security guard could stand nearby and show them the way inside, as well as take immediate action in case of an emergency like closing the doors, shouting for help etc. Besides these, there must be armed security or guards at the entrance to the museum and at the entrance of each important gallery. The very presence of armed guards or Police will make a thief psychologically afraid, both at the time of entering as well as while stealing.
-

All these solutions may not be possible for a museum which has limited resources, but it can consider them in some areas that are most urgently required. Where there is no possibility of arranging armed guards for various reasons, there must be the presence of watch and ward personnel on duty round the clock. The gates, the important galleries and so on can have stationary posts. While the main gate and perimeter should have patrolling guards round the clock.

B. Internal Security:

Internal Security in a museum is as important as external security and it includes the following methods and techniques.

- 1. Security Staff:** A compact security department with an officer of high status is ideal to meet the problems of internal security. He can organize and manage security with the help of the subordinate security staff inside the museum, preferably starting the checking from the entrance itself by using metal detectors, scanners etc.
- 2. Gallery Attendants and Volunteers:** Well trained, well-dressed, presentable and dedicated gallery attendants and volunteers are essential for the galleries whenever the museum is open to the public. There should be a minimum of two attendants in each gallery and they must exercise strict vigilance and control over the visitors. These motivated and dedicated staff and volunteers can also act as security staff. They are also expected to assist the curatorial staff and the public in day-to-day museum activities.
- 3. Reception and Tickets counters:** In order to control the number of visitors to the museum, entry fees are essential. Cloakroom facilities to those who are carrying bags and baggage, which are to be deposited before entry into the museum, is essential for a security setup.
- 4. Opening and Closing of Galleries:** Opening and closing of galleries are very important as far as security is concerned and it must be done in the presence of a responsible officer every day. After the galleries are closed, the keys are to be kept in a central control room and should not be made available to anyone else. Ideally, the lock of main entrance must be sealed till the next day. Multiple locks and keys must be used for the main door and each key may be kept by two different officers.
- 5. Storage of Reserve Collection:** All the important objects in the reserve collection must be stored in strong rooms. Storage area must be separated from the galleries. No visitor

should be allowed to enter it and the objects should be periodically checked up and cleaned.

- 6. Gate Pass System:** Objects once allowed to come in should not be taken out without valid gate pass. The gate passes issued must be correctly recorded and in no case should it be relaxed. This system keeps the movement of objects recorded at all times. Besides these, the accessioning and photography are also to be completed and kept up-to-date, so that identification becomes easy.
- 7. Electronic gadgets and Alarm Systems:** There are various types of alarm systems and electronic gadgets available for security such as burglar alarm systems, CCTV, smoke detectors, glass-break detectors and so on. All these gadgets are only aids to security but the human elements are essential to act upon.
 - a. During Visiting Hours:** Most of the preventive measures are applicable during the closing hours to the public but this cannot work as people have to be allowed inside the building. During the opening hours, precautions are to be taken that no damage is caused to the objects displayed. General watchfulness by the gallery guards and even the presence of such guards may be considered as a safe measure. If somebody enters the prohibited areas, either the guards or the gadgets should be able to raise an alarm. A variety of detectors are available but these should be used on a restricted basis.
 - b. During Closing Hours:** A variety of alarms are available which can be utilized effectively for museum security. Most of the systems have sensor detectors which sound an alarm at a control point and it helps to initiate action for investigation and to decide the final action. Naturally these control systems are to be watched continuously to act quickly. The following electronic gadgets can help in guarding the museum objects.

Photo Cell system: This system has an electrical circuit, and if disturbed it will give out an alarm call. It is suitable for installation at all openings, windows, doors, entrances etc.

Audio Detector: The whole area can be monitored and any voice produced can be easily detected by microphone detectors and that particular area can be located.

Motion detectors: Like the audio system, the sensors detect movements in closed areas which can be protected by this system.

Vibration detectors: Any vibration created by trespassers can be detected by sensors which signal a warning and an alarm.

CCTV: The closed circuit cameras are placed conveniently in different locations so that they cover the whole area and send pictures to a monitor placed in the control room.

Flexible Fiber Optic Pinhole Lenses: When utmost flexibility is required between the front objective lens and the CCTV camera, a flexible fiber optic bundle can be used. The special lens is designed to have a small front lens to permit its use in covert (hidden) camera application. The output of such a camera when provided with appropriate processing electronics is of a motion detector and can make the camera as an alarm sensor also.

Glass break detector: These are detectors concealed and placed in glass showcases. When any one tries to break or open the glass, an alarm is flashed to the control point.

Infra Red Beam detector: These detectors give out an alarm as soon as the beam is broken, when any intruder enters. It is ideal for fitting on window openings.

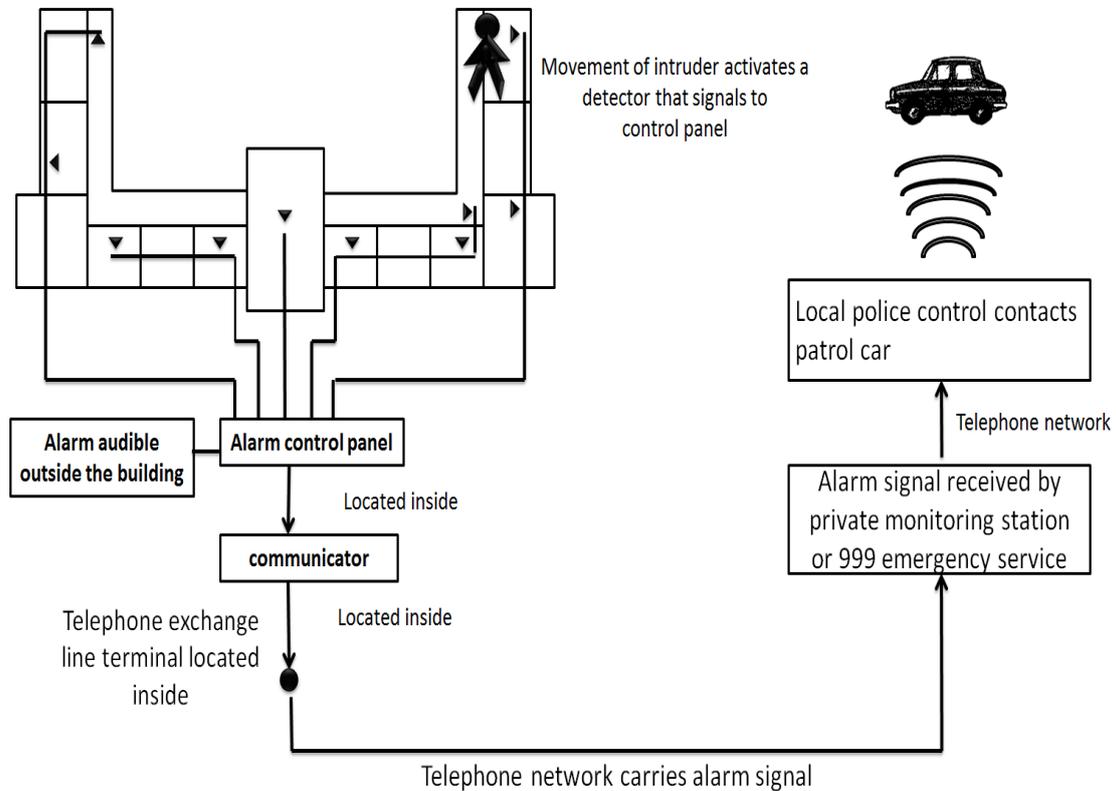
Ultrasonic detectors: These detectors detect any unusual sound that is caused and give out an alarm. Even the body movements are detected by it and an alarm is sounded.

Magnetic contacts: A magnet is attached to the door or showcase and a contact in which an electric switch is attached. When the door or window is opened, the magnet moves away from the contact and the control panel feels a break and activates an alarm.

GPS: If the global positioning system embedded objects are stolen from the museum it can be easily located anywhere in the world.

Bar-coding: If the bar-coded objects move through the sensors, an alarm will be activated.

A TYPICAL INTRUDER ALARM SYSTEM



Security against fire;

The national building regulations of the country have specified a number of measures against fire such as fire escapes, fire hydrants, vertical risers as well as the material that is to be used for building construction which will prevent fire from spreading.

In the case of fire, firstly care should be taken to extinguish it and prevent it from spreading to the adjoining room. This can be done right at the planning stage, as it is essential to provide walls and partition of non-combustible materials. For the control of fire, extinguishers are essential and their location is of equal importance for extinguishing fires immediately after it breaks out and before it gets time to spread. The store rooms and other working areas should be kept clean. These areas are not to be crowded or cluttered; electrical installations should be maintained in good condition so that no short circuit or sparking takes place. It has been observed that negligence of electrical equipments, overloading of electrical

junction boxes, littering the areas with inflammable materials are some of the cause of fire. It was also observed that in most of the museums, cafeterias are attached with the main buildings. It is like a time bomb having the potential for fire incidents in the museum due to the use of explosive materials in the cafeteria.

In short, museum officials of all levels are the custodians of the cultural heritage of the country represented by various collections. A great responsibility therefore rests on them to protect their collection and to pass them on to posterity. Hence museums have to be surveyed carefully from the point of security, and adequate security requirements and measures suitable to their specific needs will have to be worked out and implemented.

The Third Highest Grossing Criminal Trade Worldwide

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Abstract: “Without collections there would be no museums. But remember: it’s not the same the other way around!”, is what was said by one of the museum professionals from Europe. The same applies to the museums of India. Many people have an interest in artistic heritage and maintain their own collection of such objects, but they do not require to necessarily establish a museum for this purpose. However, museums ought to build collections and to safeguard them.

We all agree to the fact that the concept of museums is fast developing all over the world, including India. But what is to be monitored is the development of museum security, which is lagging far behind in comparison to the development of museums. Security literally means the state of being free and unthreatened from danger or threat. For any museum, these dangers can be seen in the form of theft, vandalism, accidents, unethical conservation practices, mishandling of objects, etc. According to Interpol (International Police) every year over 1000 cases of art thefts are being reported in India. The National Crime Record Bureau on its part puts the number of thefts at over 2500 annually with Madhya Pradesh and West Bengal topping the list.

Thefts in museums may be broadly categorized as thefts by non-professionals, thefts by thieves connected with black marketers of heritage and internal thefts premeditated by the museum staff, who have ready and easy access to collections. But the cases of internal thefts are least reported due to various reasons. Fake and forgery are other patterns of theft in museum.

This paper tries to focus on the problem of theft and pilferage, required amendments in the heritage protection laws and museum policies along with their enforcement, a few crucial cases of theft made in Indian museums and on proposing suggestions for improvement in museum security. Apart from giving an update of the technical advancements in this area, the paper also seeks to draw attention towards a need to raise awareness at ground level, stimulate society towards heritage and make efforts for community involvement in the field of heritage management.

Introduction

A few months back, a museum became a victim of pilferage. Shockingly, it was the Archaeological Survey of India's (ASI) biggest site museum at Murshidabad, having 20 galleries with 4742 antiquities, of which 1034 were on display. The pilferage took place in broad daylight when many visitors were around and the artefacts were stolen from a secure place.

The theft of a 5th-century sandstone half-bust of Buddha in December 2004 from Kolkata's famous Indian Museum sent everyone into a tizzy. The 23-centimetre half-bust was kept in a glass case on the ground floor of the Long Gallery of the Archaeology Section. The thief took it by simply removing the glass case and walked away unhindered.

The above are a few of the innumerable reported cases of theft in our museums, which flashes light on why India had been losing thousands of exquisite art pieces annually over the years. Clearly, the easy manner in which the artefacts were stolen from the Government's most important agencies calls for attention.

Every one of us can see the fast growing development of the concept of museums all over the world, including India. But the development of a concept for their security is lagging far behind in our country. According to Interpol (International Police) every year over 1000 cases of art thefts are being reported in India. This was a few years ago; today the number may be higher. The National Crime Record Bureau, on its part, puts the number of thefts at over 2500 annually with Madhya Pradesh and West Bengal topping the list.

Noah Charney, a writer, art historian, art crime detective and criminologist in his famous book 'Art Theft and Museum Challenges' wrote that stolen art is the third most illegally traded item after drugs and guns. At an UNESCO workshop for the Asia Pacific Region on Illicit Trafficking of Cultural Property held a while back in New Delhi, the Vice President of the World Council of Museums averred, "Trafficking in cultural property (from India) has assumed the dimensions of a seamless trade as drug cartels peddle art objects for reaping the huge monetary gains in to their narcotics trade and also use it for arms dealing". Thus, this crime is not only resulting in loss of heritage but also assisting notorious criminal activities like the narcotics trade and illegal arms dealing around the world. Given the poor state of security of our heritage preserved in various museums, increasing cases of art thefts from museums and the contribution of this crime to other dangerous crimes, the time has come to lay more emphasis on the security of our heritage.

Related Laws

In order to underline that Indian art museums are under increasing threat of crime and that they must to be specially protected, it needs to be pointed out that pilfering takes place despite these three multi-national treaties -

1. Protocol for the Protection of Cultural Property in the event of Armed Conflict, 1954.
2. UNESCO Convention on the Means of Prohibiting and Preventing Illicit Import and Transfer of Ownership of Cultural Property, 1970.
3. UNESCO Convention on Stolen or Illegally Exported Cultural Objects, 1995.

India's Antiquities and Art Treasures Act, 1972 is also a particularly stringent measure, which requires that any privately owned work of art that is more than a hundred years old be registered with the government. Since it is generally illegal to export such objects, to be an antique dealer in India with an international clientele is also arguably a crime.

This shows that we have sufficient laws for protection of our heritage, but their enforcement needs to be monitored. We must remember that laws are not optional; instead, they are to be followed equally by everyone.

United Efforts to Control Trafficking of Heritage Objects

There have been efforts by various National and International bodies such as Interpol, ICOM, communities and individuals to prevent and control the crime of thefts from museum.

- **Interpol**

Interpol provides a number of tools that facilitate the global exchange of information on criminal events involving works of art, the details of the artworks and the criminals involved. It serves as a central repository for this data, providing analysis to identify emerging trends in art thefts such as the proliferation of counterfeit, fake or forged works or the use of the Internet for selling works of dubious background.

Amongst the tools and services provided by Interpol to law enforcement and cultural agencies and the public are:

- a. Website alerts and media releases.

- b. Posters of the 'Most Wanted Works of Art', depicting items that have recently gone missing.
- c. Member country support.
- d. Listing of unclaimed objects seized by the police to help identify their legitimate owners.
- e. Experts group, which serves as an advisory body for the organization.

- International Committee for Museum Security (ICMS)

The International Council of Museums (ICOM) has a committee named ICMS, completely dedicated to issues related to museum security. The objectives of ICMS are to provide education, training and assistance and to protect persons and cultural property from theft, vandalism, fire and destruction. This committee also gathers data related to heritage security in various countries, prepares a red list for objects having high risk of theft and a code of conduct for issues related to heritage security policies.

According to ICMS, out of twenty-six countries, seventeen believed that heritage objects were illicitly exported; of these, thirteen felt that such exports were frequent and four thought that they were occasional or hypothetical. Two countries felt that the stolen art objects stayed inside the country and seven specified that they had no evidence or only fragmentary information.

As informed by India to ICMS, the United States was the main destination for exported art objects of theft, and the port of Mumbai is one of the major points on the frontiers of the country where several attempts to export or import stolen cultural property have been discovered.

Types of Thefts in Museum

Thefts in museums may be divided into:

- Opportunistic theft
- Premeditated theft
- Fake and forgery

Opportunistic Theft

Most thefts from museums tend to be isolated and not done by professionals, where, on the spur of the moment, the thief — a visitor, a member of a school party, someone who is

mentally unstable, or has a grudge against the museum — seizes the opportunity to steal something that is readily available, portable and unprotected.

Premeditated Theft

Our museums, generally, have limited control over a gallery in its own premises. They hardly have any idea of the information channel, which is easily extended to the thieves by insiders. Smugglers also do not steal objects directly; they decide the target of theft after consulting with experts of antiquities, art market dealers or art historians and deploy a well-oiled network of local petty thieves and intermediaries to scout and steal from poorly guarded temples and museums.

Fake and Forgery

Fake and forgery is another form of theft. This type of theft is usually made by museum staff, which has easier and regular access to the storage. It is easier to create and replace a fake of an object in storage, than of an object in display. For preventing fake and forgery, one necessary step should be the technical and scientific analysis of objects recovered after being stolen once.

Probable Reasons for Increasing Thefts in our Museums

There can be many reasons responsible for the increasing thefts in the museums of India. The developing trend of seeing antiquities as status symbols rather than useless objects, contribution of stolen heritage to the growth of black market and terrorism, late beginning of control on export of ancient art (1972) and others. Of these, the major reasons are:

- **Over-Reliance on Technological Gadgets**

Neglecting to keep museum guards awake and relying on technical hardware like CCTV is the biggest problem in museum security. Even if there are CCTVs recording the movements in their museum, rarely do the staff have anyone keeping an eye on the live recordings of CCTVs. CCTVs may act as a deterrent in some cases, but usually they only provides proof of an incident that has occurred; it does not always prevent an incident.

- **Involvement of Insiders**

Most of the cases of famous thefts made in our museums clearly indicate the involvement of insiders. This insider may be anyone; a museum staff of high rank, curator, attendant, clerk, librarian, some other employee, security guard or visiting staff. This insider may not be

directly involved in execution of the theft, but can be culpable in providing inside information. Since only the permanent staff of a museum have actual information of collections and their location, they can assist in the most shocking thefts.

A few recent cases of museum thefts where police suspected involvement of insiders are:

- a. Theft of the pistol of Pakistani commander Lieutenant-General AAK Niazi, which he had handed over to Indian forces while surrendering in Dhaka after the 1971 Indo-Pak war. The pistol went missing in 2002 from the National Museum, New Delhi.
- b. Theft of antiques worth Rs.500 crores from the museum of the royal family at Rewa, Madhya Pradesh in Oct 2012. Missing from the museum were the royal throne, a 40-kg silver umbrella and other antiques.

Suggestions

To make works of art difficult to steal or damage—while at the same time allowing an association between the masterpiece and the beholder—requires considerable amount of planning, some technical assistance and a little ingenuity. As the concept of museums is growing fast all over the world, we have an unending list of ideas and technologies that may be applied to our museums in order to improve their services and to prevent them from falling prey to thefts. If elaborated, this might have been a separate paper in itself, but here a brief version of suggestions to strengthen our museums is given.

- **Prepare a Red List**

ICOM's International Committee for Museum Security (ICMS) has Red Lists of Cultural Objects at Risk for various countries like China, Egypt, Afghanistan, African countries and others but there is no such list for India, which is home to a score of objects from one of the most ancient civilizations of the world. We must also have such a list, as it may prove highly helpful in risk assessment.

- **Examine Methodology of Smugglers**

Examining the work methodology, especially the import and export methods of smugglers, thieves and intermediaries dealing in objects of high heritage value, can help the policymakers, criminologists and scholars think about better ways to detect, uncover, interdict, and prosecute future crimes of heritage trafficking.

Here, the case of Subhash Chandra Kapoor, who belonged to a family involved in smuggling of antiquities from India since 1960s and has emerged as an alleged kingpin of one of the most “successful” heritage smuggling rings in the history of the Indian subcontinent, deserves special mention. Examining the methods used by Kapoor and such other criminals of high profile will definitely help in decreasing heritage trafficking from India.

- Create a Dedicated Department

Crucial to the process of uncovering Subhash Chandra Kapoor has been the input of officers from the Criminal Investigation Department, Idols Wing, Tamil Nadu. Similar to this department, there can be a department under the State Police, which may be trained to deal specifically with crimes related to heritage.

- Monitor the Landscape

Buildings located in an isolated area or high crime rate areas are likely to be at higher risk. Many of the risks to an existing building can be avoided or mitigated, starting with the landscape surrounding it. It should not provide cover for intruders, but provide an unobstructed line of sight. The height of trees in the garden surrounding the main building, ease of accessibility from the parking area, roof or canteen and many other details should be monitored while designing the landscape.

- Reinforce Building Hardware

Building hardware is of equal importance while it comes to museum building security. The structure of the building, external doors, windows, and HVAC ducts must be reinforced, if possible, using heavy-duty commercial hardware and have an adequate detection system. All the doors should be lockable using security lock hardware. Exposed hinges of the doors must have non-removable pins or be modified to prevent hinge pin removal.

- Keep Sufficient Manpower

Despite being one of the most populous countries of the world, almost all the government departments of India, at all times, suffer from a shortage of manpower. Museums are no exception. And this insufficient manpower is one of the many reasons responsible for frequent thefts in Indian museums.

One such example is the theft of valuables from the Shamsheer Kotha near Golconda Fort, Andhra Pradesh in December 2012. This site is spread over eight acres while the number of security guards during the time of theft was only three.

- Assess the Risk

Risk assessment may prove beneficial in securing the antiquities of a museum. High profile, highly valuable items will require a higher level of protection because of their status. However, at greatest risk may be portable items, which may be the subject of an opportunistic, rather than premeditated act. If current measures are found to be inadequate then, based on the evaluation of risk assessment made in a museum, new or additional measures will need to be implemented to provide effective safeguards.

- Understand the Requirement of Different Zones

Storages (permanent or temporary), vaults, maintenance rooms, loading bays, study rooms, various kind of operations zone, reception zone, exterior, parking, conservation laboratory, office areas, studio (if any), record room, server room and many other areas together comprises the museum area. But, generally, only the exhibit areas, entrances and exits of a museum are monitored. However, a museum building must be divided into various zones and the security policy should be made only after understanding the risk factors of each zone.

- Application of Advanced Technology

Installing Passive Infrared Motion Detectors (PIR), proximity alarms, and other surveillance systems in display areas (all of which may be combined with barriers) and firmly attaching security hardware to frames hanging on walls, and to exhibits on plinths or in display cases may prove greatly beneficial in securing the precious objects housed in a museum.

For items requiring additional protection, alarmed pressure pads around cases, or on pedestals displaying valuable objects and glass-break sensors in display cases housing valuable items may be used. Proximity alarms, referred to as EMC (electromagnetic capacitance) units consisting of plates built into the walls (of display rooms) or attached to objects, trigger an alarm when someone comes too close or tries to remove a painting. The alarm can also be linked to CCTV systems.

- Strengthen Display Cases

Display cases should be protected with security screws, locks, and, in special circumstances, alarms. For construction of display cases, polycarbonate or acrylic of at least 10 mm thickness should be used. If glass is to be used, it must be shatterproof. Non-removable, tamper-proof security screws, locks, brackets, and hanging devices that can be loosened or removed only by using a customized implement should be used to secure the display cases.

- Secure the Security Personnel

The safety and security of the security personnel of a museum is also an issue of importance. Security guards must receive instructions, as part of their periodic training, regarding what they can or cannot do legally in terms of apprehending a thief or vandal, or someone simply being a nuisance.

- Inside Monitoring

As with any business, lack of in-house monitoring may also pose a threat. The audit of collections should be done periodically and analyzed in all possible ways. It would be better if a scientific analysis is done for objects having higher value.

- Security Policy

In addition to physical hardware and systems, all museums should have a security policy covering all aspects of security. It should not simply be a series of 'post orders' for security guards. These should include access control, key control, building security, duties of security guards, security screening, training for response in an emergency, camera policy for visitors, procedures for dealing with film/TV crews, extra-curricular activities, construction, audit of collections and many other factors.

- Pay Attention to Suggestions

Many blames and many more suggestions come just after any theft is made in a museum in India. Like, after the daring robbery of antiques worth crores and murder of a security guard at Christian Art Museum in Old Goa in January 2012, everyone was blaming the government for the weak security system and suggesting that the government should not entrust the solving of Goa's biggest heritage robbery to just one police inspector. But how many suggestions are ever given attention? It is quite natural that many of these unwelcome

suggestions are impractical since they are from people belonging to different categories of society, but a few of them are definitely worth being analyzed and applied not only to the victim museum only, but to all major museums in India.

There can be many suggestions for policies and rules, and innumerable offers related to technical advancements, to strengthen the security of a museum as technology is changing and upgrading every minute. Moreover, it is not possible to keep our museums technically updated in terms of security, at all times, due to the high cost involved for obtaining and maintaining these technologies. So it will be better to pay attention to those points which are feasible for museums in India. The fight against illicit traffic in cultural goods requires the enhancement of both legal instruments and practical tools disseminating information and raising public awareness.

Recovery of Stolen Objects

Where and when, we wonder, will the spectacular haul of objects of heritage that have been stolen from various museums of our country be seen again? In fact, will the dazzling collection ever resurface? In 2010, in a written reply in the Lok Sabha, it was admitted that no stolen or lost antiquities had been retrieved or recovered during the last three years. Investigating agencies could not make any breakthrough in about 80 per cent of the cases of theft of antiquities from historical sites maintained by the Archaeological Survey of India (ASI).

Unlike in developed countries, Indian museums and religious institutions that possess antiquities have poor documentation, and the police are largely ill equipped and lack expertise. As a result, many of the antiquities stolen from India remain untraced. Once the stolen goods reach their 'shops,' they would be packed along with other handicrafts with proper certification and purchase bills in large containers and shipped out. In the absence of enough container scanners and comprehensive checks by Customs officials, the stolen antiquities would easily slip through.

For increasing the proportion of recovery of objects stolen from museums we must:

- Promote Agreements

We must promote regional and international agreements to stop thefts in museums all over India and to recover objects lost in thefts.

- Update Documentation

A full description of the objects, accompanied by photographs and a latest condition report, if available, should be provided to the police. To be able to provide correct details of the stolen object to the police, it is necessary for a museum to have a thorough documentation of all objects in its collection. ICOM's CIDOC (International Committee for Documentation) group has specific guidelines and a code of ethics for documentation of various types of objects a museum may have.

- Create Art Alert

Many countries have 'Art Alert' programmes, where missing and stolen objects of heritage value can be reported. The alert then reports stolen objects by sending e-mails to a list of pre-registered museums and art dealers. This helps in increasing the possibility of recovery of the object and minimizing the possibility of reselling of the stolen object.

- Review the Museum's Security

Review of the institution's security must be done periodically with recommendations to upgrade security systems and enhance security procedures. It may help to recover the stolen item, which might have actually been hidden in the museum itself.

- Inform Major Ports

Details supplied by certain countries give reasons to conclude that there is traffic in stolen art objects, notably between neighbouring countries. Traffic in art objects mainly passes through the large towns, seaports and airports. Therefore, after getting to know about a theft in a museum, there should be no delay in informing all the major ports and airports. All available details, along with photographs of the object may be shared with them to ease their work.

Conclusion

Theft of an object, at times, may mean the loss of the remains of an entire civilization. The theft of historical items from various places, including museums, is a major cause of irreparable damage to Indian history. Whole sections of our history have been wiped out and can never be reconstructed. These objects cannot be appreciated once they have been

removed from their archaeological context and divorced from the whole to which they belong.

A very serious point regarding the issue of museum security in India is the fast development of a black market with the help of speculation through legal channels. Due to this, thefts and the illegal sale and purchase of objects of artistic and historical interest have increased to an alarming extent. The countries, like India, which are home to innumerable collections belonging to ancient civilizations, need to be more alert in this situation.

Although we have departments and committees to take care of museums, there is still a need of awareness at ground level. The museums need to be seen by the common person as a priceless institution belonging of contemporary society and not as a building full of useless curios from the past. For that, the museums need to take initiatives, stimulate society towards its heritage, and make efforts for community involvement. Most of the unwanted activities may easily be controlled by making the local people aware of the value of their treasures. Not every thief can be a Thomas Crown of 'The Thomas Crown Affair', a famous movie based on a planned theft made in the presence of all the security personnel in daylight in a prominent museum; most museum thefts may easily be prevented by following small precautions and by being attentive and honest.

Documentation of Museum Objects: A Tool for Museum Security

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***Abstract:** Museums play a central role in the preservation and study of cultural heritage. As society is becoming increasingly aware of the importance of their cultural heritage, new museums are being set up and the number of visitors is growing year by year. It is also becoming clear that museums are having a significant economic impact on the communities in the vicinity of the museums.*

Documentation of objects is an important work of museums, and a simple meaning of documentation in museums is keeping records of the objects systematically. Without proper documentation of objects, important museum activities such as exhibitions and exchange of objects with other museums cannot be planned well. Thus, proper documentation appears vital for the functioning of a museum. Though there are several procedures which illustrate the attempts made by museum professionals to develop the system of recording and documentation, yet no system can be termed perfect.

Importance of documentation becomes most apparent in the event of a theft. The documentary records alone enable a quick investigation into the crime and provide a reasonable chance of recovery. Besides, under the provision of the UNESCO Convention on the Means of Prohibiting and Preventing Illicit Import, Export and Transfer of Ownership of Cultural Property (1970), an object smuggled out can be reclaimed only on the basis of well documented evidence. The Interpol publishes a list of stolen objects called 'Ten Most Wanted Objects of Art' with details of the objects and their photographs. This helps not only in preventing museums or art dealers from acquiring them, but also to trace them.

A museum is a non-profit making institution, which acquires objects, conserves, researches, communicates and exhibits them for purposes of study, education, enjoyment and providing material evidence of people and their environment. It is engaged in the service of society and its development and is open to the public. Museums play a vital role in the study, preservation and interpretation of cultural heritage. As society places increasing importance on the preservation of cultural heritage, new museums are being set up and the number of visitors is growing year by year. It is also becoming clear that museums are having a significant economic impact on the communities in the vicinity of museums.

Documentation is an important work in museums, and a simple meaning of documentation in museums is keeping records of objects systematically. Without proper documentation, museum activities such as exhibitions and exchange of objects with other institutions cannot be planned well. Information associated with museum collections requires that this should be documented according to accepted professional standards. This should include full identification and description of each item, its associations, provenance, condition, treatment and present location. Such data should be kept in a secure environment and be supported with retrieval systems providing access to the information by the museum personnel and other legitimate users.

Museums acquire objects and create collections because each object conveys a special message. These may be historical, religious, economic, technological, and so on. When an object is moved from its place of origin and its context, its significance is reduced and it becomes more reliant on the documentation linked to it. Furthermore, when an object arrives at a museum, it begins a “new life”: it will be studied, positioned, exhibited, restored, loaned and transferred, and will be placed alongside many other objects. It will thus be necessary to identify it in a unique way, and to facilitate the management of every aspect of its new life.

The value of a collection (whether for the purposes of research, education or interpretation), and its accessibility depends to a large extent on the quality of its documentation. It is essential to keep the documentation up to date, whether it is manual or computerized. All new acquisitions should be recorded in the accession register at the earliest before they are taken to storage. Objects which are no longer part of the museum’s collection – as a result of being stolen or destroyed– should be marked as such in the accession register.

In order to ensure that the aims of documentation are achieved properly by the museum, it is essential that the museum adopts a workable system of documentation. Although more the information the museum possesses about an object, the more complete and accurate its

identification will be, yet it would not be advisable for a museum to follow an extremely complex system of documentation, which seeks to answer every conceivable future question concerning the items in the collections. Since such a system would require a great deal of effort and time to keep the documentation up to date, in absence of sufficient staff other duties in the museum will get neglected.

If you have a manual documentation system, consisting of an accession register, card catalogue (or computerized catalogue) and index files, it is essential to keep the files in order. Any card removed should be systematically returned to where it came from. A file which is not in order is almost useless, since access to the information will no longer be possible on a logical basis. The files should be kept up to date. Any new acquisition or any modification in regard to an object – alteration in its position, restoration, additional information concerning the object, etc. – should be entered in all files pertaining to the object concerned. In this way, the files do not risk becoming “fossilized” or obsolete. This is also equally true for computerized systems. Documentation should follow the object after its arrival in the museum.

If the museum is developing computer based records and digital images, this gives it the potential to provide access to information about its collections on the Web. Depending on the technical facilities and expertise available to the museum, this can be accomplished by providing on-line access to a public access module in the museum’s cataloguing system or by copying information from the internal system into a specific Web application. The technical requirements can be assessed in parallel with the review of the computer system. A key issue in considering development of a Web function to identify potential users and match the Web resource to their interest.

If objects are removed from display, a method of recording their removal should be used. The simplest way is to put a label in the object’s place, with the date, time and reason for the removal with the signature of the appropriate staff member. A similar recording system is needed for the movement of objects to and from stores. A manual or computerized register should also be used to record the movement of objects to and from displays and stores, both within the institution and for loans to and from other institutions.

Thus, documentation of objects appears vital for proper functioning of the museum. Though great efforts have been put in by museologists to develop and standardize systems of recording documentation, yet no system can be termed as perfect. In small museums where the staff is limited, documentation procedure need not be elaborate and they may customize

their entries as per the guidelines accepted internationally regarding parameters to be recorded.

Museums require appropriate security systems to protect the collections against theft and damage while in displays, exhibitions, working or storage areas and in transit. Policies should also be in place to protect the public and museum personnel, the collections and other resources, against natural and man-made disasters. The approach for insuring or indemnifying the resources of the museum may vary. However, the governing body should ensure that the cover is adequate and includes objects in transit or on loan and other items currently in the custody of the museum. Several theft cases were recorded during the last decade in the museums under the control of the Department of Archaeology & Museums, Government of Andhra Pradesh, and many of the stolen objects are yet to be recovered and returned to their respective museums.

The importance of documentation becomes most apparent in the event of a theft. The record of complete documentation alone enables a quick investigation into the crime and provides a reasonable chance of recovery. Besides, under the provision of the UNESCO Convention on the Means of Prohibiting and Preventing Illicit Import, Export and Transfer of Ownership of Cultural Property (1970), a smuggled object can be reclaimed only on the basis of well documented evidence. The Interpol publishes a list of stolen objects called ‘Ten Most Wanted Objects of Art’ with details of the objects and their photographs. Such a list helps in preventing museums or art dealers from acquiring these stolen objects and also to trace them.

Conclusion:

Museums are the treasure houses of cultural and natural heritage and focus on several facets like epigraphy, numismatics, literature, and iconography of all religious features which flourished in that region. By visiting these museums, we may assess the social, political, economical, religious conditions of that particular country. Documentation of objects is an important activity of museums, which can give a complete picture of the collection whenever desired, and thus helps in organizing exhibitions and exchange programs with other institutions. Documentation also helps in easily locating particular object(s) for the use of scholars. Lastly, the documented record is the only piece of evidence to establish ownership of lost/stolen objects.

Security Measures in Shree Swaminarayan Museum, Ahmedabad

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***Abstract:** The Swaminarayan religion was founded by Sahajanand Swami (1781 to 1830 A.D.) He was born in a small village named Chhapaiya near Ayodhya, in North India. At the age of 11 he left home for a strenuous seven-year pilgrimage through Nepal and Eastern and Southern India, ultimately settling down in the Western state of Gujarat.*

The Swaminarayan Museum was built to house the collections of Sahajananad Swami, his belongings and memorabilia. The museum, located on a sprawling campus of 2400 Sq.m. at Naranpura, Ahmedabad, has come up under the auspices of the Swaminarayan Mandir, Kalupur. This is a campus of profound aesthetic, architectural, and spiritual amalgam. The management of the museum intends to ensure that the museum retains its raison d'être and grows manifold in fame and splendour.

All museums are at risk because of their very nature; offering the general public the opportunity to appreciate great works of art. There could not be a more natural target for theft than museum objects because of their high value. Whatever is on exhibition, be they paintings, drawings, sculptures, ceramics, objects connected with inventions & scientific developments or natural history exhibits, etc., their security is a crucial issue for the museum administrators. Electronic gadgets play an important role in security; however what is required in a museum is an integrated security system. The Swaminarayan Museum has followed this dictum in totality and its boundary walls, windows, doors, locks, showcases, etc. have been fully secured. These are complemented by electronic systems such as motion detectors, smoke detectors, CCTV, alarm systems and, of course, fire extinguishers (powder and gas), etc. Good safety must be inherent in museum design in protecting both the museum's treasures and its visitors and staff.

The Swaminarayan religion was founded by Sahajanand Swami (1781 to 1830 A.D.) He was born in a small village named Chhapaiya near Ayodhya, in North India. At the age of 11 he left home for a strenuous seven-year pilgrimage through Nepal and Eastern and Southern India, ultimately settling down in the Western state of Gujarat.

The Swaminarayan Museum was built to house the collections of Sahajanand Swami, his belongings and memorabilia. The museum located on a sprawling campus of 25,000 Sq. feet. at Naranpura, Ahmedabad, has come up under the auspices of the Swaminarayan Mandir, Kalupur. This is a campus of profound aesthetic, architectural, and spiritual amalgam. The management of the museum intends to ensure that the museum retains its raison d'être and grows manifold in fame and splendor, and the Museum opened its doors to the public in 9th March 2009.



Fig. 1: View of the Museum

Building Protection



Fig. 2: Windows to use daylight in the gallery

The Swaminarayam Museum has a unique set of characteristics that make security and safety requirements different from those of other buildings. A well designed and well maintained fenced wall all around the campus provides the first line of defence, which is continuously monitored with intruder alarms and CCTV.

Museums bear dual responsibility; one to protect precious objects and the patrons and the other to show the objects to the public in a welcoming way, so that the visitors feel relaxed and focus entirely on the museum experience. Traditional “defence-in-depth” security is knowingly compromised because of the need to let patrons come near valuable objects, so a more innovative approach to security is required.

From the preventive conservation perspective, museum security is concerned with protection of the collection and the building as well. To fulfill the requirements, the Swaminarayan Museum has door sensors, a heat sensitive fire alarm system, motion detectors with alarm system in each gallery. In addition, there is a control room to monitor the alarm system day and night and only authorized persons can enter the control room. An electronic code system has been installed for opening the door of the control room.



Fig. 3: Gallery view, display on first floor

The display is planned in a way that it is most effective in engaging the visitors and is appropriate in communicating the message and telling the story. This museum has enough details and objects which coherently tell the moving truth of the past of the Shree Swaminarayan sect and religion in visible and comprehensible manner.

Museum Alarm Systems:

Experience shows that installation of an intruder alarm system is meaningful only when the response system is efficient, and the responding authority arrives on the scene before the crime is committed. This is why the need for a strong human factor in security systems has been emphasized. An intruder alarm system can then be used effectively by giving an early signal of an attack, as the burglar attempts to defeat the building's physical defences. Most alarm panels handle a relatively large number of door contacts, motion detectors and other detection devices. Generally, these panels divide the detectors into zones or partitions. Some institutions require more zones than a typical panel can provide, so they use multiple alarm panels. While this means that the museum technically has two alarm systems, they can function as one system as far as the user is concerned.

These systems can handle any type of detection device. The most common detector is the infra-red motion detector and many use detectors that work with multiple technologies such

as infra-red and microwaves in one detector. This reduces false alarms. These detectors detect motion within the space and trigger the alarm. Door contacts, almost always of the magnetic type, detect the opening of a door, and glass break sensors detect the breaking of glass. Glass break detectors come in two types; impact detectors, which detect the impact against the glass and acoustic detectors, which are tuned to the sound of breaking of glass. Alarm systems can also monitor any type of detector, including temperature and humidity sensors, panic buttons, beams, etc.

The goal of alarm systems is to secure both the perimeter and the interior space. A building is like a box. It has a top, bottom and sides. Every opening must be secured including access from the basement, access to the roof via doors and skylights, and access from the sides including windows, doors and other openings like vents. Since a break-in is not the only threat we face and someone could easily enter legally as a visitor and stay behind at night, the Swaminarayan museum is provided with interior motion detectors strategically throughout the building, inside all glass windows, all doors, at elevators and stair doors and in high security areas and even in the collection bearing areas like storage and the conservation laboratory.

Inside the museum there are areas of greater risk than other areas. These include collection storage and other collection bearing areas and here also it is necessary to establish an interior perimeter as well as interior motion zones security.

Fire Prevention and Detection:

Each and every gallery is insulated by high standard electrical wiring and equipments, which have been installed as per the latest guidelines, and are maintained and checked regularly by a competent person. It is essential that automatic fire detection systems give an early indication of the presence of fire. These systems that detect smoke or heat will not only cause a local audible alarm to prompt an evacuation, but can also cause an activation to be sent over the telephone line to an alarm receiving centre. In addition, to meet environmental standards, the museum has made provisions for fire safety for the protection of artifacts.



Fig. 4: Display on the second floor

A fire extinguisher is an active protection device used to extinguish or control a fire. Typically, it consists of a cylindrical pressure vessel containing an agent which can be discharged to extinguish a fire and fire hose reels that are easily accessible.



Fig. 5: Fire extinguisher and hose reel

The fire alarm system include manual call points, indicating equipment, fire alerting devices, interconnections, safety control outputs, power supplies and wiring. If connected to a remote receiving centre, it will also include remote signalling equipment.



Fig. 6: Fire alarm

Motion Detector:

It is a mechanism to detect movement in an area in which one pair of connection is to supply electric current to the mechanism and the other pair is to activate the alarm. It generally covers the whole area and not only the floor. Areas particularly covered by the device are the areas used to open and close doors or turn lights on or off. An electronic motion detector contains a motion sensor that transforms the detection of motion into an electric signal. This can be achieved by measuring optical changes in the field of view. Most motion detectors can detect up to a distance of 15 – 25 meters. A motion detector may be connected to a burglar alarm and it may also trigger a red light camera.



Fig. 7: Motion detector

Closed Circuit Television (CCTV):

It is an electronic monitoring system to transmit a signal to a specific place on a set of monitors. CCTV consists of video cameras and TV screens connected directly through a network of cables. Commercial cable TV is technically an example of CCTV, but the term "CCTV" is generally reserved for systems serving a small number of screens that are monitored for security purposes.

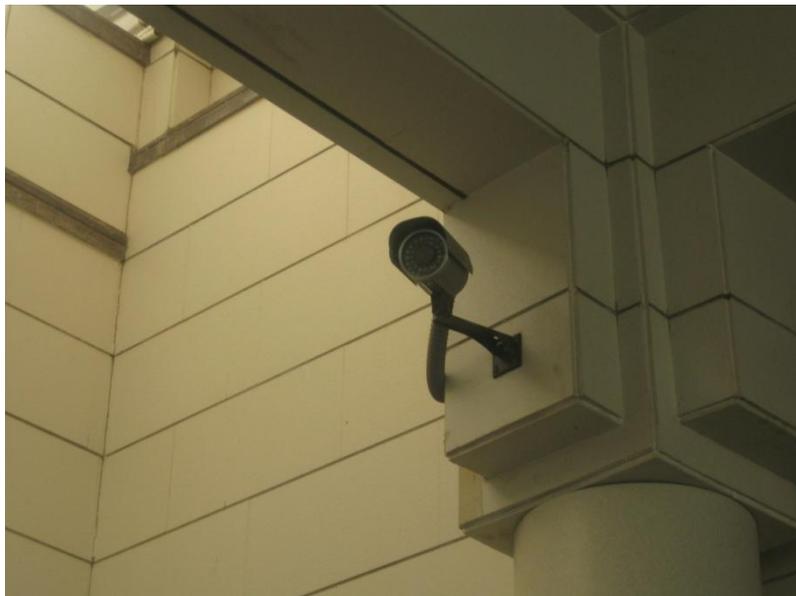


Fig. 8: CCTV camera at the entrance of the first floor gallery



Fig. 9: The display under surveillance of CCTV camera

Other Security Measures in the Swaminarayan Museum

Security Staff

Access to collections by visitors may range from viewing the objects displayed in showcases in museums to direct handling in archives and libraries. Security is increasingly compromised as access to objects is increased, and the key to protecting a collection from vandalism or theft lies in getting the right balance between access and security. This museum has a team of guards or attendants for the whole complex and their duties are set out on the following parameters:

- The nature and use of the building;
- The value, quality and type of objects in the collection;
- The number, size and layout of the galleries;
- The number of visitors and the facilities provided
- Duties related to other staff and behind the scenes in offices and stores.

All staff of this museum wear uniform bearing the institution's logo, and 'Attendants' are designated as 'Assistants'. It gives them a sense of pride and thereby a greater sense of

responsibility. As usually happens in private museums, the Assistants have to perform several other odd jobs in addition to their primary duty of protecting the visitors and the collection; undue distractions from this primary role should be avoided. Although utmost care has been taken in constructing a safe building and installing state of the art electronic security gadgets, manual night patrolling is essential for better security. Electronic systems can work as additional aids to night guards.

Control of Keys

There needs to be a strict policy for the issue, possession and storage of keys. Very often the possession of keys is based on status or convenience, when the deciding factors ought to be real need and accountability. All keys (including safe keys) other than external door keys must remain in the building in a secure cabinet or safe, and the external door keys must be in the possession of nominated persons. They must be identified by a coding system and the issue system should operate from a secure area, ideally the security control room. Some system for the allocation of keys should be drawn up strictly on need and accountability. Extreme care is taken when issuing the keys and unsupervised access to collections is never permitted. A proper system is introduced for visual inspection at the end of the day to confirm that all keys have been returned.

Walk-through Door Frame Metal Detector:

The walk-through door frame metal detectors are microprocessor based and PC compatible and have six zone detection. It has a multi mode counter i.e. IN & OUT or WALK & OUT. This digitally controls sensitivity threshold and volume. The museum has its own conservation laboratory where day-to-day work is going on. The entry to the laboratory is restricted only to authorized persons. A biometric lock is installed to ensure this. The reserve collection is attached to the laboratory. Prior permission from the main authorities is necessary to visit the reserved collection.

Other steps

Control Room Procedures

The control room is the focal point of security operations. In large organizations it will be a continually manned, high security, technical facility. However, the Swaminarayan museum has adopted some general principles. The following suggestions assist the museum procedures to provide a control room focal point for security operations.

Location

The control room is centrally located and has restrictions on general access. The control room itself must always be completely secure. The person who is in charge is equipped with a mobile phone and is in possession of all the necessary facilities to manage an emergency. It is located in the main activity area of the museum and only authorized person can go inside the control room.

Functions

- The central point for 24-hour communications, both operational and for emergency services.
- The monitoring point for all alarm systems, fire systems, surveillance and environmental systems. (Control rooms have the capability to deliberately operate a personal attack button connected to an alarm receiving centre.)
- The location and monitoring point for all keys (in secure cabinets) and access control system.
- The information holding point for all records, patrol reports, CCTV tapes, incidents and visitors.
- The immediate access point for information on any emergency fire-fighting equipment, and first aid equipment. The CCTV systems are employed and recorded so that they can be reviewed by the duty person as part of the response as well as for later use by staff and the police.

Conclusion

Good security in a museum should be minimally intrusive but must also be maximally effective. Good safety must also be inherent in museum design, protecting both the museum's treasures and its visitors and staff.

Security is an essential part of life today, whether we like it or not. Most organizations see the need to outsource the security services to protect their assets, customers and employees. Museums, galleries, libraries and archives have a greater duty and responsibility for protecting the nation's cultural assets. All agree that security should be provided in a structured and effective manner that represents best value. This publication is intended to support and guide the implementation of this principle and act as a valuable, practical tool for operational managers across the sector.

The Security and Safety of Museums with reference to National Museum, New Delhi

K.N. Dikshit*

Of all the national assets, antiquities and art treasures are the most precious. They are a priceless legacy of one generation to another. How we value these treasures of the past is a barometer of our cultural sensibility and maturity. After India became independent, the cultural heritage of the country was uppermost in the minds of the fathers of the Constitution of India, and they have inscribed that "it shall be the fundamental duty of every citizen of India to value and preserve the rich heritage of our composite culture".

In the last quarter of the 18th century, the officers of the East India Company started taking an interest in the antiquarian wealth of India. In 1784, William Jones started the Asiatic Society in Calcutta, 'for academic enquiry into the history, antiquities, science and literatures of Asia'. In 1788, a journal called Asiatic Researches was published and in 1814, a museum was established at Calcutta.

The Problem

The security and safety of Museums is a broad subject and never received the due attention it required. (Dikshit; 1971-72:47-51) There is a lack of proper identification and documentation of objects kept in the Museums. Many museums have no catalogue or proper photographic inventory of the objects. The national consciousness emerged quite late in our country. Even the leading museums like the National Museum, New Delhi, Indian Museum, Calcutta, Prince of Wales Museum, Mumbai or Salarjung Museum, Hyderabad never thought it fit even to discuss this issue and shied away from publicising it, although Museums Association of India organized a conference as late as in 1977 on the subject of 'Security in Museums' at Salarjung Museum, Hyderabad.

In this conference at Hyderabad, a beginning was made by the museologists of the country at the instance of O.P. Aggrawal and Smita J. Baxi where the problems and requirements of security of

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museums were discussed. (Aggarwal; 1979-116, Baxi, 1974:166-174) Grace Morley focused on the problem of theft of antiquities which took place in 1976, especially regarding the works of late Pablo Picasso from a temporary special exhibition in Avignon in Southern France and also quoted comparable reports on thefts in European and other western countries, especially in Italy. The objects included old and modern master paintings, African and Oceanic ritual masks and sculptures, Asian stone and bronze images and miniatures from Iran and India. She pointed out further that items of historic interest -manuscripts, letters of celebrities, documents and the like- too were sometimes stolen from museums. We have no data about how the other leading museums such as the Metropolitan Museum, New York, British Museum, London, Louvre Museum, Paris or museums in Russia, Japan and China are managed.

Publications on Museum Security

In 1964 an issue of UNESCO's Journal 'Museum International' was devoted to 'The Protection of Museums against Theft' (17:170-232). It gives an excellent theoretical analysis of the fundamental concepts of museum security together with advice and recommendations. In 1974 another issue of 'Museum' came out on 'Museum and the Theft of Works of Art' (26: No. 1:1-64) devoted to stimulate discussion, encouragement, reflection and search for solutions, or at least possible improvements in the situation and also included a report by Interpol on 'Theft of Cultural Property' and information by Michael Clamen. A survey of security problems in museums and of the latest technical devices and systems available for protection was carried out by George Schroder and a part of his work was published as 'Schroder Report' in ICOM news in 1975 (28: No. 4:141-144). When the piracy of cultural property reached threatening proportions, the matter was deliberated in many International Conferences and meetings such as "Means of Prohibiting and Preventing Illicit Import, Export and Transfer of Ownership of Cultural Property" adopted by the General Conference of UNESCO in 1972, but on safety measures the recommendation of the ICOM symposium which was held at St. Maximin in France in 1973 suggested creation of a regular cadre for gallery guards with a senior officer at the top of the cadre. However, a number of countries where stolen and smuggled works of art are reaching are not signatories to the convention adopted by the world body.

ICOM also published a book 'Museum Security' edited by Diana D. Menkes, in English, with translation by Marthe de Moltke in French, Paris, 1977 with the support of the Smithsonian Institution. It was compiled by a team of specialists working together on the ICOM International Committee for Museum Security (ICMS) established in 1974 as a part of ICOM. This book is divided into twelve chapters starting with introduction, responsibility, the security force, inventory control, protection against fire, protection against theft and burglary, central stations, internal security, personal security, damage, response and counteraction to theft and violence, architectural planning and conclusions and recommendations with three appendices - sample museum emergency plan, bomb threat checklist and canine teams and bibliography and index. The canine team is composed of a security officer and a dog professionally trained together as a working unit. The Smithsonian Institution in Washington DC is among the numerous agencies which use canine teams with a high degree of success. In India, the State Museum, Chandigarh, as informed by its Director, is also using this team for patrolling the campus.

The Canadian Museums Association published in 1975 'An Approach to Museum Security' (Alsford; 1975, 8:6-16). It outlines a lot of practical advice, especially for small and low-budget museums and also a systematic approach to physical security including fire protection, if finances allow. Stress has been laid on complete documentation with photographs and location records.

Recent Thefts and Burglary

The recent theft in 2004 of a pistol (handed over by General Niazi of Pakistan at the time of surrender to Indian Forces in 1972) from the Maritime Heritage Gallery of the Indian Navy housed in the first floor of the National Museum, New Delhi, theft of the Nobel Medallion given to Rabindranath Tagore kept in the Museum of Visvabharati University at Shantiniketan, West Bengal and the books taken away with the connivance of the staff from the newly established Lal Bahadur Shastri Memorial at 10, Janpath, New Delhi, are the most alarming ones and in all these cases the security of the museums are involved.

The theft at Shantiniketan was discovered the next morning when the museum opened after a weekly holiday. The modus operandi followed by the thieves was that they entered the museum through a window in the northern side by cutting the grill. Along with the Nobel medallion and citation, Tagore's favourite gold pocket watch, his wife Mrinalini Devi's gold bangle, an antique sari, rare paintings, heirlooms and silver utensils were also stolen. The burglary took place when all of India was glued to the television screens watching a thrilling cricket final against Pakistan. This has been termed as criminal negligence of security and the rue of the common man is that elite commandos protect ordinary politicians of the day, whereas no guard was posted in the museum. The missing of General Niazi's Pistol has raised a vital question: how safe are our museums? K.B. Venkatasubramanian, Member, Planning Commission has rightly remarked in his inaugural address on the seminar of 'Security and Safety of Museums in India' that security of national heritage is in 'abject neglect'.

History of Major Thefts

The safety and security aspect of our heritage was not seriously considered in the past. However, a group of officers from the National Police Academy, Mount Abu, tried to assess the problem of thefts in museums, and suggested certain measures for preventing the recurrence of thefts. Their study also revealed that a number of curio-dealers, or their agents are behind crimes in stealing objects from temples, historical sites and monuments. The modus operandi of these criminals is just like other burglars and thieves in general. For example, in 1962, silver trinkets were stolen from the Indian Museum, Calcutta, with the use of a ladder and by breaking open a window. In 1964 in the Junagadh Museum criminals entered by breaking the locks. In 1965, acid was poured on the lock of Bangiya Sahitya Parishad Museum, Calcutta, and a bronze statue of Lord Vishnu was stolen. In 1968, silver objects were removed by a burglar from the Prince of Wales Museum, Bombay. He hid himself in the museum at closing time, and came out through a window by climbing down a rope. In the case of the National Museum, New Delhi, the thief reached the roof of the building by climbing up a drain pipe, and came down from the roof by means of a rope. He also cut the iron-grill door with a saw, and removed items of antique jewellery. At Jaipur, the criminals entered the City Palace Museum through a large ventilator opening into the store.

In this connection while discussing the modus operandi, the sensational journalistic coup of Peter Watson from London is interesting to illustrate his comments on Lot No. 119 put to auction in April 1996 in London by Sotheby's. In reply to Watson's question 'How did you manage that?', he (the smuggler) 'made a dismissive motion with his hand. The diplomatic bag.' (Watson, 1997).

A priceless Chola period Nataraja from Shivapuram was smuggled to the U.S.A. A bold, but unsuccessful attempt was made in Calcutta in 1975 to export another image of Nataraja in some packages declared as 'books' in the shipping bill. Images in active worship were removed from Chamba and Badrinath but prompt action by the CBI and Police foiled these attempts. This craze has so completely overtaken the promoters of these shabby deals that on one occasion they have not even hesitated in killing a guard of an Archaeological Site Museum who resisted the theft.

Some of the examples of the smuggled antiquities and art objects are: Nataraja from Sivapuram, Tamil Nadu (1956); Buddha head from Government Museum, Mathura, Uttar Pradesh (1961); sawn stucco heads from Nalanda, Bihar (1974); terracotta figure from Bhitargaon, Uttar Pradesh (1982); bronze images from the Archaeological Museum, Nalanda, Bihar (1961-62); Tara from Mahant Ghasidas Memorial Museum, Raipur, Madhya Pradesh; embroidered costumes and a gunpowder receptacle in the form of horn of jade from the Archaeological Museum, Red Fort, Delhi; Amin pillars, Amin, Haryana; a terracotta Yakshi from Tamluk, West Bengal; and a Yogini from Lokhori, district Banda, Uttar Pradesh (1987). Pink mottled Kushana pillars probably from central India put to auction recently in 1996 by Sotheby's in London and subsequently withdrawn are the latest in the list (information from Shri C.B. Patil and Shri C.B. Mishra of the Archaeological Survey of India).

However, the most regrettable aspect of this problem is that some of objects stolen from museums, protected monuments or private temples are now adorning Indian galleries of museums around the world. A number of private collectors have also acquired bronzes, stone sculptures and terracotta's from India. Famous among these are the John D. Rockefeller III Collection, New York; Earl Morse Collection, New York; Bickford Collection, Cleveland and Mr. Jason B. Grossman Collection, Los Angeles. It is possible that the managers of these collections may be unaware of the illegal means by which these objects have reached their shelves. However, there is a behavioural change where some institutions and museums took a public pledge to refrain from acquisition of any objects which did not have a clear history of lawful procurement from its country of origin. In some cases, where the stolen objects were purchased unintentionally, the buyers returned the objects to the country of origin (Shivapuram Nataraja by Norton Simon, Vishnu Image by Boston Museum, etc.).

Security of National Museum, New Delhi

It was on the auspicious day of August 15, 1949 that the National Museum of India was established in the Durbar Hall of Rashtrapati Bhawan, New Delhi. Subsequently, a new building suitable for the purpose was constructed and the collection which had grown since its inception was transferred to the new building, where works of art were elegantly displayed on scientific lines and thrown open to public on December 18, 1960.

Since the inception of National Museum, New Delhi in the present building, the security aspect was looked after by the Deputy Keeper (Prehistory) because his section was considered not to

have enough work by the authorities. He was provided a security assistant, care taker, gallery attendants and guards. This was the time when Chinese and Pakistani attacks took place. There was no emergency evacuation plan except that the most important and rare objects were dumped by each section in the strong room. In 1970 a letter was addressed by the author who was a Deputy Keeper at that time to the concerned Ministry for the provision of proper security as the National Museum was a subordinate office and there was no Director there after the retirement of C. Sivaramurty. The result was very pathetic. In the name of security, the competent authorities promoted a photographer as senior photographer to complete the job of inventory work of the museum objects. The tell-tale security era continued till national consciousness dawned on the authorities to provide the Central Industrial Security Force in 1990 to guard the building and entrance, though causing inconvenience to visitors and staff, at the highest degree of alertness.

Use of Technical Equipment

The installation of technical equipment in different museums and the choice of their use in the overall scheme are described in detail with photographic illustrations (Menkes, 1977: 70-113).

A. Protection

1. Perimeter Protection
2. Mechanical Security
3. Electrical Electronic Protection
4. Technical Equipment General Selection Criteria

B. Museum Personal Security

1. External Security System
2. Internal Security System

C. Devices Used

1. Detectors and Alarms
 - (i) Beam detectors or Photo-electric eyes
 - (ii) Magnetic contact switch
 - (iii) Shutter magnetic contact
 - (iv) Anti-shop lifting equipment
 - (v) Passive infra red rays
 - (vi) Piezoelectric glass breaking sensors
 - (vii) Panic switch alarm/Holdup

D. Checking Devices

- (i) Door frame metal detector (DFMD)
- (ii) Hand hold metal detector (HHMD)
- (iii) X-Ray machine detector
- (iv) Car checking mirror

E. Communication Devices

- (i) Intercom telephone
- (ii) Walky-talky
- (iii) Public announcement system

F. Close-Circuit Television (CCTV)

Twenty four hours television surveillance or constant scan is possible with the help of this system. In this system, on-line cameras are placed at various places which are important from the security point of view, all over the museum, inside and outside the museum building. For constant watch the televisions or monitors are placed in the CCTV control room, situated in the basement. This system is maintained by the CISF. In 1995, sixty one black and white cameras were installed at various places in the National Museum. Along with these, black and white televisions were also installed in the CCTV room along with the Multiplexer, for viewing the output of multiple cameras on one TV monitor, which is further connected with a VCR for continuous recording of the happenings and keeping them up to 960 hrs. Instead of recording in the form of a continuous film, this system keeps a record of each and every movement. In June 2000, the Technical Survey Committee recommended installing the advanced technology CCTV system in the National Museum. After following this recommendation, 162 colour cameras, including 8 Dome cameras, were installed. Along with these, for video coverage and recording of 128 cameras out of 162 colour cameras, two sets of Electronic Data Recorder (EDR) and Matrix Switcher were also installed in the CCTV room. This new system also supports the controlling of all the detectors and alarms, except the panic alarm and magnetic door locks. All the detectors and alarms give signals on this system in CCTV room. For the remaining 32 colour cameras, two sets of multiplexers and VCRs were installed in the CCTV room, which is similar to the older system. Two colour cameras are still uncovered by any kind of supportive system and these cameras are only used for online viewing. Hence we see that there are three types of online cameras in the National Museum, i.e., fixed type black and white cameras, fixed type colour cameras and Dome cameras. Dome cameras can be moved in 360.degree with the help of motor fixed at its bottom

and it also has zoom lens facility.

H. Fire Fighting Instruments

1. Fire Extinguishers
2. Method of Operation

3. Respiratory Protective Equipments

Conclusion

The security and safety of museums in the country require more effective measures, especially where they are more vulnerable to

open areas viz. site museums which are at forlorn places. However, no single security programme can be advanced as every museum has its own security needs. It is a question of application and implementation of measures. The technical equipments can augment, but human beings are ultimately responsible for a museum's security. A Security Committee is a desideratum for all the museums in order to make the entire staff security conscious. This recommendation was made in 1977 by the International Council of Museums for Security (ICMS) but not followed in our country by any museum or organizations such as the Archaeological Survey of India, which has a chain of site museums. At many places in ASI, the night watch and ward staff is supplemented with armed police guards. In the Archaeological Survey of India, apart from the national level, such committees are also needed at regional levels for monitoring the thefts of works of art. This committee must have members from law enforcing agencies including Customs, Income-tax, etc.

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Challenges and Advanced Methods in the Museum Security

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***Abstract:** We are proud of the exquisite objects of cultural property housed in our museums across the country, and it should be our endeavour to save them for posterity. Security of museums is a challenging task and demands a huge mechanism in terms of human resources and technological inputs. Museum security is mainly concerned with the loss of objects due to criminal activities, accidental and natural disasters and other natural factors of deterioration.*

In most cases of thefts in museums, involvement of insiders is first suspected. In order to prevent this, regular inspections and control of the mails and parcels moving out of the building and from the museum stores are required. The incoming calls of the security staff should also be monitored. A security master plan for the museum should be prepared and reviewed periodically and indicators of property control system should be strictly monitored to identify the missing items, theft and other losses. Security in a museum should not be made the responsibility of security staff alone, and it should be seen as the responsibility of everyone, including visitors. Therefore, coordination between the security management system and other staff at all levels is essential. Various elements of security system are discussed at length in the paper.

The goal of museum security is not to close its doors but to make sure they are opened to visitors in a responsible manner. It demands a huge mechanism of human resources, funding to implement effective management and an advanced communication system, support of the Government and local bodies, University departments, art collecting agencies, donors and local people. It is contextual to cite the wonderful situation of the January 25 2011 revolution in Egypt; the world was amazed by the spirit of Egyptians nationalism and awareness which brought the people, students and villagers together to form a human chain at the risk of their lives to protect museums, churches, archaeological sites from being looted or damaged. Security problems are often created by criminal activities such as theft, where insiders may

also be involved. Sometimes schizophrenic disorders of visitors are also a risk causing graffiti, vandalism, etc.

In a country like India, protecting priceless objects is a particularly tough challenge for public museums and galleries. They are facing the conflicting dilemma of keeping objects safe, yet allowing visitors a chance to see them. Indian museums have rich collections of different kinds, ranging from valuable antiquities, priceless miniatures, glittering gold and diamond jewellery, exquisite specimens of rare and superb craftsmanship, and tribal arts and crafts, which are now on the verge of disappearance owing to rapid industrialization. The post-independence revival of arts and the development of international contacts amongst museum personnel have helped museums to grow, and they have also brought greater awareness about Indian art throughout the world.

Most art collectors and antique dealers now take pride in acquiring and collecting pieces of Indian art. Art consciousness has also grown amongst the Indians, even among villagers who were not aware of the value of their art heritage until a few years ago. This awareness concerns financial as well as artistic value. It has now given rise to the temptation of gaining a fortune through the sale of these treasures. Some persons are tempted by the sheer value of gold and diamonds whilst others know the value of art and want to enrich their lives with sculptures and other objects supposed to be uselessly lying around the temples. Former God-fearing Indians have now even started removing idols under worship. Although the number of recorded thefts is not very large, it does show a dangerous upward trend ^[1]. Increase in the number of thefts from monuments and temples is particularly alarming and is now engaging the serious attention of the government. Owing to the awareness of the people as well as the press, such thefts are given wide publicity, which has sometimes forced the authorities to undertake immediate investigations.

Many people in India are very possessive, passionate, over-enthusiastic, but lack knowledge of preservation and conservation of artifacts and security norms in museums. It is probably a natural instinct to touch and feel beautiful objects. To prevent visitors from touching open exhibits, they should be displayed on large platforms. Plants and shallow boxes filled with marble chips or stones provide an adequate and invisible fencing around open exhibits. It is not uncommon in India to see museum sculptures garlanded. Some even adorn museum idols of gods and goddesses with unguents, vermilion and flowers, as they do in temples. Strict vigil by guards has brought this problem under control to some extent, but it still needs watching. During preparations for display of objects in the galleries, consideration

should also be given to security measures against touching.

As per FBI statistics, 80% of art thefts involve insiders and cargo drivers ^[2]. There are Directors, subordinate staff, interns and cleaning staff (most of them are outsourced), volunteers, security, electrical staff, conservators and visiting scholars, who have access to museum objects. All these people can take advantage of their positions or they can be exploited by clever criminals using social engineering.

Indian museums have gallery attendants inside the galleries during open hours, guards or chowkidars at the entrances, and guards do patrolling around and inside the building when the museum is closed. However, most museums do not have adequate number of guards and attendants for their specific requirements. More often, guards are not fully trained in security duties and are semi-literate and unable to read passes, identity cards, etc. properly. Many of the Indian museums do not have alarm clocks to be used by guards during night patrolling; alarm clocks ensure that the guards take rounds at night. Most museum authorities are in favour of having guards and relying on the human factor for maintenance of security. To enforce strict control over the guarding arrangements, it is considered essential for the director and senior officials to do surprise checks during night-time to keep the guards 'alert'. In addition to regular guards, it may be worthwhile to arrange for police guards, particularly for patrolling the area around the museum. Miscreants are likely to be more afraid of the police than of museum guards. Armed guards at important spots like the entrance and the strong-room are necessary for security.

The design of the galleries and showcases should be such that it allows the visitors to get close to the priceless artifacts, but at the same time it guards against theft and vandalism. When the layout of the gallery is planned, care should be taken that no 'dark' corners are created by the position of showcases or by overlapping partition walls. Such corners can be used by thieves as hiding places. As far as possible, the entry of visitors to the staff rooms should be restricted and their entry in the museum storage rooms must be banned. Many historic buildings have been converted to museums and such buildings add to the complexity of installing adequate security systems. As a security measure, functioning of the museum security must be reviewed periodically according to a checklist. This should include working of guards, visitor regulations, entrance checks, alarm response, layout of exhibits and routing through the building. The latter refers to a system whereby visitors are guided along a dedicated path, which not only enhances viewer experience but also counteracts quick

getaways following smash-and- grab attempts.

How and where different objects are displayed inside the museum should also be a part of security planning. The most precious objects should never be placed near the outer shell of the building. This lesson was painfully learnt by the Kunsthistorisches Museum in Vienna a few years ago, when the famous Cellini Salt Cellar was stolen. The theft of this valuable table sculpture, estimated at 30 million euros, took only 58 seconds. At the time, scaffolding was erected outside the building. The thief climbed the scaffolds and then smashed a window and a display case containing the piece ^[3]. In addition, a complete security solution should cover structural issues such as doors, locks, fences, bars, burglar-resistant glass and hanging systems. These are complemented by electronic measures such as motion detection, infrared systems, sound alarms, CCTV (Closed Circuit Television) systems and RFID (Radio Frequency Identification Device) solutions which are applied to or incorporated into the work of art, in order to locate it if stolen.

For fire detection, automatic alarms are essential, particularly in the storage areas which are not occupied throughout the day. Burglar alarms in such storage areas are a great help for protection of the reserve collection. Fire alarms should be in both visual and audible forms. The signals should be clear, distinguishable from other alarms and easily understood by all occupants of the building, including people with impaired vision or hearing.

There should be coordination between the museum administration and those responsible for security. The security staff should know enough about the layout of galleries, storage and the specific needs of collections, and museum attendants must possess sufficient knowledge about security procedures to be followed during normal operation and in an emergency. It is essential to have a trained security officer, who also should have adequate knowledge of electrical installations, alarm systems, fire-extinguishers, etc. He should be up to date on the procedures and formalities to be followed in security matters and in emergencies. Moreover, communication between museum security and local police is very important.

It is a mistake to depend heavily on electronic systems, and it should be borne in mind that the human factor cannot be underestimated. Security aspects must be combined with all activities of the museum and also its structural features. Security must always be established according to the redundancy principle, which means that if any of the security precautions are tampered with, the alternative measures must be able to do the job. Alarm systems must be attached to the building's outer shell at all levels of a building, as experience has shown that fifty percent of thefts take place on the upper floors of a building. Security measures should

not be limited to motion detection inside the building but also along the perimeter of the building ^[3]. A more effective museum security plan can be achieved by a combination of electronic systems with an efficient human factor. Every member of the museum should feel as if it is their home and every priceless object is bequeathed by their ancestors. The museum director should play a pivotal role in bringing coordination and a spirit of nationalism among the museum staff. All the staff should feel that they are safe and secure under their Director. Electronic eyes, reinforced locks, closed-circuit television, security precautions etc have made progress. Nevertheless, an alarm system is useless unless there is appropriate human intervention ^[4].

Biometric systems may be adopted to control entry and the data should be stored for a few days, which can be retrieved as and when required. On the occasions of special exhibitions, visitors' entry per session or per day should be restricted. These measures can prevent or at least lessen the risk levels.

Indicators of a property control system shall be maintained strictly within limits and periodic verifications done. The objects that are exhibited in galleries should be properly secured. They can be tagged and monitored using contact and pressure sensors. It is advisable to use the OBJECT ID of international standards for information exchange. Textual and especially visual documentation is a key factor in any inquiry, and museums are supposed to use various sophisticated designation techniques, such as micro-dots, Shape DNA registration etc. for purposes of future identification. With the help of Shape-DNA, several applications can be realized; one can use the Shape-DNA to identify objects for the purpose of copyright protection even when they are given in different representations. Objects having similar Shape can be easily differentiated by comparing the Shape-DNA alone.

Today, there are already many international agencies monitoring the trade in cultural objects and co-operation with them brings positive results. Still, when an important object is missing from a collection it is always necessary to contact the local or national police first, according to local arrangements and the agreed procedures. To help in the inquiry, the police should be provided textual documentation and also photographs of the object in question. It is also advisable to check whether the police has initiated the launch of an international inquiry, either through the national office of Interpol and through the Secretariat General of ICOM.

Due to the dearth of human and financial resources and efficient institutional systems, most museums cannot afford to have expensive equipment and complex procedures. Therefore, low-cost security systems that also take into account local socio-cultural and political

sensitivities need to be introduced. In order to prevent thefts by insiders, periodic verification of objects, control on the parcels going out of the building, baggage check, etc. should be regular exercises. I would like to propose a Museum Security Force (MSF) as a special wing, which should be formed and trained with enough sensibility towards the protection of cultural property, knowledge of risk analysis, etc. The preparedness activities through collaboration between museums, local governments and community organizations will certainly go a long way in saving our valuable heritage.

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Security Practices in the Regional Museum of Natural History, Bhopal

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***Abstract:** Museum security is the philosophy and activity of providing an environment in which objects and people may be as free from threat of harm or damage as possible. Natural History Museums have a unique set of characteristics that make security and safety requirements different from those of other museums. There are several elements involved in such security such as the security plan, staff, barriers, signage, alarms and surveillance etc. Museums must simultaneously accomplish two things; on the one hand, they must safeguard precious objects and protect patrons and on the other, they must remain open to the public and be designed in a welcoming way that lets visitors feel relaxed and focus entirely on the museum experience. Traditional “defence-in-depth” security is knowingly compromised because of the need to let patrons come near valuable assets, so a more innovative approach to security is required.*

Good safety must also be inherent in the design of a natural history museum for protecting the museum’s collections and its visitors and staff. Good security in a museum should be minimally intrusive but must also be maximally effective. As the collections of natural history objects are most popular, museum professionals have to work hard to ensure the preservation of the collection for the enjoyment, education and research for generations.

Introduction:

The protection of people and assets from various potential threats is called security. The term is used interchangeably with the word protection and includes prevention and protection. Museum security is the philosophy and activity of providing an environment in which objects and people may be as free from threat of harm or damage as possible. Natural History Museums have a unique set of characteristics that make security and safety requirements different from those of other museums.

Elements involved in security

- Architectural plan
- Security plan
- Staff
- Barriers
- Signage
- Collection management practices
- Documentation
- Housekeeping practices
- Environmental monitoring (lighting, climate change, pollution, etc.)
- Alarms and surveillance etc.

Architectural plan:

Security threats have changed much faster than the architectural trends. Something that seemed a good idea when a building was designed might make little sense a century or even a decade later. Museum buildings should be designed according to external as well as internal factors like theft, biological agents etc. The Regional Museum of Natural History (RMNH), Bhopal has a total area of 7.62 acres. Some systems such as water hydrants and pumping systems are necessary to provide security against threats like fire, flood, etc. Watch towers, patrolling pathways are also very helpful to secure the museum.

Security Plan:

Each museum should have a written agreed plan with the security services provider to include not only what to do in response to problems but also how to prevent problems in security practices. In response to the security plan, the Regional Museum of Natural History has a written agreement to deal with the service provider. In that agreement each and every responsibility is written in very clear terms.

Staff:

The staff posted on security duty are the face of the museum. Security personnel who are courteous and helpful create a welcome ambience for the visitors. All staff members must share their involvement in museum security matters. They should be alert and vigilant

towards changes in the collections and the environment. Without an attitude of sharing responsibility between all staff members, adequate security is virtually impossible. The security personnel should be trained and experienced.

Barriers:

A barrier is anything that comes between a visitor and a museum object, which can be barricades, railings, plastic / glass sheets. In RMNH, Bhopal some exhibits are with barriers in the gallery called Nature’s Network and some are participatory exhibits in the Discovery Centre which are designed in a way to give a unique experience to visitors through touch and feel.



Mounted animals displayed in glass covered cases



Railing for open exhibits

Signage:

Signage plays a vital role in providing information and direction to visitors to avoid an uncomfortable experience. Signs should include large words placed at visible heights, labels or text panels requiring a closer approach or even graphics and symbols that facilitate proper information or directions.

Collection Management Practices

A collection management policy is a detailed written statement that sets forth the purpose of the museum and its goals, and explains how these goals are interpreted in its activity. Security in collection management encompasses safety of the collection/objects, correct handling practices, proper documentation, their movements within or outside the museum and conservation. Preventive conservation being of utmost importance must consider:

- Effect of environmental factors such as pollution, relative humidity, light and temperature and remedial measures
- Control of biological activities
- Reactivity of the material of the objects
- Preparedness against natural and man-made disasters

At RMNH, Bhopal central air conditioning is installed in the galleries to maintain the temperature and relative humidity. To keep the museum free from attacks of biological factors, insecticide treatment was given to the building to control termite attacks, especially in the exhibition area made from wood and canvas. Since some parts of the outdoor exhibition area are open, it cannot be without dust and pollution. Due to being in the open area, some exhibits are greatly affected by sunlight and rain, and their longevity is reduced.

Documentation

Documentation is a very important component of the security of objects. Specimens are documented, but assessing of the state of preservation of the collection needs to be completed.

Housekeeping practices

Housekeeping practices are considered the realm of the custodial or janitorial staff. Training housekeeping personnel is very important. Removal of dust from the collection storage areas and exhibitions is important. Dust also provides sustenance and shelter to living organisms. At RMNH, Bhopal, removal of dust is a regular practice by the gallery staff from the glass, floor, cabinets etc.

Environmental Monitoring

Monitoring or regulating environmental factors is very important to provide security to the objects. The wider concern is controlling the climate within the whole facility, but it is a very difficult problem if air conditioning and ventilation systems are absent. To monitor the environmental change in temperature and humidity, a thermohygrograph should be used to record the fluctuations in temperature and humidity. Another tool is the thermohygrometer, which can be used to monitor the fluctuations in temperature and humidity, but this small tool provides readings only.

At RMNH, Bhopal central AC is installed in galleries to maintain the temperature and humidity, and the laboratory has windows and exhaust fans for proper ventilation. A thermohygrometer is also available in the taxidermy laboratory to monitor the fluctuations in temperature and humidity.

To provide security from natural factors, especially lightning, a proposal has been submitted to the competent authority for approval and sanctioning. This proposal has been considered by the competent authority, so as to install lightning conductors at RMNH, Bhopal.

Alarm and Surveillance:

Alarm systems are a must for providing security to the collection, people and facilities against fire and theft. Surveillance equipment such as Closed Circuit Television (CCTV) is helpful to watch the activities in the museum. Fire alarms help in case of fire and a scanner is also a very useful equipment to scan incoming and outgoing materials. At RMNH, Bhopal, fire alarms and fire extinguishing systems are installed, which are regularly monitored by the museum personnel. A proposal for CCTV in the museum has also been submitted to the competent authority, and it will be installed soon.

To protect the people and museum objects, programs like security planning, building and campus, lock and key, collection management, visitor and staff security, fire protection and disaster management must be considered.

Suggested Practices for Museum Security

1. Duty to protect the collection
2. Foresee crime against the collection
3. Adequacy of protection of the collection
4. Fire protection
5. Burglar alarms and security electronics
6. Key control and retrieval
7. Security training
8. Security staff qualifications
9. Internal security
10. Access control
11. Parcel control

12. Staffing
13. Collections storage room security
14. Suggested museum employees' pre-employment screening etc

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Museum Security across Times and Places

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***Abstract:** Some issues at museums are vexatious, however much all those concerned wish to do away with them. Such issues are not completely avoidable whatever may be the level of anticipation, preparation and counter action that may be employed. Museum security has been one of those nightmares for museums across the world. Museums at all times wished to avoid and mitigate this problem and have experienced varying degrees of success. The innumerable efforts to find solutions through professional debates and discussions and follow up actions has led to an understanding about this problem, and also helped to update awareness and upgrade preparations to deal with them .*

To usurp or clandestinely acquire valuable items has been the practice of greedy persons and would continue. . However, awareness about the nature and variety of the problems and the attitude of authorities towards it would enable us to evolve strategies and approaches to deal with it. The perspectives of the museum profession in India about this changed from sagely advice and wishful thinking of scholars to hard core measures and procedures adopted by administrators and security experts in the last five decades. Institutions, professional associations, individual experts contributed to the understanding of this topic through their activities. Museum security is an umbrella term that includes safety, protection against several causes of damage, loss and destruction. This paper seeks to deals with the theft of objects.

Museum security means care of objects, building, equipment, visitors, staff and information at museums. Museums have a unique set of characteristics that make security and safety requirements different from those of other institutions. They must simultaneously accomplish two things: on the one hand, they must safeguard precious objects; on the other hand, they must remain open to the public and let visitors feel welcome.

Perspective

Museum security is an immediate responsibility of the museum, to fulfil one of its basic tasks, i.e. protect its employees, visitors, collections, information, other movable and immovable property and reputation. Museum security is closely linked with conservation, registration, facilities operation, exhibition, and public programmes. Security plans, preparations and policies that result from risk assessment are not infinite. Lapses and breaches in security at museums, monuments, remains, sites, palaces, forts and other collecting institutions across the world is a recurring problem, whose frequency and intensity have been on the rise.

Contemporary understanding of this subject and approach to this issue advocates appropriate physical barriers, strong and safe buildings, installation of gadgets for detection of intrusion or accidents of fire, recording / visual documentation of vulnerable places and premises and warning alarms, deployment of trained security personnel, surprise checks, real time mock drills, security audits etc; in exceptional cases, even deployment of watch dogs during closed hours to guard the compound and premises.

Role of Professional Bodies and Experts

Realising the importance of this matter and sharing professional concerns, the Museums Association of India held a seminar on this theme three decades ago and published a monograph on this topic. Likewise, at global level, the International Committee for Museum Security (ICMS) was founded by the 10th General Assembly of ICOM on June 1974 in Kobenhavn, Denmark. It has played a leading part in providing education, training and assistance and to protect persons and cultural property from theft, vandalism, fire and destruction.

Advancement and affordability of information and communication technologies in the last two decades have led to new possibilities being available in this area.. The [Museum Security Network](#) has been on-line since December 1996. It was founded by [Ton Cremers](#), former head of security at Amsterdam's Rijksmuseum, recipient of the 2001 Robert B. Burke Award for excellence in cultural property protection at Smithsonian National Conference, and currently independent museum, library, and archive security consultant. Its original aim was to be a source of information for cultural property protection professionals. Gradually, the

[Museum Security Network mailing list](#) has become the main channel for the distribution of news and information pertaining to cultural property protection, preservation, conservation, and security. On a daily basis, information is posted on the website www.museum-security.org.

Security as a specialised field is dealt with and approached differently by museums abroad, according to their need, perception and availability of resources. Security consulting companies provide services in design of buildings, gallery layouts and premises and also do a host allied services such as surveys and analysis. The most recent concept at the newly reopened Rijksmuseum, Amsterdam is predictive profiling, which is done through trained plain clothes observers. Also, intense studies are being made of the psychology, aptitude and preferences of security personnel to allotted duties. Visitor attendance (concentration) of galleries is being considered to decide the strength of the guards. Detailed guidelines are available for specialised tasks of security from established and reputed professional associations abroad.

Native Situation

India has always had an image of being a soft State. Innumerable incidents of its long past dealing with invasion, intrusion, aggression, violence and crime, with sporadic exceptions, are a testimony to its espoused spirit of tolerance. The psyche of its people and its society in general is to be kind and forgiving to most offences, with mild and insignificant protests and punishments. Though there are laws to prevent crime in art, their implementation is complex and formidable for the law enforcing agencies. As a prosperous and fecund land, India had always been the target of loot, plunder and pillage. The historic ineptitude towards security is reflected in continuous and growing incidents of crime, including those involving art and heritage. Evaluation of items of art and heritage is a difficult and esoteric subject. Museums are targets of theft for art items for the following reasons. Usually, museums keep genuine, authentic, valuable and quality objects. A museum generally has at its command the requisite competence, scholarship and skill to decide the merit of an item. Therefore, never a calendar year passes without reports of thefts or attempts of theft at museums. Museums and other collecting institutions or treasure houses, heritage sites or monuments tend to be sitting ducks or easy targets of heist.

With growing awareness, the value of antiquities and the existence of a large, anonymous and lucrative grey market for it, the nature and intensity of theft of cultural items has grown and evolved. A glimpse at the reports on crime reveals that crime has been on the rise. Attempts of unsuccessful thefts and return have been more of a passé. Manuscripts stolen from a gallery in Chandigarh in the 1970s were reported to have been returned by post due to apprehension of possible confiscation and punishment and the inability to sell or export them. The scenario has changed, as evident from the incidents of theft of a pistol from the National Museum, New Delhi; a bust of Buddha from the Indian Museum, the Nobel medal of Rabindranath Tagore from Santiniketan and most recently the relics from the Ramakrishna Mission, Belur Math. No progress could be made in the first three incidents that occurred about a decade ago, and the Supreme Court has ordered the CBI to continue the probe. The Swedish Embassy has issued a replica to Santiniketan to substitute the original medallion presented by the academy. The contrast in the incidents and their outcome over the four decades is glaring. Fear of law, ability of detection of crime and chances of recovery of items have come down. The rate and sophistication of crimes have grown and the capacity of enforcing agencies has weakened, as they are understaffed, overburdened and inadequately trained and equipped to deal with these matters. India does not have any specialised force by the name 'Art Police' unlike the United Kingdom, which is oriented, clued up and focused about the unique nature of this crime scenario. India has 'Tourism Police', but from the title it is evident that its purpose is different.

Among the staff, security personnel play a key role. Museums, depending upon their governance, profile, affordability and items on display and possession, follow a wide mix of arrangements. The duality and ambiguity of responsibilities of duties, lack of clarity and procedures regarding control and access to museum premises and possessions, were cited as the cause and failure of security at National Museum for the theft of a pistol. A museum cannot predict the nature and timing of an incident of crime that may occur, but it certainly has control on its administration and can take necessary precautions to avoid and reduce it. Excessive lenience and dependency on security guards has been reported at the Salar Jung Museum, when a fire broke out in its auditorium. These should be eschewed by museums. The security personnel, however significant, have to be subordinate to the governing authorities of the museum and responsible to their duties, which have to be clear and specific.

A spate of thefts at museums reveal antique smuggling as a dominant and continuous trade, although occasionally it may not be an organised crime but a result of the involvement of less paid and de-motivated staff. Policies of museums to run the institutions with vacant positions, additional responsibilities or in-charge staff and contractual employees have also been reported as causes for theft. Items of less known cultural and monetary value were stolen from museums in Gujarat in the last five years at Shamlaji, Rajkot and Ahmedabad. Museums at the first two places are governed by the state government and the third by a trust. All the three institutions are understaffed.

Suggestions

- Museums having antiques of high value should be guarded by armed security personnel and preferably by police. An elderly security guard of the Christian Art Museum in Goa was killed by thieves in October 2012. The guard at Museums in the Fort at Rewa was fatally injured in January 2013. These recent incidents should serve as indicators of growing desperation and intensity of crime in stealing antiquities, which not only mean danger to the objects in custody but also the lives of security personnel.
- Security arrangements by personnel should not be nominal but effective, and handled by able bodied, well trained, equipped and motivated personnel.
- Security gadgets are not substitutes but supplements to security personnel. The principle of ‘man behind the machine’ should be the motto. The gadgets have to be functional and properly monitored and maintained.
- Insurance and proper documentation do not compensate or guarantee protection or recovery of an object, even though documentation is essential.
- Let there not be transparency or publicity about the value or authenticity of the exhibits on display at the museum.
- Never be complacent about security arrangements in place. Let there be periodic security audit and appropriate up-gradation of security systems, equipment, practices and training.

Museum Security

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***Abstract:** Use of the word 'Museum' during the 19th and most of the 20th Century denoted a building housing cultural material to which the public had access. Later, as museums continued to respond to the societies that created them, the emphasis on the building itself became less dominant and the collection became dominant. Therefore the topic 'Museum Security' focuses importance on the safe custody of antiquities / artworks / collection in pristine condition by all means rather than only safe guarding them from theft and vandalism. In India, it is the right time to re-engineer existing age-old practices adopted in museums, their lacunae and how to overcome so as to achieve effective control over them - the very objectives and meaningful existence of these professional organizations - the museums.*

Digital electronics and advancements in networking systems have made it possible to share and correlate with similar artworks on a real time basis. It is the right time to utilize modern technologies to authenticate the genuineness of artworks in any form and media through their unique signature. Since the very business of the museum is to allow the general public / art connoisseurs / art critics / research scholars to understand / appreciate art works and volunteer by providing adequate information about the significance / uniqueness of particular / group of artworks, this warrants safeguarding them from multi-directional threats – Museum Security.

The Museums

The multifarious types of museums can be divided into two major categories viz., museums that deal mostly with art objects/ antiquities and museums which handle non- antiquities/ science objects. Museums that deal with antiquities can be further categorized based on the size, their unique collection and governing bodies. Suitable policies with special reference to the security issues of each of its main objectives have to be designed based on the true need for them.

In general, museums are at risk because of their very nature – offering the general public the opportunity to appreciate great works of art. There could not be a more natural target for theft. Whatever is exhibited or kept as reserve collection - paintings, drawings, sculptures, ceramics, inventions, scientific developments, natural history exhibits, etc – security is a crucial issue for museum administrators.

The Curatorial safe custody of Artefacts:

Collection & Documentation

In the Indian scenario, collections are generated by different practices viz., through surface collection, through the Treasure Trove Act, through confiscation by authorities, gifts, purchases, exchanges, transfers and so on. But no one can deny that museums are not adopting a proper or unique methodology while documenting them. It is clear hard to say that no two museums are adopting the same critical data columns/ methods in their Accession Registers. Now, museums are in need of data bases so as to provide Management Information Systems (MIS) to arrive at strategic decisions. For example, we may need a data sheet of the country's yearly antiquities acquisition through the Treasure Trove Act. Do you think in the present system it will be possible to provide the required data even within a month's time? On the contrary, we may obtain data about the receipts and payments of the country at any particular time of the day. It is possible because of modern networking technology, towards which museums are showing strong resistance.

Moreover, the very word "Documentation" is representing not only the simple physical data as in the case of a financial statement, but it also represents all the hidden information of tangible and intangible heritage and the customs and practices pertaining to each and every artefact for which humanity is still searching and visiting museums of the world.

It is the right time to re-engineer the age old practices of museums in India by keeping the requirements of the upcoming generation. The following type of questions may be answered or further refined by the authorities concerned to re-engineer them:

1. Are there any methods developed so far to monitor the present state of the collection in comparison with its acquisition state / through passage of time?
2. Are there any derived policies/ formulas/ methods to maintain the collection depending upon the material of which it is made?
3. Is there any pre-defined method of storing/maintaining/retrieving the infrastructure

adopted in museums?

4. Are there any parameters to maintain a Reserve Collection along with its object tags?
5. Are the collections having proper scientific documentation/ finger printing/etc.?
6. Are there any ways to prove the ownership of a particular collection (if the situation warrants it before a court of law)?
7. Are there any disposal policies in our museums?
8. What should be the security policy of the museum collection and its management ?
9. What all are the bench-mark standards to measure the condition of particular types of objects?
10. Who/which forum will verify and certify the collection including its present state ?
11. Is there any method to monitor and reconstruct the history and fill the gaps with relevant antiquities/ information based on continuous search & research?

If all the above mentioned questions are well answered in a satisfactory manner, then we may say the museum's collections are in secured manner; or else, we may re-engineer the age old practices being adopted.

Monitoring and Maintaining Museum Artefacts:

- Conservation Laboratory
Does the museum have a well equipped conservation laboratory or have a consortium of laboratories to maintain the collection?
- Conservation Register
Have all the artworks that need conservation at the time of entry to the museum or need preventive maintenance at a later period been documented?
- Documentation on conservation
Recording the conservation processes that have been carried out to safeguard the antiquities must be properly documented to understand the case history of a particular object and reverse the same if necessity arises. A copy of the same has to be added to the documentation of antiquities, so as to reveal the conservation history of the antiquities.
- Documentation of its Signature
A separate photo-documentation has to be maintained for all the exhibits of a museum in manual/ electronic form for multifarious utility, apart from a small one

pasted in the Accession Register. 3-D photographs/ LASER beam photograph and unique signature mapping may serve as scientific methods of authentication.

Safeguarding the artefacts on display

Museums have a unique set of characteristics that make security and safety requirements different from those of other buildings. They must simultaneously accomplish two things: on the one hand, they must safeguard precious objects and protect patrons; on the other hand, they must remain open to the public and be designed in a welcoming way that lets visitors feel relaxed and focus entirely on the museum experience. Traditional “defence-in-depth” security is knowingly compromised because of the need to let patrons come near valuable assets, so a more innovative approach to security is required.

Good security in a museum is minimally intrusive but must also be maximally effective. Art smugglers have aggressively targeted museums, and art theft remains a highly profitable criminal enterprise: losses from art theft are estimated at over USD \$4 billion per year. Recovery of lost art is unlikely, with only 15 to 30 percent of high value paintings typically recovered, so prevention and protection are essential. Safety measures must also be inherent in museum design, protecting the museum’s treasures, its visitors and staff.

We should use our combined expertise in safety and security to reconcile tensions between these disciplines. While safety emphasizes quick and unobstructed access and egress, security often requires the opposite. With the right planning, museums can seamlessly integrate many security measures into the building with cost-effective solutions for risk mitigation that are tailored to the need based on their specific threats, vulnerabilities, and needs.

Planning and Design Strategy should address the following:

- Threat, vulnerability and risk assessment of primary locations and surrounding areas
- Asset and risk registration
- Identification of user requirements
- Determination of inter-relationships
- Physical security audits and assessments

- Operational and organizational audits and assessments
- Review and development of policies and procedures

Multi-tier Security Management System

In general, museums are having multi-tier security management systems starting from the security guard at the entry and exit gates, campus security, tight vigil and watch around the nook and corners of museum floors, gallery guards to watch and ward the gallery exhibits and to ensure the visitors' movement, and safe and secured showcases to protect the artefacts. In addition, to enhance the security measures and to overcome human redundancy perception errors, mechanized electronic asset protection system, fire alarm system, electronic surveillance system, and public address system will provide the support for pre-alert and post operational needs.

The Security Management Control System (SMCS)

Museum Asset Protection & Fire Alarm Systems

Most museums require at least two types of alarm systems: burglar alarms and fire alarms. Burglar alarms generally alert the museum staff from night time break-ins but also protect high security areas and locations like emergency exit doors during the day. Fire systems consist of two parts; fire detection systems that detect fires and fire alarm systems that alert building occupants when there is a problem. Evacuations are generally ordered through the fire alarm system. This section does not deal with object protection systems viz. RFID tag monitoring.

Burglar alarm systems are generally divided into two types. Smaller museums and house museums often use panel based systems. With a panel based system, a control panel is installed in a closet or basement or elsewhere out of sight. A keypad is the means of interfacing with the panel and annunciating the alarms. Most alarm panels can handle a relatively large number of door contacts, motion detectors and other detection devices. Generally, these panels divide the detectors into zones or partitions. Some institutions require more zones than a typical panel can provide so they use multiple alarm panels. While this means that the museum technically has two alarm systems, they can function as one system transparent to the user. While we call them alarm panels, they are really computer chip based systems that are quite complex.

These systems annunciate in a number of ways. You can set them up to operate a printer,

display a message on a keypad, sound a bell or siren, or send a signal to a central station. When set up to send a signal to a central station, this is done generally over phone lines. But because phone lines can be compromised, we generally back up the phone line using some form of cellular or radio system, which is used depending on the service available in the area, but most use cellular.

These systems can handle any type of detection device. The most common detector is the infrared motion detector and many use detectors that work with multiple technologies such as infrared and microwaves in one detector. This reduces false alarms. These detectors detect motion within the space and trigger the alarm. Door contacts, almost always the magnetic type, detect the opening of a door, and glass break sensors detect the breaking of glass. Glass break detectors come in two types. Impact detectors detect the impact against the glass and acoustic detectors are tuned to the sound of breaking glass and signal when they “hear” that frequency. Alarm systems can also monitor any type of detector including temperature and humidity sensors, panic buttons, beams, etc.

The goal of alarm systems is to secure both the perimeter and the interior of the space. A building is like a box. It has a top, bottom and sides. Every opening must be secured including access from the basement, access to the roof via doors and skylights, and access from the sides including windows, doors and other openings like vents.

Since a break-in is not the only threat we face and someone could easily enter legally as a visitor and stay behind at night, we provide interior motion detection strategically throughout the building. Generally, we provide motion detection inside all glass windows, all doors, at elevator and stair doors and in high security areas. Of course, we use more detectors in galleries and collection bearing areas like storage and labs.

PC-based alarm systems are often called “access control systems”. Even the smallest system can handle the needs of a large museum. In addition to being able to meet the needs of the largest facility, access control systems allow you to turn any individual point or any group of points in the system on or off, independent of all other points.

When an alarm occurs on a PC-based system it simply annunciates on the PC. To make it announce at an off-site central station you must first send the signal to a simple alarm control panel which has what is called a dialer built in. Once the signal is received by the alarm panel, it is sent on to the central station just as it would be if there was no PC.

Be sure that all the alarm detectors work properly. Do an actual walk test to see if you can slip past a detector without it catching you. Ascertain if there is a back up to the phone line

and if there is not, add one. Evaluate your zoning.

Fire Systems

In most small museums and nearly all large museums, the fire detection system was legally adequate the day it was installed because fire codes are generally strictly enforced and systems must meet very well-defined standards. This doesn't mean that in every case the system is truly adequate. More often than not, the problems that exist in museums with regard to fire systems involve a lack of care and maintenance and unsafe conditions created by the museum employees like covering or blocking of detectors or placing materials in front of alarm pull stations, etc. Because museums are changing environments, too often museums sub-divide rooms without adding detection or stack items on shelves so high that detectors are blocked.

Fire detection systems generally use one of several types of detectors to detect smoke. These detectors need regular testing and maintenance, specifically cleaning, or they may not work properly when needed. Pull stations are placed at code prescribed locations in the building so that people who see a fire can sound the alarm while they are evacuating.

Fire Suppression Systems

Fire suppression systems range from hand held fire extinguishers to water sprinklers of various types. Gas systems are also used in museums but their application is limited. Every effort must be made to keep all the various fire suppression systems tested regularly and properly maintained. For decades there has been a raging disagreement among museum professionals regarding the use of sprinklers in museums. Every curator knows of a devastating event where a fire sprinkler accidentally discharged when a worker hit the sprinkler head with a board during gallery redecoration. In this event, the museum was flooded with water and everything was lost. There have been a few accidental sprinkler discharges over the decades but these were nearly all attributable to human error that simply should not have occurred. A few earthquakes have resulted in dripping pipes or localized damage. On the other hand, sprinklers could have saved nearly every museum and historic building that burned to the ground over the past century. Sprinklers should be installed in areas where objects of organic origin are not present.

Surveillance Camera (CCTV) System

Dome Cameras

Two security camera system technologies are used for imaging in board cameras: CCD and CMOS. CCD stands for Charged Coupled Device and it is also used for imaging in a fixed security camera system. The CCD converts light into electricity that represents picture information. Common CCD sizes are 1/3" and 1/4". 1/3" is currently the standard but larger sizes, such as 2/3" and 1/2" do exist. CMOS stands for Complementary Metal-Oxide-Semiconductor. It also converts light to electricity, but CMOS offers greater integration of functions, allowing for smaller overall size, and can operate at lower power requirements. The tradeoff has been at the expense of image quality. With modern security camera system technology; however, the lines have been blurred as CCD cameras have lowered their power requirements and the image quality of CMOS chips have become better.

Most dome cameras can be connected directly to a TV or DVR. They operate using an AC adapter or batteries as a power supply. Transmitter and receiver combinations are available that allow for wireless board security camera system applications.

Board Cameras are basically a fixed lens mounted on a circuit board. These cameras are often used in mini cameras, dome cameras and for making hidden cameras but are also sold unpackaged, for mounting by the buyer.

Lenses in these cameras are either of a fully opened lens or pinhole, in which the opening of the lens is very small. Pinhole lens cameras are often called "spy" cameras and are most often used in making hidden cameras. All of our hidden cameras are examples of hidden board cameras.

Lenses in board cameras are pre-mounted and have a fixed iris. In most cases they have a short focal length (the distance between the surface of the lens and its focal point) which results in a wide angle of view. Our board cameras have a lens between 3.6 and 6mm.

Because board cameras have many fixed features they are limited to what they can be used for. However, they offer a low cost solution to security needs, especially hidden camera situations.

Museum Security- A Case Study

A private collector of valuable cultural objects can obviously store the treasures in a strong vault, he doesn't tell people about them and, above all, does not allow total strangers to enter and admire the collection. Museums, on the other hand, have to do just the opposite. The goal of museum security is not to close its doors but to make sure they are opened to visitors

in a responsible manner.

"Protecting priceless objects is a particularly tough challenge for public museums and galleries. These institutions face the conflicting dilemma of keeping objects safe, yet allowing millions of visitors a chance to see them," says Ton Cremers, former security manager at Amsterdam's Rijks museum.

In 2004, armed, masked robbers stormed into the Munch Museum in Oslo and stole two masterpieces 'The Scream' and 'Madonna' before the eyes of shocked spectators. As a result, the museum closed for nearly a year to update its security measures.

Security systems must start from the roof. "Alarm systems must be attached to a building's outer shell, windows, doors, and on all levels of a building, since experience shows that fifty percent of all thefts take place on the upper floors of a building, or even from the roof. Security measures should not be limited to motion detection inside the building," Cremers remarks.

If permitted by the surrounding environment, it is ideal to have a security system that detects intruders as they are approaching the building. Use CCTV cameras with motion detection, infrared detection, or a laser system that continuously scans the outside premises.

Cremers points out that these systems need a lot of maintenance, as the security cameras and scanners need to be cleaned regularly to prevent false alarms. The fact that many art galleries and museums are housed in historic buildings adds to the complexity of installing adequate security. If a building's construction prevents an upgrade to top-notch, hi-tech devices, security needs to be introduced via internal burglar-resistant compartments.

How and where different objects are displayed inside the museum should also be a part of security planning. The most precious objects should never be placed near the outer shell of a building; a lesson painfully learned by the Kunsthistorisches Museum in Vienna a few years ago, when the famous Cellini Salt Cellar was stolen. The theft of this valuable table sculpture, estimated at 30 million euros, took only 58 seconds. At the time, scaffolding was erected outside the building. The thief climbed the scaffolds, and then smashed a window and a display case containing the piece.

"There was an alarm system attached to the windows, but no alarm response organization will be quick enough to react adequately when it is possible to execute a burglary and theft in less than a minute," Cremers notes.

Dependency on Electronic Alarm Systems

This is a case, Cremers adds, which touches the very core of mistakes many museums make - they depend almost completely on electronic alarm systems.

These systems are useless if not combined with structural and organizational measures.

Security must always be established according to the redundancy principle, which means that if any of the security precautions are tampered with, the remaining measures must be able to do the job.

Security during opening hours requires the same kind of redundancy thinking, Cremers adds.

"Burglar-proof display cases and secured hanging systems for paintings are of limited use unless supported by electronic alarms and vice versa."

Integrated Security Systems - Key to Complete Solution

Redundancy thinking and integrated solutions are the cornerstones of Cremer's advice when it comes to museum security. Firstly, he says, the organization must be reviewed according to a checklist that includes guards, visitor regulations, entrance checks, alarm response organization, layout of exhibits and routing through the building. The latter refers to a system whereby the visitor is guided through the exhibit along a dedicated path, which not only enhances viewer experience but also counteracts quick getaways following smash-and-grab attempts.

In addition, a complete security solution should cover structural issues such as doors, locks, fences, bars, burglar-resistant glass and hanging systems. These are complemented by electronic solutions such as motion detection, infrared systems, sound alarms, CCTV (Closed Circuit Television) systems and RFID (Radio Frequency Identification) solutions which are applied to or incorporated into the work of art, in order to locate it if stolen.

Use of CCTV as a Deterrent

CCTV plays a very important part in discouraging prospective burglars, Cremers says: "All museums should have identification cameras and monitors at each entrance. Visitors and staff entering and leaving the building are monitored via CCTV cameras. This setup must be accompanied by a monitor, where the entrant clearly sees his or her image in a monitor.

Thieves and robbers frequently pay a reconnoiter visit in advance. If they realize they have already been filmed, they might be discouraged from any plans of thievery."

According to FBI statistics, between 70 and 80 percent of all solved theft cases involve

insider participation of some kind, says Cremers drawing attention to an often overlooked source of crime. He further says "I have been involved in risk assessments in over hundreds of museums over the past ten years, and it is quite astonishing how rarely the risk of insider participation is discussed."

Museums and galleries seem to be facing a growing challenge with the rise in armed robbery over the past ten years. However, Cremers believes steps can be taken to fight this. "Security gates at the entrance, fixed routes, CCTV, display cases and exhibiting the paintings behind glass - which makes them heavy and difficult to handle - are a few of the techniques available to combat the growing violence," he says.

Finally, what happened to the Munch paintings? They were both recovered in 2006 and the museum now sports security measures such as X-ray scanners, metal detectors, and security gates for visitors. "All our paintings are now protected with security glass and they're very properly attached to the walls, and of course we have guards and extra surveillance," Jorun Christoffersen, head of marketing at the museum, told CNN. "We consider the paintings as safe to exhibit now."

The Art Loss Register & Its Importance in Raising Global Awareness on Art Theft

The ALR is the world's largest private database of lost and stolen art, antiques and collectables. Its range of services includes item registration, search and recovery services to collectors, the art trade, insurers and worldwide law enforcement agencies. The origin of the ALR was The International Foundation for Art Research (IFAR), a not-for-profit organization based in New York. In an attempt to deter international art theft, IFAR established an art theft archive in 1976 and began publishing the "Stolen Art Alert".

The Art Loss Register (ALR) has over 300,000 stolen arts and antiques on its database and has returned over £90m worth of items to their rightful owners. The aim is to identify and recover stolen and missing works of art, deter art theft, reduce the trade in stolen art and protect art collections against loss.

As a deterrent to theft and to avoid unauthorized sales, large private and public collections may be registered with the ALR. These items will be checked against private and public sales worldwide. To register a collection, please visit the website and select 'Register a possession'.

Conclusion:

In this scenario, in India, it is the right time to re-engineer the existing age-old practices being adopted in museums, and how to overcome their lacunae so as to achieve effective control over them . -The very objectives and meaningful existence of these professional organizations - the Museums – is the preservation of material evidences of the past with all its intangible significance, so as to glean indigenous knowledge from them for the benefit of mankind.

Modern practices like creating databases for artefacts, finger printing the artefacts, creating a forum to ensure the pristine condition of the artefacts, ensuring safety **from** all the **threats** which are equally advanced and on par with safety and precautionary gadgets, training of staff to make them aware about their responsibilities, design the system to extract their due share have to be devised and adhered to achieve excellence - the very business of professional museum practices.

Museum Security

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Abstract: Museums since their origin are engaged in protecting and safeguarding the objects in their custody.... or let us say security of their possessions, but the ICOM definition does not include the word security in its definition. Instead it has the word conservation...

My paper will analyse the dictionary meaning of security and will try to understand how and where it applies to museums. It will also discuss how training manuals of ICOM and academic text book have dealt with the topic of Security. The paper will also try to differentiate between conservation and physical security of museum collections.

The paper will also highlight the fundamental question of security of museums, their infrastructure, collections and visitors from humans themselves, especially through vandalism, theft, illicit trade, rioting and of course armed conflict or war.

A museum, as we all know, “is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment” [1].

Now before we examine a museum’s concerns about security, let us review the literal meaning of the word ‘security’.

The Oxford Advanced Learner’s Dictionary has enlisted the following four meanings of the word ‘security’.

1. Protection
2. Feeling Happy/Safe
3. For a Loan
4. Shares in Company

The dictionary also describes various categories of security including National Security, Security Checks, Airport Security and Security Forces/Services.

The first meaning, i.e. 'Protection' is explained as,

A: - The activities involved in protecting a country, building or person against attack, danger, etc.

B: - The department of a large company or organisation that deals with the protection of the building, equipments and staff.

C:- Protection against something bad that might happen in the future.

Now, let us see, what are the security concerns of the public institution called museums, who are the custodians of the treasures of the natural and cultural heritage and responsible for interpreting them to the public.

The text book 'Museum Basics' ^[2] deals with various issues of museum security in units 53-66,67,68 and 73, covering a wide range of topics from conservation planning, conservation, environmental monitoring and control, bio-deterioration, material testing, storage and handling, disaster planning, insurance and of course the physical and electronic procedures and systems of security of museum collections, exhibitions and building.

Generally museum security is considered and dealt only in the context of physical security of collections, staff and visitors which deals with:

- Effective protective measures
- Appropriate security procedures and
- Good building security

The International Council for Museums (ICOM) publication ^[3], 'Running a Museum: A Practical Handbook' edited by Patrick J. Boylan has a full chapter on Museum Security and Disaster Preparedness contributed by Pavel Jirasek. In this chapter, the author states that, "Security is everybody's business and all museum staff (not only security guards but also

curatorial and technical staff and management) form part of its security system and the same applies to every operation taking place in the institution and all resources used by it. Nobody, not even any of the visitors, can be allowed to opt out of the security procedures.” Explaining his position, he further states that a museum is simply a special institution entrusted with the custody of immensely important objects and which are at particular risk from theft, vandalism, fire, water, chemicals, etc. Everyone who is in any way connected with it must respect the fact and cooperate with the security procedures. The security system also includes external relations of the museum with its principal partners like the Fire services and Police. In addition to the collections, the museum must, of course, also ensure the protection of its visitors and employees, of its other property and its reputation.

Jirasek in his chapter also deals in detail about the following:

- Defining Security Policy and building a Security System
- Risk Analysis and the Security Plan
- Implementing the Strategic Plan for Museum Protection

He has also presented in a following tabular form the most significant potential dangers that need to be assessed. Risk analysis must take into account all dangers that may significantly damage the collections or the museum itself

| | |
|---|---|
| <p>1. Risk from natural disasters</p> <p>— floods - both from rivers and the sea (coastal erosion, tsuamis and storm surges)</p> <p>— drought or a limited supply of water</p> <p>— strong wind storms and tempests</p> <p>— lightening and excess voltage caused by atmospheric forces</p> <p>— extensive forest fires</p> <p>— extensive infestation by pests and vermin (insects, rodents, fungi...)</p> | <p>4. Illegal activities</p> <p>— unauthorised entry of persons</p> <p>— burglary</p> <p>— theft including thefts committed by staff members</p> <p>— robbery or other unauthorised presence of an armed person</p> <p>— arson</p> <p>— attack on the building during civil riots</p> <p>— explosion or a threat of explosion</p> |
|---|---|

- earthquakes
- volcanic eruptions

2. Technical breakdowns

- damage to the structure of the museum building — fire in the building — loss of key utility services: electricity, gas, phone and security connections
- water supply failure
- breakdown of heating or cooling systems
- failure of fuel supply
- breakdown of air conditioning systems
- breakdown of monitoring systems
- stoppage of waste disposal
- stoppage of transport services needed for essential supplies and for key staff to get to work
- chemical contamination
- leakage of fuel or chemicals

3. Accidents

- any damage of the collections — loss of critical data such as collections documentation, whether manual or computer-based — damage to the building, interior furnishings and equipment — injury to or death of a staff

- assault, including sexually motivated crimes
- breach of the peace or other objectionable behaviour
- wilful damage of museum property, including vandalism and graffiti
- alcohol or drug abuse on the museum premises — extortion of money by blackmail — terrorist attack

5. Armed conflict risks

- bombing and shelling damage
- destruction of electrical and electronic systems, including security and building control systems and computers and computer data by electronic warfare attacks
- military occupation or other illegal misuse, whether by the attacking or defending forces
- requisition of the building, equipment and vital supplies by the government or an occupying force for war purposes or as part of aid to the civilian population
- looting, whether by military forces, irregulars or the civilian population
- loss of key museum personnel due to call up or volunteering for military service, or to death or injury — inability of staff to get to work because of the security situation or restrictions on movement imposed by the military — attack by irregular forces or insurgents — greatly increased risk of general

member or a visitor — cumulative effect of any crime, including theft, burglary and robbery due
of the above to general disorder

This list is not exhaustive, but it illustrates the diversity of potential dangers.

While explaining the procedures to build a security system in a museum, he outlines the following chain and subsystems with mutual logical and functional links, beginning with the simpler ones and ending with the most complex.

- Mechanical barriers
- System of organisation of guards
- Organizational measures concerning the behaviour of the staff and visitors
- Measures to ensure security in display and exhibition rooms
- Intruder Detection System (IDS).
- Access control system (ACS)
- Closed Circuit Television (CCTV)
- Internal communication and reporting emergencies
- Measurement and control of critical physical quantities (Temperature, humidity, intensity of light, UV radiation and dust fall)
- Internal and external lighting
- Protection against excess voltage caused by atmospheric forces
- Internal monitoring centre (Control room)
- Transmission of electronic data from monitoring centre to the relevant intervention forces
- Textual and visual documentation of cultural objects, their registration and entry in the inventory
- Emergency plan including evacuation plan for staff and visitors and collections
- Cooperation with relevant national and international organisations and agencies
- Priorities for conservation and restoration

One thing is apparent, that as far as museum collections are concerned, there are overlapping areas between security and the conservation and preservation responsibilities of the curator.

In my understanding, security in museums is not simply an issue of installing CCTV, IDS, smoke detectors, fire extinguishers or other gadgets in museum buildings or dealing with natural disasters, but it is a much wider museological concern, (yes, the security of museum building and installations, collections, staff and visitors are all important and museums should make all efforts in this direction). It is about damaging, deterioration, destruction, demolition of natural and cultural heritage directly or indirectly by human activities of so called development, with progress on the one hand and conflict, confrontation, war on the other. The major threat to the collections of natural and cultural diversity of the past (stored in museums around the world) as well to the living diversity of nature and culture is not from natural disasters, but by man-made disasters, specially crime, rioting and wars. The ultimate destroyer, demolisher...is man himself...Therefore, the ultimate aim of security is to safeguard humans, their environment and belongings from their fellow beings and their destructive activities, particularly vandalism, theft, loot, plunder and war (Bamiyan, Ayodhya, Sudan, Iraq, sLibya and many other places around the world)

Throughout the history of civilization, if there were plunderers and destroyers of natural and cultural heritage there were also those who were guardians and protectors. Similarly, in the context of museums today, it is our responsibility and duty to make our paramount efforts to safeguard not only the heritage in our custody (collections), but also the existing diversity of nature and culture.

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Importance of Security System in Museums

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***Abstract:** A museum is a place in which valuable treasures collected from various perspectives and standards like artistic, scientific, historic, cultural etc. are stored for the purpose of security, display and dissemination of knowledge. Thus, safety and security of the objects become one of the essential duties of the museum. The process of Museum Security starts from the pre-natal phase of the museum, i.e., when the first idea of collecting the particular objects germinates in the minds of the concerned formative bodies. Then, in the pre-planning phase of the museum, by the combined effort of an expert committee comprising museum curators, museologists, conservators, architects, art historians, a first draft of the proposed museum is made, in which the safety and security of museum objects are considered as one of the important areas to discuss. The most important factors regarding museum security include the nature of the museum, nature of collection, location, natural calamities, water level etc., according to which architecture and museum policies are planned. Starting from the pre-planning to the construction and execution phases, the measures to be taken by the museum professionals are discussed. Safety measures being practised by the Louvre Museum, Paris are also discussed along with the advancements in the field of museum security and the need for a competent museum security system and a proper disaster management system.*

A museum is a place in which valuable treasures collected from various perspectives and standards like artistic, scientific, historic, cultural etc. are stored for the purpose of security, display and dissemination of knowledge. Thus, safety and security of the objects become one of the essential duties of the museum administration. As we know, besides other functions of a museum like documentation, conservation, exhibition and education, security or protection of the collection is also considered as one of the crucial works. An art object when it is created, becomes liable to many deteriorations depending upon its use. When it becomes part of a museum then its value increases manifold, and the safety and care of that particular museum object becomes the responsibility of the museum professionals.

There are basically two types of conservation practices; one is preventive and the other one is curative or remedial conservation. Preventive conservation is about ensuring that the museum's collections are stored, displayed, handled and maintained in ways in which the rate of deterioration of the collection from natural and other causes is minimal. Curative conservation is about providing treatment or remedies to arrest the decay of the object and bring it back to its original condition as far as possible. Preventive conservation and security are inter-related in ensuring the long term well being and safeguarding of collections.

In this new scientific and technological age, a new kind of security system called comprehensive security system has evolved, which can be easily applied by different museums depending upon their nature, vision, scale and needs. A comprehensive security system can help limit losses from unexpected causes, such as fire, theft, natural disasters, and accidental damage. So, in this new age of museum science the importance of a comprehensive security system has considerably increased. A comprehensive security system combines policies, procedures, personnel, and hardware to protect museum collections from unexpected losses caused by crime, negligence, fire, or other catastrophic events. It works as a complete system containing various sub-systems regarding security or safeguarding the museum collection.

A security system for museum collections, for example, has two principal objectives: to protect museum collections and associated records from catastrophic loss and to protect the documentation related to objects in the collection, such as accession records, catalogue records, conservation reports, and photographs.

A comprehensive security system seeks to visualize a series of concentric circles that form a bull's-eye (as suggested by the Museum, Library and Cultural Properties Council of ASIS International and the Museum Association Security Committee of the American Association of Museums, revised in June, 2008). According to this theory, one should add more and tighter security precautions as one gets physically closer to a high value object, like the rings on the bull's-eye diagram.

The diagram given below showcases the different layered protection of an object inside the museum. Museum collections are being safeguarded inside the showcase on display or in the shelves of collection storage, which is then being protected by chemicals, display boxes or stands, sensors, locks, CCTV cameras and guards; then there is the protection from external causes to the museum objects, so the placement of fire detection and extinguisher services are provided in the museum. Then, the most important factor is the key control of all these above

described levels which is being given to chosen authorities like the curator, conservator and director of the museum in special cases, if required. After that safety measures are being taken at four more levels like building shell, parking access, staffing and emergency plans and lastly the protection measures are applicable to the outside boundary areas and the locality where a museum is situated.

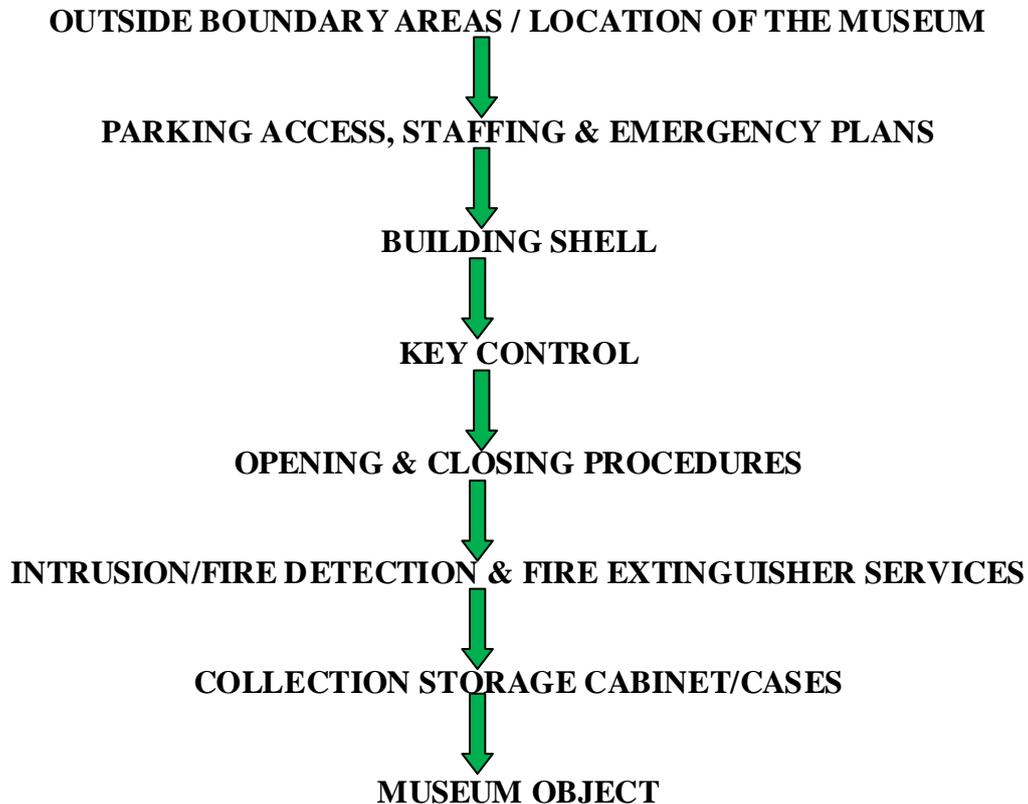


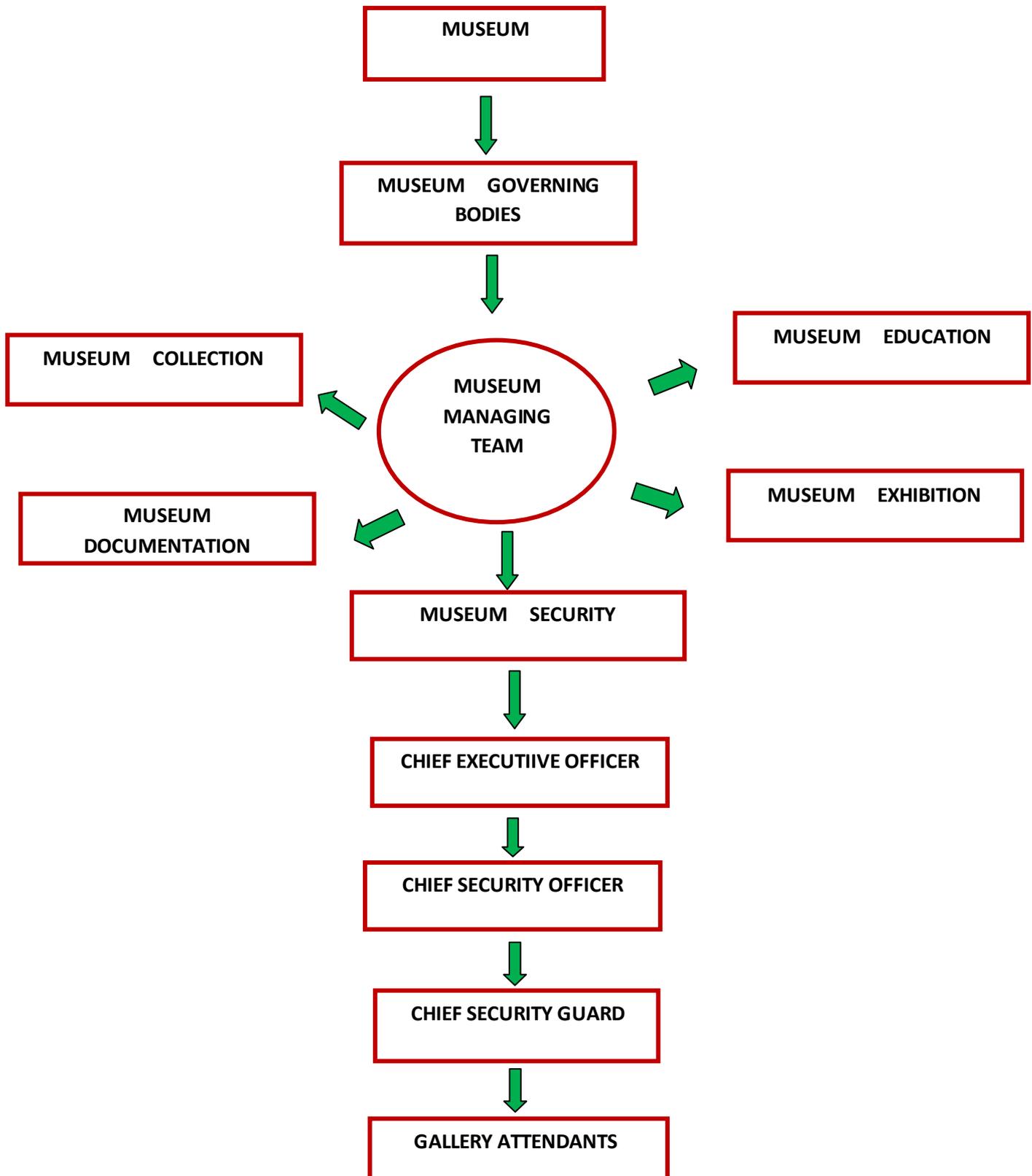
Fig: Representation of basic elements of the concentric bull's eye diagram of comprehensive security system in a museum

MUSEUM SECURITY AND ITS FUNCTION

A museum is a place which houses unique objects, representing certain periods of human development and society. Thus, it becomes the responsibility of the museum professionals, governing bodies and the entire museum staff for the safe and secure life of objects inside the museum. For better upkeep of museum objects, it is important to start thinking about the importance of a competent security system in a museum. Museum professionals should incorporate the security planning from the upper part of the administrative system of the museum. Besides documentation, display, exhibition and conservation they should also focus upon museum security.

At the level of the museum management, there should be one Chief Executive Officer, who would handle matters regarding managing, funding, and functioning of the museum security system. There would be a Chief Security Officer who will report to him to make decisions regarding the security of the museums; at the same time, he will also possess the special power of directly communicating with the Deputy Director whenever it is required. Further, there should be one Chief Security Guard who will look after all the smaller aspects regarding maintenance of the museum security system comprising the checking of the sensors, scanning machines, locking systems, distribution of duties to the guards, gallery attendants, CCTV cameras, environmental control machines, fire extinguishers etc. In this way, all these small units combined together make a complete and competent security system of a museum. The figure described below showcases the structure of the above described security system of the museum.

DIAGRAM DISPLAYING FUNCTIONALITY OF MUSEUM SECURITY:



[Fig: Displaying the Functionality of Museum Security]

Role of Conservators in the Maintenance of Museum Security System

In museums, the role of conservators is very important. Most of the museums have either in-house conservators or conservators on contract to carry out collections surveys and reports, environmental assessments and remedial conservation work. Conservators are skilled professionals and their work, advice and experience should be highly regarded by the museums. They should be involved in planning exhibitions, display designs, storage facilities, new buildings, etc. and particular areas wherever collections are to be used or housed. They should help in developing information resources i.e. relevant books or journals about conservation, suppliers of adequate materials for storage or display, suppliers of conservation equipment, names and addresses of specialist conservators and steps to be taken regarding the safeguarding of various types of museum collections. Thus, this written document will help the other museum staff in understanding important information related to keeping the museum objects safe and secure inside the museum premises even in the absence of specialist conservators.

Operation of Security System in Museums

For proper functioning of the museum security system, it is important to apply certain rules in the museums, depending upon their vision, goal and nature which can be altered in different context and spaces. Some of the essential factors for better application of the needed steps of the security system are described below:

Protecting the Collection

It is the duty of all museum operators to take reasonable steps to reduce the risk of a foreseeable type of loss from occurring to any object in the collection while on display, on loan, or in transit, by the action of unknown third parties, staff or visiting scholars, or through fire, flood or similar natural disasters or other foreseeable forces of people or nature. The scope of this duty should not be limited to the type, size of museum, its ownership by private or governmental bodies, or its collection. Some broad guidelines in this regard are given below:

- There should be one executive post of security officer who will be responsible for the security programme and there should be an official written policy or position description regarding his role and duties description.
- There should be a commitment by the museum management that the security programme is applicable to everyone and that no one, irrespective of his or her position, rank, title, status or for any other reason, is exempt from compliance with the policies and rules that are designed to protect the collection, visitors, and staff.
- There should be communication between the security management and the remainder of the museum management. Inclusion of the Chief Security Officer in department head level staff meetings is important for the success of the programme.
- It should be assumed that threats to the collection, including vandalism, accidental damage, theft, extortion or ransom, fire or disaster, are foreseeable for any collection. It is the responsibility of museum operators to report losses truthfully, so that the full extent of crimes against collections can be understood and foreseen by other museum operators.
- Museum operators should subscribe to publications or services that report museum-related losses of the type pertinent to their institution.
- When objects are placed in transit it is reasonable to assume that they are under greater risk than they are while secured in the museum. Therefore, the Chief Security Officer should be notified and consulted prior to the object leaving the museum so that adequate security can be provided during transit.

Fire Protection

- ❖ Every museum should be protected by a modern, electronic, fire detection system that complies with NFPA 72, National Fire Alarm Code, and is listed by Underwriters' Laboratories (UL) or a similarly acceptable testing laboratory.
- ❖ All fire detection systems should be enunciated within the facility both visually and audibly. Signals should be clear, distinguishable from other signals and easily understood by all occupants of the building including people who are disabled.
- ❖ In addition to local annunciation, fire detection systems should be monitored at a second location that is manned 24 hours per day, 7 days per week. These monitoring stations may be municipal police, fire, or emergency dispatch centres or they may be commercial central monitoring stations.

- ❖ All museums should have fire suppression systems. At a minimum there should be portable fire extinguishers placed in strategic locations throughout the building in accordance with NFPA 10, Standard for Portable Fire Extinguishers. Fire extinguishers should be checked daily and inspected for proper maintenance monthly.
- ❖ Automatic fire suppression systems should be used. These systems may consist of water sprinkler systems, water mist, clean agent fire extinguishing systems, or other automatic suppression systems. The most reliable system is the water sprinkler system. While a wet pipe system is the least expensive and most reliable, dry pipe or pre-action systems can also be used. It is best to install suppression systems throughout the museum, but at a minimum, sprinkler systems should be installed in all non-public areas of the buildings, especially offices, shops and other work spaces, kitchens, storage rooms, loading docks, heating plants, wash and restrooms, etc.
- ❖ It is recommended that only water sprinklers and clean agent fire extinguishing systems should be used. All fire suppression systems should be inspected on a regular basis for operability. Fire detection systems should be inspected regularly.
- ❖ The building should be examined frequently to verify that it meets local and state fire codes and good practices.
- ❖ Fire exits should be installed throughout the facility to facilitate egress from the building in emergencies. Proper signs should indicate where it is impossible for people with disabilities to exit.
- ❖ HVAC Systems should be installed in accordance with NFPA- 90A, *Standard for the Installation of Air Conditioning and Ventilating Systems*. There should be automatic fire dampeners and fan shutoffs in all ducts to prevent the spread of fire and smoke throughout the building, which would further damage collections in areas not directly affected by the fire.
- ❖ All museums should publish and implement an evacuation plan involving employees and visitors that addresses the need for additional security during evacuations. A minimum of one full scale drill per year should be implemented and all staff should be required to participate fully. The needs of the disabled should be addressed.

Burglar Alarms and Security Electronics

- ❖ All museums should have intrusion detection and signalling systems. These systems should operate without any interruption. Alarm annunciation should be both audible and visual.

- ❖ Museums with highly trained and adequately equipped full-time professional security staffs may establish a proprietary central station within a secure portion of their building but, as a minimum, a UL (Underwriters' Laboratories) listed panic device should link the control room to an outside central station.
- ❖ All exterior doors should have magnetic switches to alert the monitoring station when there is an unauthorized opening of the door.
- ❖ All exterior windows which open should have magnetic switches or other sensing devices that alerts the monitor when a window is opened or left open. All exterior doors which have glass, and all exterior windows, should have glass break detecting devices that alarm when the glass is broken, or interior volumetric motion detection to sense intrusion.
- ❖ At strategic places throughout the building there should be motion detection devices to detect the unauthorized movement of people through the building or area, and to detect persons staying behind after hours.
- ❖ Collection storage rooms will remain locked at all times and should be alarmed when not occupied, along with magnetic switches on the doors and sensors fixed inside the room.
- ❖ The use of programmable access control systems employing digital keypads or cards or biometric readers on collection storage is encouraged.
- ❖ Exhibition halls should have intrusion detection systems to signal an intrusion into the hall if it is not open. Where possible, exhibition halls should have lockable doors that are alarmed when the hall is closed.
- ❖ Selected items on exhibit or in cases may need the additional protection of detection devices that are active 24 hours per day.
- ❖ The determination of which items should be alarmed will depend on value, replacement ability, and sensitivity to controversy, but small items should be displayed inside the showcases for the protection.
- ❖ Alarm systems should be fully supervised against tampering.
- ❖ Alarm systems should be capable of operating during a power failure for a minimum of 24 hours on batteries, power supplies, generators or by other means and longer if local conditions require.
- ❖ There should be a programme to regularly inspect alarm systems to ensure their continued effectiveness.

Key Control and Retrieval

All museums should practice sound key control and retrieval and should have a written policy. Only those persons needing a key or needing access to a key should be given that access.

Security Training

Every museum should have a training programme for its security personnel or personnel who serve in a security capacity, or should obtain training for them from outside agencies. They should adopt a more extensive formal training curriculum for its personnel. These suggested practices encourage the use of a comprehensive training programme. The extent and type of training to be provided should depend upon the individual circumstances of the museum, its setting, collection, and other factors including local, state, or national licensing laws.

The museum should provide an ongoing training programme to keep protection personnel in tune with museum operations and needs and to expand security, fire prevention, safety and first aid and related skills. Records should be maintained of all the comprehensive training sessions given to the security staff.

General Rules for Museum Security

There are some general rules for both the visitors and the museum staff for safeguarding the museum collection and museum premises. The rules for visitors should be available at the ticket counter, in the shop and at the cloakroom. These rules should be followed by the visitors whenever they visit the museum and it should be the duty of the museum to give the visitors complete information regarding the codes and ethics to be followed by them. Small documentary films on the best behaviour of visitors and the consequences of not following them should also be made and shown to visitors during their orientation, before the entrance to the main display area of the museum.

- Smoking should be prohibited throughout the museum.
- Eating or drinking to be forbidden in the exhibition spaces and storage area.
- Animals should not be brought into the museum.
- Museum furnishings are to be handled with care.

- Touching objects on display or the artwork is prohibited. Making provision to keep a safe distance at least 50 cm between a visitor and the artwork. If one comes within 50 cm of the artwork, an alarm can be made to set off.
- Only pencils should be used for writing purposes, both by the visitors or museum professionals. If an accident occurs, a pencil mark is easier to remove than a pen mark. Be careful not to point with your pencil at other objects; this can endanger the works of art.
- For conservation and safety reasons, it is not permitted to enter the exhibition spaces with large, wet, or pointed objects, such as umbrellas, rain gear, walkers, backpacks, or bags larger than DIN A4 (25 x 35 cm). In case of doubt, the staff on duty will decide.
- Lockers to be provided in the cloakroom for visitors to keep their belongings.
- Visitors are to refrain from any activities detrimental to safety and decorum in the museum.
- Guided tours may be organized by the museum for visitors.
- In the event of a burglar alarm, all exits to be closed except for the main exit, in order to conduct a security check.
- For security reasons, the exhibition spaces should be under video surveillance.
- In the event of too large a crowd, control the entry and movement of visitors inside galleries. Too many visitors at a time should not be allowed inside galleries.
- Visitors should not be allowed to lean against walls or cases (either to write or for physical support). This helps keep works of art hung on the walls or displayed in cases safe. They can be asked to feel free to sit on the benches or the floors as they talk, write, or draw.

Security System at the Louvre Museum, Paris: A Case Study

The Louvre is one of the world's largest museums. Nearly 35,000 objects from pre-history to the 19th century are exhibited over an area of 60,600 square metres. Around 8.8 million visits were recorded at the Louvre in 2011. This museum was actually built as the fort for Philip II and some remains of the fort are still present, not exactly in its best shape. A lot of changes in terms of its structure have been made to give it the present look and finally it was decided to keep the royal collection in the museum. The museum was inaugurated in 1739. However, due to some infrastructural problems, it was shut down for a period of almost 5 years. Some

of the most famous pieces of art that are displayed are Antonio Canova's Psyche, the Venus de Milo, the Mona Lisa painting, some handprints and drawings, Egyptian, Greek, and Roman antiquities, along with handmade cultural objects and beautiful glass paintings. The museum thus has a very rich heritage that has made France proud of it.

It houses rare and unique specimens related to various phases of human development, so it becomes very important to safeguard them properly. To enhance the security system they contacted France-based Synel Technology to install a comprehensive security system in the world's most visited art museum, in an effort to prevent burglaries. As part of the major project, Synel France was contracted to install a comprehensive system for security access control combined with electronic attendance. This project at the Louvre is one of several new projects.

The project, which is set to boost the museum's security, will further entail the installation of Synel's time and attendance management hardware, as well as the use of fingerprint verification, keypad entry, magnetic card, barcode card, proximity card, contactless smart card and facial recognition.

In the Indian scenario also, there are many museums like the National Museum administered by Ministry of Culture and private museums called the Sanskriti Museums which are run by a trust, which have a proper security system regarding the safety of the collection in terms of guards, lock and alarm systems etc. However, these institutions also need some up-gradation according to international safety and security standards developed by museum experts, conservators and restorers working in this field worldwide. The above described steps should be taken towards the protection of collections from potential threats caused by any natural or external sources. They should also start to make a comprehensive security system, besides taking preventive and curative measures. Every museum in India should also have a written protection programme and written policies and procedures regarding the safety of the museum collection. The goals and objectives of the security function should be documented and defined. It is appropriate for this to be done in the Employee Handbook and signed by the chief executive officer. Moreover, regular training of all the staff for enlightening them about all the required common steps to be taken daily as well specific condition actions should also be imparted in museums.

Conclusion

An effort has been made through this paper to place added importance on the matter of safety and security of the museum collection in the 21st century. Important steps regarding the application of a comprehensive security system which have been accepted by major museums worldwide have been described in detail. At the same time, general rules about the adequate action and behaviour which are necessary to be followed by the visitors inside the corridors of museums have also been discussed. Even after application of the important steps of safety and security of the museum collection, museum professionals have to face various challenges like the absence of adequate funding for the maintenance of the entire security system. Therefore, it is necessary for all the museum professionals, nationally and internationally, to raise their voice for the complete safeguarding of museum objects. Generating awareness among the museum staff and the general public about safeguarding museum objects or specimens, which represent certain eras of human development, now seems very important to us.

Security of Museums from Seismic Damage

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Abstract: Museum security has two aspects; external and internal. No amount of conservation can restore the original condition of the artifact once damaged. Museum holdings are unique for society. Preventing their damage is the highest form of conservation. We should be well prepared to counter damage to them due to the following factors of deterioration by taking necessary safety measures.

1. Theft
2. Terrorist attack
3. Fire
4. Flood
5. Earthquake
6. Environmental factors
7. Managerial failures
8. Human negligence
9. War

We need structural and non-structural mitigation against earthquakes. We have to study their occurrence in various zones and their intensity. Priorities are to be decided first so as to complete the project within the shortest possible time. Collaboration with the Getty Conservation Institute, USA is suggested. Government of India and its agencies like NDMA may be requested to formulate an action plan for individual museums in India falling in various seismic zones.

Introduction

Museum Security has two aspects; external and internal. No amount of conservation can restore the original condition of the artefact once damaged by any disaster. Museum holdings are unique for society. Preventing their damage is the highest form of conservation. We should be well prepared to counter the effects of any disaster by taking necessary safety measures. Protection of our cultural heritage, which is vested with the museums or cultural organizations, is for the benefit of present and future generations. Damage to our heritage due to any calamity is to be prevented.

We should not only understand the properties and nature of various materials used to make them, but the technology of their fabrication techniques have to be properly understood before evaluating their deterioration process and adopting suitable measures and compatible

procedures to slow down or retard their decay. The process by which we can retard or slow down their decay is called preventive conservation. Damage may be caused due to various unpredictable happenings such as:

1. Theft
2. Terrorist attack
3. Fire
4. Flood
5. Earthquake
6. Managerial failures such as substandard construction of a museum building
7. Human negligence such as construction of high rise museum buildings on soft soil and not on solid rock
8. War

Seismic Zones in India

We need complete information related to earthquakes and structural and non-structural mitigation against them. We have to remember their recurrence in India. As per past records, India experienced earthquakes in Uttarkashi (1991), Killari and Latur (1993), Jabalpur (1997), Chamoli (1999), Bhuj (2001), Sikkim(2011). In the 2001 earthquake, the Bhuj museum building and the objects displayed on the first floor of the museum suffered lot of damage. In this paper, the main focus is on damage of cultural heritage due to earthquakes.

India has been divided into five seismic zones from 'very high' risk to 'no risk' zones. Most museums in India fall in the high or moderate or low risk zones. Delhi, Patna, Bhubaneswar, Kolkata, Mumbai and Panaji are in high risk zones. Jaipur, Udaipur, Bhopal, Nagpur, Allahabad, Chennai, Pondicherry have low risk. Jodhpur and Hyderabad are considered safe. Government of India compiled a vulnerability atlas of India, but no further studies on museum buildings in the above locations are available. No further data on this aspect has been published and we are in the dark as if we are waiting for a disaster to happen. Thus, museum security assumes great importance in saving our cultural artefacts from any damage.

Problem in Hand

India being a large country often suffers from major calamities year after year, in one or the other part of the country, resulting in loss of lives and property including our heritage. A preventive conservation approach remains the only measure available to conservators and

curators for safeguarding the objects against calamities. New buildings could have been made earthquake safe, but many museum buildings in the country are over 150 years old. Thus, seismic retrofitting, which is the modification of existing structures to make them more resistant to seismic activity, ground motion, or soil failure due to earthquakes, is the only possibility to protect the objects housed in old buildings.

Geo-chemical anomalies in the soil show that there are active faults in the earth's structure because the tectonic plates are pushing against the Asia plates of the Indian sub-continent. As and when the faults become destabilized because of energy release, this creates new stress zones resulting in tremors. This energy release and resulting tremors cannot be predicted with certainty. It is also believed that buildings on a rocky ground are safer. With a better understanding of seismic safety measures pertaining to structures and with our recent experiences with large earthquakes near urban centres, the need for seismic retrofitting is a welcome step. Prior to the introduction of modern seismic codes in the late 1960s, it was reported for developed countries (US, Japan etc.) and in the 1970s for many other parts of the world (Turkey, China etc.), that many structures were designed without adequate detailing and reinforcement for seismic protection. State-of-the-art technical guidelines for seismic assessment, retrofit and rehabilitation have now been published, e.g. the ASCE-SEI 41 and the New Zealand Society for Earthquake Engineering (NZSEE)'s guidelines. These codes must be regularly updated. The 1994 Northridge earthquake brought to light the brittleness of welded steel frames, and prompted use of corrosion resistant building material.

Missions started by Government of India like the National Mission for Manuscripts, National Mission for Monuments and Antiquities are relevant from the point of view of documentation of objects. Storage is the important part in a museum as a majority of the collections are housed there. Preventive conservation, which is possible within a small budget in comparison to curative conservation, is the only answer to deal with the effects of calamities on cultural property. Preventive conservation is a collective responsibility; each person working in a museum is responsible for its implementation.

Special storage fittings are being used in different museums. There are specialized firms to devise such storages for delicate and breakable museum collections. These storage fittings should be adopted in Indian museums. Preparedness to restrict the damage to the minimum is the dire need of the hour. Newspapers are reporting possible threats from earthquakes to North India. The objects in the galleries as well as in the storage area should be housed in a manner that they are not damaged during earthquakes.

Storage from a conservation point of view has also to be considered by the curatorial staff in order to ensure safety of the objects against various factors of deterioration. This is a welcome development in order to safeguard the relics of our past. Preparedness to restrict the damage to minimum is a dire need of the hour. News papers are reporting possible threats to north India, and we should take them seriously. Objects inside the galleries as well as in storage should be housed in a manner that these are not damaged during the earthquake.

Before the Earthquake:

The structural mitigation measures for museum buildings may be completed immediately with the help of NDMA and similar organizations. Non-structural mitigation measures are also to be planned simultaneously to save the artifacts. Violent shaking, tilting of structures can overturn the stored or displayed artifacts. The situation of objects on display and in storage areas are to be studied for avoiding damage. Artifacts and their mountings need to be reviewed. It is to be seen whether sliding, overturning, rocking or yielding would happen after earthquakes. Fastening of showcases, base isolation, provision of sand and lead bags, adequate anchors, padding between objects, large objects to be fastened with mechanical latches, restraints tied across open shelving, boxed or containerized artefacts are some of the essential precautions to be taken.

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Preventive Measures for Museum Interiors:

Computer models can be generated:

- To study seismic vibrations and their impact on displayed objects, and
- To record their tolerance and to keep them stationary during the actual earthquake.

The base of the objects are to be provided with springs that would keep absorbing the shocks and keep them static. The latest experience of some of the museums abroad need to be studied before it is too late. Ball bearings could be attached to the base of heavy statues. Nylon fishlike restricts the movement of the mount on the table top for each statue. At the base of the pedestal there is a unit with springs and ball bearings that moves on a concave disc. This system will act in the following manner:

- The springs would expand and contract to absorb the shocks and its movement is restricted to the size of the disc.

- The statue would thereafter return to its original state, thus preventing damage with the help of these mounts.

To counteract the possible large scale damage due to disasters, it should be ensured that the museum building is earthquake resistant since it is not possible to forecast them accurately. The showcase and storage containing valuable objects should also be fully protected.

Conclusions

We, therefore, have to remain content for the time being and remember that prevention of decay or damage is the highest form of conservation. We had an All India Conference on the subject of 'Disaster Management' which was organized by the Museums Association of India at Jodhpur a couple of years back. We should collaborate with institutions such as the Getty Conservation Institute, USA who have expertise in the field.

H. K. Gupta of NDMA in his presentation at the Kolkata Science Congress this year stressed on the need for better understanding of earthquake faults, and explained some measures which would provide useful data in this direction, including their prediction. These studies may take time, and till then we have to wait. As a proposed action we may request the Government of India and its agencies like NDMA to formulate an action plan for individual museums in India falling in various seismic zones, before an earthquake disaster happens and damages the cultural heritage.

We have to study this unforeseen disaster as regards the old museum buildings. The seismic spectrum would depend on soil types, the slope of sedimentary soils, the existence of any bedding planes and their angle of slope, horizontal changes in soil type, the depth of the over bedrock and the topography of the bedrock including ridges and deposited soil. In 1989 a quake rocked California and San Francisco. A 49 story building shook for more than a minute and the top floor swayed more than one foot from side to side. However no damage was reported. This was possible because California has the strictest building codes when it comes to earthquake preparedness. This also proves that the technology is available which needs to be adopted. All existing museum buildings need some modifications and strengthening as per earthquake resistant designs. There are techniques available today, but what is needed is correct understanding and immediate action against earthquake damage to buildings housing valuable heritage. There are also studies carried out on museum interiors which need to be studied in detail and safety measures taken to protect artefacts on display.

We should identify those museums which are located in seismic zones and provide safety to such premises externally and internally. Architects, civil engineers, builders, museologists and conservation scientists should sit together and chalk out a policy in this regard while planning new museum buildings. We should also suggest remedial measures as be taken in respect of old museum buildings to strengthen the structure and make them earthquake resistant. Dr. M.S. Mathews, Professor of Civil Engineering, IIT, Chennai who has provided the rehabilitation and retrofit of earthquake damaged buildings in Gujarat, has stated that there are several anti-seismic techniques developed in Italy and Germany which could be adopted by us. We may collaborate with them in this regard. As an urgent measure, 'Seismic Imaging' of the regions in various risk zones where our museums are located may be taken up in collaboration with institutes such as the National Geophysical Research Institute(NGRI) located in Hyderabad.

I acknowledge the inputs which were provided by the internet facility and newspaper reports and other sources available at the disposal of the author.

How Safe is Our Display?

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***Abstract:** Museums are now shifting from behind the showcase display to open display. On the one hand, this gives a closer proximity to the visitor of the display, but on the other hand it poses the problem of how to maintain the distance between the object and the viewer. There are several museums on the map of the country including the Crafts Museum New Delhi, which encourage open display. The Crafts Museum in particular has several displays in the open areas as well as the galleries, which are without showcases. Visitors to the 'Ritual Craft Gallery' in the Crafts Museum are often tempted to touch the large wooden and metal displays. On a recent visit to the recently renovated 'Wood Carving Gallery' of the National Museum, I noticed that a school teacher was actually touching the wood carving in the display in an inbuilt showcase without glass.*

There are some pointed questions in today's scenario, when we are trying to encourage interactive exhibits. Open display definitely gives a better proximity to the object but also poses risks to the object. The emerging question is 'should we totally restrict the touch of the displayed object or should we encourage partial touching'?

This paper focuses on the suggested methodology for creating more touch corners in or around the galleries and for sensitization of security, museum staff and the visitor towards the display.

Every museum has its own security issues, which need to be addressed differently. Museums are now shifting from behind the show case display to open display. On the one hand, this gives a closer proximity to the display for the visitor, but on the other hand it poses the problem of how to maintain distance between the object and the viewer. How is one to sensitize the public towards appreciating the open air display without causing any harm to the display? Barricading is a conventional way. But sensitization of foot falls may be a better approach.

Inappropriate handling by exhibition planners, designers, object handlers, and security personnel is another concern.

Sensitized group posing for a picture in front of a display



Sensitization of security personnel, the visiting public, particularly the large school /college /other groups, and all the museum staff including outsourced professionals is the need of the hour.

Today, a large number of outsourced professionals work in museums in various capacities. Sometimes, they are unaware of the damage their ignorance may cause to an object. Sometimes the designers etc., because of their over enthusiasm, display some objects in close proximity to each other even when their basic nature is not complementary. For example, if a bamboo object is displayed near a terracotta object, the latter may be prone to damage.

The concerns and interaction of professionals, security personnel and visitors is different from each other. Therefore, the method of sensitizing each group has to be different. As a part of the process of sensitization, we have to develop a series of posters and films with crisp loud messages, specific to the needs of each group. We tend to overlook the sensitization of the visiting public in a broader sense. The signage of only 'Please do not

touch' goes unnoticed or is deliberately ignored. With developed information technology systems and media publicity, we may develop space-wise DVDs in respect of each open display. These may be sent to schools for playing in the classroom, before their planned visit to the museum. These DVDs may be included in the shows in the orientation area of the museum and may also be shown on television with titles such as 'Admire Your Heritage without the Barricades'.

The security of museum objects depends primarily on capacity building of the human resource on duty. Even if the galleries are equipped with alarm systems for fire, vandalism etc., it is the ground staff on duty at the time of the occurrence of the disaster, whose prompt action would actually avert the disaster with minimum damage. Therefore, sensitization of the staff for ensuring prompt action for averting/minimizing the damage is required.

Each staff, irrespective of status and rank should be trained to operate the fire equipment fixed in the galleries and there should be regular repeat trainings and mock drills. When a new staff of whatever stature joins the museum, he or she should be sensitized and trained suitably.

Museum security for long has been considered or related with man-made and natural disasters, but little attention has been paid to the damage which may have been caused because of faulty display of the objects i.e. displaying the objects ignoring the basic character of the material of the objects and other preventive conservation issues. Proper fastening of the objects, while on display in a temporary exhibition is also an important issue, which needs to be addressed.

The planning for security of the objects has remained in the domain of museum administrators. Many of the museums are now getting administrators or human resources to manage the museums from other professional sectors. The curators and handlers of the objects work directly under the instructions of the administrative heads. Therefore, when we prepare the working manuals for the security of the display, we have to ensure that these manuals are approved, accepted and implemented by the museum administrators. The evolved guidelines may be suitably altered, according to the ground content of the display in each museum. Once the guidelines are evolved and accepted, these need to be followed in letter and spirit and implemented by the museum administrators. There may be a general manual and a specific manual.

Every official of the museum whether from the administration, management, or technical sections need to be sensitized by making them not only read the manual but also practice it.

A specific manual may be prepared by the technical staff, but the sanctity of following the museum manual lies with the administration and museum management.

There are several museums on the map of the country including the Crafts Museum, New Delhi which encourage open display. There are some pointed questions in today's scenario, when we are encouraging the open display of exhibits. Open display definitely gives better proximity to the object, but also poses risks to the life of the object.

The essential components of a museum are the building, collection, gallery space, exhibition and foot falls. There has to be a team of human resources, who are responsible for managing the functioning of these parameters.

With the turn of the century, museums across the country are slowly changing their perspectives about the display of their collection. Many institutions are now advocating open air display and display of the objects beyond show cases within the galleries.

There is a difference between the characters of these two types of displays. The open display in a gallery does not surmount the vagaries of nature and are sensitive to human touch etc. The open air displays are affected by climatic conditions. Generally, objects made of materials such as stone and clay form a part of the open air display. Such displays call for altered methods of preservation.

When objects of bio-degradable materials like wood, grass etc. are displayed in the open, it is detrimental to the general health of the object. The chances of decay increase in such displays. Museums have to devise a methodology for restricting the decay of such exhibits from the vagaries of weather and human vandalism.

The Crafts Museum located at Pragati Maidan, New Delhi is a unique museum, where the displays not only take place in the open areas, but also are part of the structure.

The Museum building is traversed through open and semi open passages covered with sloping tiled roofs and lined with old carved wooden jharokhas, doors, windows and perforated iron screens, through courtyards adorned with arches and lattice work panels, terracotta shrines dedicated to basil plants and vermilion covered wayside altars, stone jalis and entrances to the havelis.

The Crafts Museum has five different characters of open display.

Open Display in the Galleries

Bhuta Figure



Terracotta objects.



Display of Objects in Open Air

Stone jali above amphi theatre



Aiyanaar shrine is a reconstructed votive shrine of Tamilnadu an example of contextual display



Display of Prototype Models of various forms of Vernacular Architecture in open air



Functional Utilization of Traditional Doors, Windows, *Jalis* etc. in Building Construction



Contextual Display of *Jharokhas*, Interiors and External Facade of the Traditional *Havelis* and building utilization of Artifacts, Windows, *Jalis* etc., including Doors

Contextual display of Haveli in Courtly Gallery



Contextual display of Jharokha



Tulsi Chaura an open display in a courtyard



Talking in terms of the security of these objects, there are two issues. Issue one is related to the protection and preservation of the objects displayed in the open air. This may be addressed by developing manuals for the office personnel including security staff, professionals and visitors. The role of the preservation laboratory becomes very crucial in such a museum. The manuals may be prepared under the guidance of the conservation unit. The Crafts Museum in particular has several displays in the open areas as well as the galleries, which are without the show cases. Visitors to the Ritual Craft gallery and Court Gallery in the Crafts Museum are often tempted to touch the large objects such as chariots etc. We may have security instructions displayed at the entrance to each gallery. The language may be in an interactive style, instead of a commanding one. For example we may write 'Dear Patron, our museum is displaying the objects without barricades to allow you to have a close glimpse of the objects. We know that you are tempted to touch, but we also know that you want these artifacts to be seen by your coming generations'.

Every year, before the onset of the monsoon, each of the open air displays needs to be given a protective cover /coat .During the monsoon season, the museum authorities cover the open air collection with polypropylene sheets after giving a coat of a mixture of creosote, turpentine, and linseed oil, which over time and with the action of light and other environmental problems gets black. **For the** rest of the year, the objects remain exposed to the weather

conditions. This course of action may, in the long run, be detrimental to the health of the object.

In the Crafts Museum the wooden chariot displayed in the open air court yard had decayed over the years and consequentially required complete dismantling for restoration and consolidation.



The restoration work of the wooden chariot at Crafts Museum is the recent case demonstrating the decay of the portions of the chariot over the years due to the exposure to the open air. Restoration and consolidation of the rotten and decomposed parts of the chariot were not possible without dismantling. Therefore the chariot was dismantled, without damaging the decorative components. Some of the damaged components were completely lost and some were behaving like sponge and required replacement and insertion of new wood. Most of the inner wooden components were found to be weak and fragile and were used either after consolidation or replaced with new wood depending on the condition of each component. There were approximately 869 components in the chariot. These components were documented using alpha-numeric notations; numerals denoting the vertical direction and alphabets denoting the horizontal direction. Dimethylformamide (DMF) was found to be effective in cleaning coats of mixture. The component to be cleaned was wrapped with cotton after wetting with solvent and covered with polythene and left overnight to increase the contact time. Mechanical chafing was also applied to remove the deposits.

The restoration was done in three categories, namely, totally decomposed, the components decomposed from the edges and the components with slight decomposition on the margins. Totally decomposed components were replaced with new seasoned wood. New wood was

inserted in the damaged portions in the parts falling in the second category. A mixture of sawdust and adhesive was applied for consolidation of the third category.







Thus, we see that some of the current practices being followed in the museums with open air collections etc. need to be improvised. Therefore, as the epilogue to this seminar, we should develop sensitizing manuals for the three categories of people involved in museum activity, to have a day to day ground level security of the display, particularly those in the open air.

Dimensions of Theft in Museums

Prof R.C. Agrawal

President, Rock Art Society of India

***Abstract:** Crime is on the increase throughout the world. Mostly, it is committed against valuables. Museum collections are the most valuable, rare and irreplaceable objects and need protection from theft, fire as well as accidental or intentional destruction. The display of valuable objects creates temptation for various reasons; largely for money. This has led to a trade flourishing largely in developed countries; Asian and Far Eastern nations are the victims. An attempt has been made here to put forth the aspects of museum thefts and where we lack in tracing the lost objects.*

Of all the national assets, antiquities and art treasures are the most important. They are the priceless patrimony of one generation to another. How we value these gifts of centuries is a matter of our cultural sensitivity and maturity.

In order to prevent smuggling and fraudulent dealings in antiquities, the Government of India, like many other governments, instituted legislations. Any coin, sculpture, painting, epigraph or any other work of art or craftsmanship, any article detached from a building or cave, any object illustrative of science, art, craft, literature, religion, customs, morals or politics of bygone ages, any article of historical interest which has been in existence for no less than 100 years is defined as an antiquity. Similarly, works of art, not being an antiquity, but having artistic or aesthetic value are considered 'Art Objects', e.g. Nizam and Dogra jewels, paintings of Amrita Sher Gil, Barun Dey, Nandalal Bose, Raja Ravi Varma, Rabindranath Tagore, etc.¹

All these antiquities and art objects are preserved and displayed in many museums. These objects are vulnerable to various threats of different dimensions. These dimensions have varied forms. When analysed, various categories of thefts and modus operandi adopted in stealing art objects, several facts have emerged. Major thefts which attract international attention are usually the works of highly organised groups, and obviously by skilled

¹The Antiquity and Art Treasure Act, 1972.

professionals. In the West, some recent thefts of art objects from various museums appear to have been as carefully organised as sophisticated bank robberies. (Photo 1) Besides, it has also been realised that the thefts have not always been committed only for money, but for other bizarre reasons, such as to draw international attention or some times to enhance the value of the objects, etc. In 1976, the theft of 119 works of Picasso from a temporary exhibition in Avignon, south of France was widely reported. The theft of a sword from the National Museum of Sri Lanka in June-July 2012 was committed, probably at the instance of political zealots, as the belief was that the possessor of the sword shall be capable of eradicating his/her political opponents.

Plundering of excavated and unexcavated sites (as in Egypt and Afghanistan) are examples of the worst types of thefts, in which not only were the objects lost but evidence of great historical value vanished. Another example which cannot be called a theft, bears some dimension of security. The Taliban at Bamiyan in Afghanistan and Swat valley in Pakistan blasted the Buddha statues of great historical value to attain political mileage and making their presence / authority known to the whole world.

Looting of art objects from museums and other institutions during wars is not uncommon and museums in Afghanistan and Iraq have suffered thus. Another example is the case of the Elgin Marbles, which were moved from Greece to the British Museum in 1816 by Thomas Bruce, the 7th Earl of Elgin. Many different Greek governments have maintained that the removal was a theft.

In 1996, 2870 objects were stolen in India alone, out of which only 856 objects were recovered.² In various other countries of Europe, America and Asia during the year 1994 several thousands of art objects were stolen. Amongst these, 38 thefts in France, 22 in Hungary, and 47 in Russia occurred in museums alone. Church repository Poland lost 1045 art objects due to theft. Besides, the theft of 'Mona Lisa' from the Louvre museum, France on 21st August 1911 by an employee is a sensational episode. The employee was caught after two years. Two historical pieces of 15th century paintings were stolen in 1934 of which one was recovered shortly after the theft. The other one has never been recovered, as the thief who had sent anonymous letters asking for ransom, died before revealing the whereabouts of the painting.

² Information from Director, Antiquity, ASI

During World War II, the Nazis plundered art works in France, and confiscated tens of thousands of works of art from Jewish owners.³ In 1945, three paintings of Georgia O'Keeffe were stolen from a display and later purchased by the Princeton Gallery of Art. O'Keeffe sued the museum for their return.⁴ In 1967, Picasso paintings were stolen from the University of Michigan. In 1969, from Archaeological Museum of Turkey, various artefacts were stolen. During this theft, a night watchman was killed. A suspected German national was arrested and from him 128 stolen items were recovered. In 1972, from the Montreal Museum of Fine Art, several art objects were stolen. It was the largest art theft in Canadian history. In 1974, following the invasion of Cyprus by Turkey and occupation of the northern part of the island, churches belonging to the Orthodox Church were looted systematically. It was a rare example of looting of art since World War II. In 1983, more than 200 rare clocks and watches worth 30 million dollars were stolen from the Mayer Institute for Islamic Art in Jerusalem. French and Israeli police discovered the stolen watches kept in a bank locker in France. In 1985, during daylight hours, five masked gunmen entered the Marmottan Museum and stole nine paintings from the collection. The paintings were later recovered in 1990. In 1990, the largest art theft occurred, when thieves took away art objects collectively worth 300 million dollars. Government announced a reward of half a million dollar for information. In 2000, thieves broke into the museum and managed to flee using a boat (Sweden). In India, during the year 2003 and 2004, Gen. Niazi's pistol was stolen from the National Museum and Rabindranath Tagore's medal from Shantiniketan University Museum. (Photo 2)

In such a scenario of thefts across the globe, another dimension of theft history has come to light which at times has made it impossible to trace the stolen objects. From a museum in Argentina, a painting was stolen in 1999. The theft history revealed that the theft occurred in November. It is not known when the theft occurred.⁵ From the National Museum of Vienna, a 9th century golden cup was stolen.⁶ The history sheet of the theft indicated that it occurred in 1995. No authority of the museum had any idea when the object was stolen. From the Sofia Museum of Bulgaria, a painting on canvas was stolen in 1999, and the theft details were recorded between 17th and 20th July. Nobody was sure when the objects was stolen. From a

³ See websites museum thefts

⁴ *ibid*

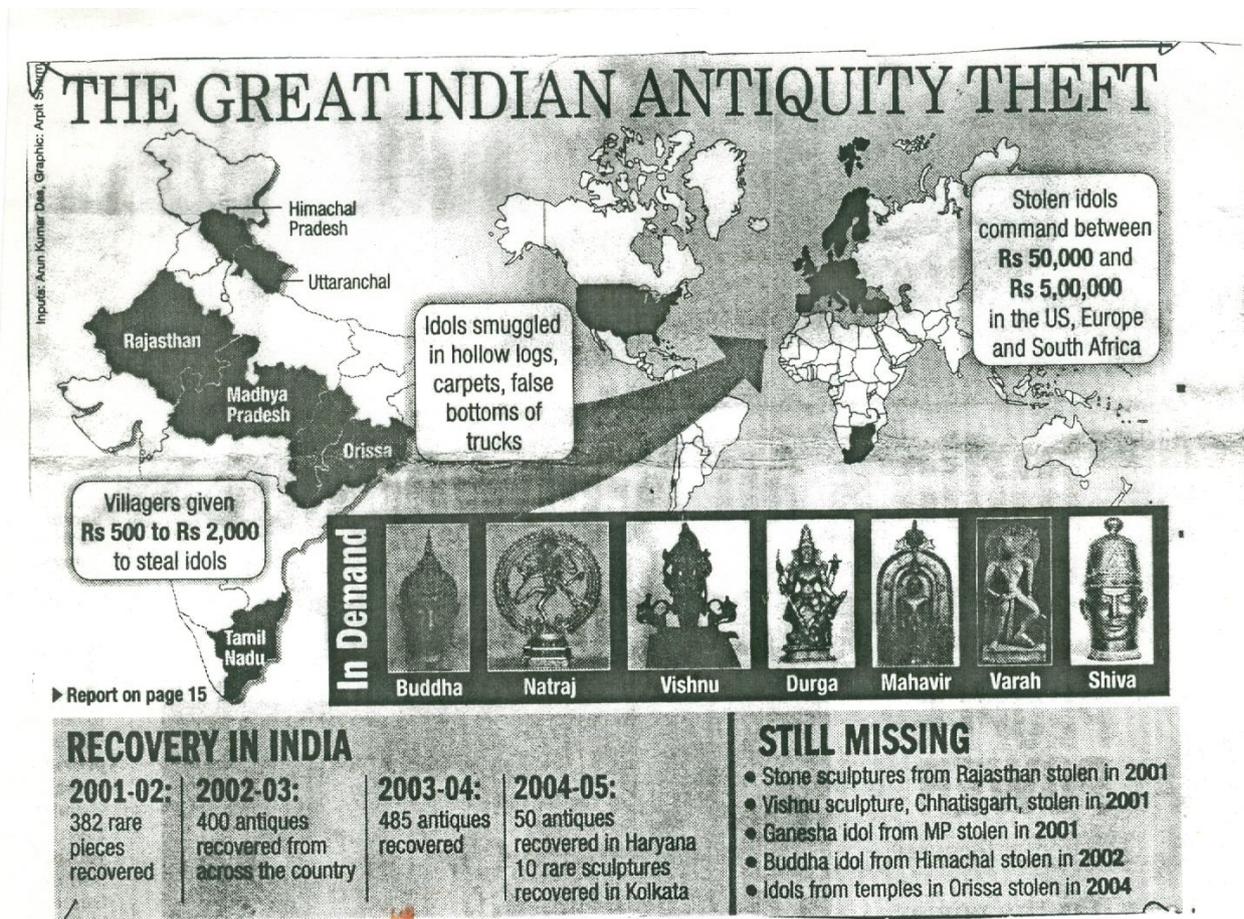
⁵ ICOM news, Vol. 53, 2000-No. 4

⁶ *Ibid*

church in Spain, a historical wooden statue of Virgin Mary was stolen.⁷ The date of theft was recorded between 5th and 12th October. From an art gallery in Slovakia a painting was stolen and the theft history sheet indicated that the theft occurred between August 1990 and January 1991. From a church in Cyprus, a painting depicting a saint was stolen between 10th and 21st September 1998. Authorities had no idea when the theft occurred.⁸ From the Croatian Nautical Museum, a historical silver ware object was stolen and the date of theft is recorded as between 13th and 21st March 2000.

These are some examples which narrate how cautious we are about our art objects.

Photo No. 1(The Great Antiquity theft)



⁷ Ibid

⁸ ICOM news, Vol. 53, 2000-No. 1

How safe are our artefacts? Lack Of Single Security Agency At National Museum

TIMES NEWS NETWORK

New Delhi: The theft of Rabindranath Tagore's Nobel Prize from the museum at Vishwa Bharati, West Bengal, has left many wondering whether a similar incident can take place in Delhi's National Museum.

On June 28 last year, General Niazi's historic pistol, which he surrendered to India after Pakistan lost the 1971 war, was stolen from the museum. The pistol is yet to be recovered.

The pistol was stolen from the Naval gallery the security of which is looked after by the Naval staff. The presence of too many security agencies in the museum and lack of coordination between them was said to be a cause which led to the incident.

While the Central Industrial Security Force (CISF) is respon-

Unsafe Heritage



- CISF is responsible for the overall security of the National Museum
- The museum has its own security staff who have the keys to the doors
- Some of them are museum employees while others are hired on a daily wage basis

...sibility of the security staff which is in control of all the keys used to lock or unlock the doors.

"Apart from the CISF, the museum staff also has the keys to all the doors. They also issue passes for entry into the museum. There is a need for a single security agency and we have taken this up with the museum authorities and the ASI," said inspector general (north sector) Shafi Alam.

gallery and the main gate. The security of the galleries on the first and second floors, however, is looked after by the museum staff.

After the pistol theft, the museum staff had expressed resentment over the fact that the CISF staff is not subjected to any security check while entering or leaving the museum.

CISF, however, said that it was not averse to its staff being

Managing Indoor Climate: A Challenge for Preserving Rituals Objects and Artifacts in Buddhist Monasteries in Ladakh

Dr Sonam Wangchok

Founder/Secretary, Himalayan Cultural Heritage Foundation (HCHF), Ladakh

***Abstract:** One of the important features of Buddhism in Ladakh is the numerous monasteries (Gompas) belonging to different sects of Tibetan Buddhism. The monasteries were mainly built of stone/sun-dried mud brick with mud mortar. The flat roofs are again supported by highly hygroscopic materials such as timber beams, joists, timber columns etc. These highly organic earthen architecture monasteries house a treasure of sculptures, wall paintings, manuscripts, ritual objects and highly colourful thangkas.*

The unfavorable impacts of climate change during a short period of time are causing serious threats to the existence of tangible cultural heritage sites. Most of the artifacts (art works/decorative elements) are painted with natural pigments and dyes using water-based binding medium, mostly animal glue, and, therefore, they are very sensitive to liquids, water and humidity. Damage to wall paintings and thangkas hanging on the walls, due to water leakage, is very common in almost all monasteries. People have started to ponder about the compatibility of traditional materials and techniques with the drastic climate change.

It is realized that more advanced scientific research regarding the impact of climate change on the objects of mountain cultures, particularly to understand indoor climatic scenarios with the aim of developing sustainable solutions to mitigate these impacts, need to be carried out in a more professional way. At the same time, the behaviour of indigenous materials / techniques towards climate change needs to be studied. It can be done by people with specialized knowledge of both contemporary scientific conservation practices and traditional restoration practices to find out possible sustainable solutions. Training of young persons from the region for the continued existence of historic earthen Buddhist monasteries/temples in the Himalayas and to preserve precious ritual objects and artifacts from indoor climate risks is also required. The paper is based on investigations and interviews with senior monks and caretakers of objects and artifacts from different monasteries in Ladakh.

Buddhism has very deep roots in Ladakh as this region was introduced to the faith as far back as the 7th century AD. One of the major features of Buddhism in Ladakh is the numerous

monasteries or *Gompas* belonging to different sects of Tibetan Buddhism. With the founding of the major Buddhist orders in Ladakh, the impact of artistic evolution was felt with Kashmiri traditions seen in early period temples while the style of paintings seen from the 15th century onwards is completely Tibetan in style. The architecture has many features that are unique to Himalayas influenced by Buddhist culture, habits and customs of the people and the environment. The monasteries were mainly built of stone/sun-dried mud bricks with mud mortar. The flat roofs are again supported by highly hygroscopic materials such as timber beams, joists, timber columns etc. Today, there are sixteen major monasteries with numerous branches in Ladakh which are a treasure house of sculptures of Buddhas, bodhisattvas and deities, wall paintings, manuscripts, wood blocks, decorations, ritual objects and highly colourful *thangkas*. All these works were created not only in Ladakh, but also in Tibet, Nepal and other parts of central Asia with which Ladakh had strong and vibrant relationships in the past. Buddhist ritual and ceremonial objects have great significance not only as venerable objects but also since the craftsmen who create them regard their work as a way of earning merit for this life as well the next life. The ritual objects are often adorned with gold, silver, gems and semi-precious stones and highly colourful *thangkas* are painted mostly with natural colours. The ritual objects, manuscripts and *thangkas* are stored in different rooms of the *Gompa* in different types of enclosures and furniture, e.g. open wooden shelves, wooden boxes, suspended folders, and compacted shelving.

Adverse impacts of climate change and heavy rain during a short span of time in the western Himalaya started causing serious threats to the continued existence of tangible cultural heritage sites. An unfavourable impact of climate change and rain can be seen on the built heritage of the Himalayas. Wall paintings damaged due to frequent seepage from the roof can be seen in many monasteries. Even bulging of wooden floors, windows and doors, probably due to the expansion of planks upon absorption of moisture/water are also visible in some monasteries. Preserving monastery buildings and artifacts from this kind of problem has become a challenge. The monks even witnessed increase of moisture inside the shrines when the earthen walls get damp due to heavy rain. Now, after every heavy rain, the monks check all the *thangkas* and ritual objects and take them outside to dry.

The deterioration and decay in each element of the buildings including structural members and the artworks inside the monasteries due to heavy rain was a serious problem recently faced by the monks and lay community in Ladakh. A closer assessment in most of the monasteries reveals signs of visible damage to the underlying painted layers. In some

monasteries, water running down from the roof of the shrine has resulted in strips of mud deposition on the surfaces besides causing loss of figurative details in the paintings. Elsewhere undulating surfaces, smaller split/cracks and bulges in the plaster are seen on several areas on the walls of the monasteries. Besides, wall paintings and *thangkas* hanging on the walls are also seen damaged by water leakage in some monasteries.

Heavy rain during summer, increased duration of snowfall in recent times and increase of humidity is a concern for flat roof buildings of monasteries which are mostly earthen structures. According to the Leh-based Defence Institute for High Altitude Research (DIHAR), increased temperature during hot summers in the plains leads to increased evaporation from water bodies and subsequent cloud formation in the hills, which, in turn, leads to increased duration of snowfall in Ladakh as compared to previous years. It has further been observed by DIHAR that the region was witnessing unusually bright sunshine in June and July causing snow to melt and RH increases (72%) as compared to previous years (50%).

In most works of art (ritual objects/decorative elements/ *thangkas*) in the monasteries, natural pigments and dyes with water-based binding medium (animal glue) have been used, and therefore these are very sensitive to liquid water and humidity. As wall paintings and *thangkas* hanging on the walls were being damaged by water leakage, the monks started to ponder about the compatibility of traditional materials and techniques with the drastic climate change. Sudden changes in climate and regular increase in rainfall constrained the monastic community from carrying out repairs and changes in the structure as well as inner shelves using modern materials and techniques.

Earlier the *thangkas* and ritual objects were kept in wooden boxes for safekeeping but now the monks ponder about the suitability of wooden boxes to keep such objects. That is why they have started to replace wooden boxes with iron boxes. Due to this, the art of making these wooden boxes has almost died out in Ladakh. The huge *thangkas* do not fit in small boxes, so they are mostly hanging from the roofs of assembly halls; again now it has become risky in case of water leaks from the roof during heavy rain. Monks relate the increase of moisture inside shrine rooms to poor ventilation. With increase in moisture inside rooms, they also feared increase in activity of moths (*Mukpa*). When the walls behind the wooden shelves become damp, the manuscripts absorb moisture, and, therefore, they have started to put tin sheets behind the shelves to prevent dampness.

These interventions are carried out without appropriate knowledge of conservation guidelines and norms but the measures taken have turned out to be good enough to prevent dampness, ingress of moisture and disintegration of ritual objects and manuscripts due to water infiltration. The only solution the monks could think of is to inspect every object regularly, especially *Thangkas* and manuscripts, during and after heavy rains and put mothballs in textile containers. That is also one reason that museums are created; to keep all the precious objects together and take good care of them.

Under the circumstances the Himalayan Cultural Heritage Foundation (HCHF) is working closely with community participation to reduce damages to this valuable cultural heritage by educating monks and the general public, particularly about maintaining the monasteries and the objects housed therein. Nevertheless, it is realized that more advanced scientific research on the impact of climate change on these mountain cultures, particularly to understand indoor climates scenarios, with the aim of developing sustainable solutions to mitigate these impacts need to be carried out in a more professional way. Documentation of the objects and culturally important buildings is also an issue and the region needs support in this area also. ‘We also need experts to study the level of temperature and relative humidity inside the shrine rooms and train our monks to take good care of the ritual objects’ says Gelong Nawang Chosphe1 from Chemdey Gompa.

It is imperative to take precautionary measures to safeguard the treasures present in Buddhist monasteries in the Himalayas and it is the right time to better understand indoor climate challenges and solutions in different heritage contexts. In order to better understand the challenges and solutions, the following actions should be carried out.

- Carry out value assessments of collections and buildings in different perspectives, in particular taking into consideration the relationship between the collections and the buildings where they are kept
- Identify the main factors affecting indoor climate
- Evaluate the vulnerability of different types of collections and building interior fundamentals to different indoor climate conditions
- Develop options to moderate indoor climate risks to collections and building interiors
- Certain value-based and risk-based decision making for accomplishing sustainable conservation actions

At the same time, responses of indigenous materials and techniques to climate change need to be explored. It can be done by people with specialised knowledge on both contemporary scientific conservation practices and traditional restoration practices, so as to find out possible sustainable solutions, to train young people for the continued existence of historic earthen Buddhist monasteries/temples in the Himalayas, and to preserve precious ritual objects and artifacts from indoor climate risks.

My Experiences in the Security of Museum Collections as an Eye Opener to Young Museologists and Conservators

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***Abstract:** Museum Security is a very important issue. Museum collections are lost due to one or many security lapses. There are various means and methods of safeguarding museum collections. The various aspects of museum safety have to be understood before one delves into the various facets of museum security.*

The role of museum professionals in implementing security measures is very important. Starting with the condition of the building, its upkeep, regular inspection with the engineers and upgrading the condition of the building best suitable for the museum, other important measures include the documentation of the museum collections, verification of the museum collections, upkeep of the reserve collections, their preservation and handling, upkeep of the galleries, keeping a photographic record of the objects, maintaining a register to record of keys taken and returned by the staff, keeping a register for recording the opening and closing of the galleries, movement register for the museum collections, supervision of the gallery security/watch and ward, maintenance by the gallery staff, identifying the weak points in the building and show cases, and rectifying them, training the staff in security, disaster management and public relations, conservation and restoration, transportation etc.

The author describes his experiences in museum security for the benefit of museum professionals. The author proposes a security risk management cycle to be followed in museums. He advises the professionals to identify various risk factors in museum security. The security risks have to be identified and analyzed; security methods have to be planned and put in use after testing. Finally, risks to the security system have to be controlled by suitable methods and means.

Security means the state of being or feeling secure or freedom from fear, anxiety, danger, doubt, etc. or a state or sense of safety or certainty. Museum security is a mechanism that

provides protection for the visitors, collections, equipment, information, personnel and physical facilities and prevents influences that are undesirable, unauthorised or detrimental to the goals or the well being of the museum. Security is one of the very important issues for museums today. Museum collections are lost due to one or many security lapses. There are various means and methods to safeguard museum collections. The various aspects of museum security have to be understood before one delves into it.

Various Facets of Museum Security

The role of museum professionals in implementing security measures is very important. Starting from the condition of the building, its upkeep, regular inspection with the engineers and upgrading the condition of the building best suitable for the museum, other important measures include the documentation of the museum collections, verification of the museum collections, upkeep of the reserve collections, their preservation and handling, upkeep of the galleries, keeping a photographic record of the objects, maintaining a register to record of keys taken and returned by the staff, keeping a register for recording the opening and closing of the galleries, movement register for the museum collection, supervision of the gallery security/watch and ward, maintenance by the gallery staff, identifying the weak points in the building and show cases, and rectifying them, training the staff in security, disaster management and public relations, conservation and restoration, transportation etc.

Lapses Become the Best Teacher

The author proposes a security risk management cycle to be followed in museums. He advises the professionals to identify the various risks factors in museum security. The security risks have to be identified and analyzed, security methods have to be planned and put in use after tested. Finally, the security risks have to be controlled by suitable methods and means. The author explains the case studies where some of the museum objects were lost or seemed to be lost. He also explains the lapses by himself and other staff, how he overcame the difficult situations etc.

Loss of Two Silver Coins

There was a temporary exhibition titled “Care of Museum Objects” put up by the Chemical Conservation and Research Laboratory, Government Museum, Chennai at the end of a Refresher Course on Care of Museum Objects, in which a few silver coins of Queen Victoria

were on display. Due to the lapse on part of the security staff, two of the Victoria silver coins were stolen. When the author returned from the Secretariat after a meeting, he learnt that the two silver coins were found missing. He immediately visited the exhibition hall, enquired with the staff on duty and the section staff regarding the whereabouts of the coins. They were not able to give any clear picture. Thereafter, the author straight away sent a letter to the head of the museum and the author took the responsibility for the loss of the coins. The pros and cons of the display of the coins were discussed, and thereafter the coins were always displayed within well-built show cases.

Loss of Buddha's Head (Stone)

The Archaeology Section of the Government Museum, Chennai lost a Buddha's Head (Stone). The theft was intimated by the gallery staff to the official only a few days later. Enquiries were made by the police as the matter was intimated to them. Enquiries were also made with the author and the staff of the laboratory, as the sculptures were conserved in the laboratory before they were exhibited in the gallery. Finally, it came to notice that one unhappy gallery staff member had stolen it and thrown it out of the gallery into the garden area. It was a pity that the Buddha's Head had not been properly documented and its photograph could not be provided to the police at the time of reporting the matter to them. Fortunately, videography of the gallery had been done during a visit of the Secretary to the Government of India, Department of Culture, and the video coverage showed the Buddha's Head in one of the frames.

Loss of One Revolver

The Government Museum, Pudukottai had displayed five revolvers in one of the show-cases. One fine morning, it was noticed that one of the revolvers was missing. Immediately, the author was appointed as the Enquiry Officer by the Commissioner of Museums and he undertook a tour to Pudukkottai and made enquiries from early morning till late night. The police had also made enquiries and could not find any clue. The enquiry report found fault with the gallery staff, supervisory staff and the Curator. One of the gallery staff, who had returned to duty after one day's casual leave, had taken charge of the gallery on that day. He did not check the museum objects but signed in the register as if he had checked all the objects. The revolver could not be traced and the gallery staff was penalized for the loss of the revolver.



Even though the revolver was not an antiquity, it was a museum object. Therefore, documentation of the revolver with photos and keeping a record of the objects displayed had not been done, which is one of the important activities in a museum for the safety of museum objects. The officer in charge of the objects should have a good liaison with all the collection curators / keepers / managers concerned.

Missing of One Bronze Icon

When verification of the objects was done in the Chemical Conservation and Research Laboratory of the Government Museum, Chennai one of the bronze icons was found missing. It was searched for in all places in the laboratory. When the concerned Curator was asked about the bronze icon, the Curator said that it was within the reserve collection of the Archaeology Section. Finally, it was found that the movement register was not properly maintained and the signature of the concerned Curator was not in the preservation register maintained in the Laboratory. This was a lapse on the part of the staff of the Laboratory, including the author.

Annual Checking of Museum Objects

The annual checking of the antiquities used to be carried out by checking 1/5th of the objects every year. It was usually done at random. The author programmed this in such a way that if the section had 5000 objects, objects with accession numbers 1-1000 were verified in the first year. Next year, the verification of objects with accession numbers 1001-2000 was done and so on. But, when the checking was made strict by the author, the whereabouts of the objects were found out with great difficulty. Unregistered objects were also found and they were also registered during such occasions. The whereabouts of all objects were thus recorded in the register.

Museum Security Risk Management Cycle

Risk is a situation involving exposure to danger. Risk alternatively can also be defined as the possibility that a particular threat will exploit a particular vulnerability, and vulnerability is a flaw or weakness in the museum that can be exploited to violate the system's integrity. Risk and vulnerability are directly related. Based on the experience of the author, he has prepared a Museum Security Risk Management Cycle to be followed in museums. He advises that security risks have to be identified and analyzed, security methods have to be planned and put

in use after testing. Finally, the risks to security have to be controlled by suitable methods and means. Determining what risks or hazards exist or are anticipated, their characteristics, remoteness in time, duration period, and possible outcomes is the risk identification all have to be considered.

Risk management consists

of (1) Identification of possible negative external, internal conditions, events, or situations, (2)

Determination of cause-and-effect (causal)

relationships between

probable happenings,

their magnitude, and likely

outcomes, (3) Evaluation of

various outcomes under different assumptions, and under different probabilities that each

outcome will take place, (4) Application of qualitative and quantitative techniques to

reduce uncertainty of the outcomes and associated costs, liabilities, or losses.

MUSEUM SECURITY RISK MANAGEMENT



Conclusion

Museum security is a subject of great concern for everyone working in museums. Each and every one has to do their part in order to avoid security risks, and it has to be a continuing process.

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Security of Cultural Heritage: A Fundamental Concept of Museology

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Abstract: Security does not always mean protection only from theft. It has multidimensional values and ideas which are very important for protection of the cultural heritage of a nation from deterioration and total destruction of the same. As such, proper preservation and conservation of the material and cultural artifacts of any culture and civilization is a vital part of museum security. One has to attach considerable importance to the word security and carry forward the implications of that particular word to museological procedures for preserving cultural heritage. Thus, security is a vital part of museology. The very idea of museum security should be present in the mind of every curator of a Museum. In any museological procedure like accessioning/registration/indexing/cataloguing/display of museum objects and even in field exploration, the basic concept is "Security". Even at the time of display in exhibitions and visual storage, museum personnel should think about the security of the museum objects.

Museum security is very important and a vital problem so far as the museological concept goes. In the very beginning of the development of a museum, i.e., in the planning stage, the concept of museum security should be considered very carefully by the planners of the museum. Before constructing a new building of a museum and before designing the galleries, organizers should pay a great deal of attention to the security of the artifacts to be displayed in those galleries. The planners should be careful in locating places for instruments like closed circuit T.V. and for fixing fire fighting equipments. They should also be very careful in fixing water pipes in the galleries for controlling any accidental fire. The above mentioned ideas are regarding basic museum security, so far as the museum building and the gallery are concerned.

Security does not always mean protection only from theft. It has got multi-dimensional values and ideas which are very important for the protection of the cultural heritage of a nation from deterioration and total destruction of the same. As such, proper preservation and conservation of the material and cultural artifacts is a vital component of museum security.

Many museologists may not give emphasis on conservation; however I feel that conservation of artefacts is one of the important functions in terms of their security.

At times, general administrative personnel and the curatorial staff of a museum pay little attention to its security systems. That is why museum security systems get neglected. Probably this sort of attitude can be attributed to the ignorance of those museum personnel.

In India, every museum has its own security system. It is also worth mentioning here that security agencies have no coordination with the museum administration in a majority of Indian museums. Most of the major museums of India are provided security by the State Police Department or CISF or private security agencies. Lack of coordination between the security staff and the museum administration leads to inefficient / ineffective security systems.

The introduction of modern security gadgets has brought a change in some of the big museums of India, but the value of the security system remains greatly ignored in general. The concept of museum security should find due place in the mind of every curator of a museum. In any museological procedure like accessioning / registration / indexing / cataloguing / display of museum objects and even in field exploration, the basic concept of 'security' should be an in-built parameter. Even at the time of display in exhibitions and visual storage, museum personnel should first think of the security of museum objects.

In the pre-independence period of India, there was no effective and strong government policy to protect cultural property, so theft, damage, smuggling and vandalism of cultural properties were rampant. Not only in India but in all other neighboring countries like Bangladesh, Pakistan, Burma, Afghanistan etc., people were not conscious about the 'curio-value' of different art, archaeological and other cultural artifacts. In the middle of the 20th Century, the Government of India and the Governments of other countries have taken steps in adopting different policies for safeguarding the cultural heritages (properties) of their respective countries. Valuable advice and suggestions from UNESCO helped all the Asian countries in formulating the basic methods, principles and laws for the protection of cultural properties. The mechanical and technical methods for the protection of cultural properties kept in a city museum or in a site museum have been adopted not only in India but in almost all South Asian nations.

Analyzing the cultural property protection methodology of a few museums in South East Asian countries, it is felt that in every nation there should be a trained force (CPPF) under control of the respective Governments. It should be in the fashion of an organization like the

Defence Production Protective Force established in India and in other nations. Personnel of the said force should be trained like military personnel. They should be provided with basic knowledge and fundamental ideas regarding cultural properties and knowledge of 'Curio Objects' during their training period. Their basic education should be culture oriented, and their morale and temperament should be checked at the time of initial recruitment. Unfortunately, not only in India but in other South & South-East Asian countries the above basic guidelines are not followed at the time of recruiting museum security personnel. They are mostly designated as 'guards' but actually they are more than that. We should make them feel that they are not simply guarding the museum objects but they are their real custodians. They should have love for the heritage, but due to lack of training these personnel are far from meeting the real objectives.

Manpower is the main means for the protection of cultural property. For using and manipulating technical devices or utilizing scientific methods for security purposes, we cannot avoid manpower. So it is desirable that there should be coordination between the management and the security forces. Cooperation, coordination and co-relation can only strengthen the morale of the security personnel for performing their duties and responsibilities. The security staff should get due respect, and if their problems are ignored they cannot be sincere in their duties. Security staff should be made aware of the fact that scientific devices used in security are only complementing the man-power rather than substituting it.

Conventionally museum security was handled manually, especially in pre- independence India. Even today the major part of security in a majority of the museums is dependent on security personnel. Hence, it is important that those involved in such a responsible task remain motivated. To make them effective they should be given adequate training to remain motivated and psychologically strong. Museum administration should maintain cordial relations with security personnel.

Conclusion

A Cultural Property Protection Force (CPPF) should be formed in every nation in South & South-East Asia. Recruitment and eligibility should be based on knowledge of the culture of the country. Their training should involve imparting knowledge related to art and archaeological objects. Their morale and temperament should be checked at the time of recruitment. There is also a need to redesignate the security personnel. In India and other

South Asian countries, they are still called 'guards'. Instead, their designations may be made more respectful to infuse a sense of self esteem in them.

Analyzing the basic concepts of museum security in India and the adopted methodology followed for the protection of cultural property in India and other South Asian countries during the 20th century, it can be said that the custodians of the cultural property of a country like museums and surveys are inclined towards improving the security measures for the protection of the cultural artifacts belonging to them. The traditional outlook of the management of such institutions have changed due to interactions with modern science and technology and also due to close contact with the museum authorities and countries of the American and European continents. This type of approach for exchange of views with other developed countries is definitely the modern tendency of Asian countries. Authorities of museums and different governments are now interested in the exchange of persons for getting proper training in different museological aspects. Training in museum security should be taken up in such exchange programs when a MOU is finalized between two countries.

The International Committee of Museum Security (ICMS) of the International Council of Museums (ICOM) should play a vital role in imparting education and training on museum security among the museum personnel of all Asian countries. Sometimes it is a great problem for museum authorities and the Governments of developing countries like India, Bangladesh, Pakistan, Burma and Afghanistan etc to purchase and supply costly scientific tools and machines for museum security due to financial constraints. ICMS should explore the feasibility and extend the horizon of exchange programmes with South & South-East Asians countries not only for the persons who are engaged for the protection of the cultural property but also for the exchange of technological machines and tools.

Geographical location and political ideology should not create any hindrance in these type of exchange programmes for the development of security methods between South & South-East Asian countries and the countries in the continent of America and Europe. ICMS can play a vital role in this context.

Due to improper security systems, there were a good number of thefts and vandalism which are continuing even today, and thereby a serious loss of cultural heritage is occurring. I hope important institutions like the International Committee for Museum Security under ICOM can formulate a standardized procedure applicable for the protection of cultural properties of any country. The Committee should extend active cooperation for implementing the formulated theories to the countries which are desirous of the same. Publications of books

and articles on the process of basic museum security are an excellent media for improving the knowledge of security among interested people. We take pride that ICMS has already undertaken such an attempt in publishing very important books on museum security.

The Need and Call

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Abstract: There are several small but unique museums in different corners of Assam. A visit was made to some of the museums of the region with a view to study the security problems, conservation status and general management in these museums. Four museums, namely Assam State Museum, Bordowa Mini Museum, Tezpur District Museum and Barpeta Satra Museum were selected as representatives for the detailed studies. It was the general observation that lack of funds and staff and their professional competence is directly affecting the security of museum objects and overall management of museums. Situations prevailing in each of the surveyed museum are discussed, and suggestions to improve the security, conservation and other issues are made.

The Assam State Museum situated in Guwahati is the biggest museum in Assam, while there are several other museums in different corners of the State. Many of these museums are unique from the point of view of their collections. Being a sincere student of museology and with my profound interest in the cultural heritage of the region, a study of the security problems of the museums in and around Assam was undertaken. Four museums namely Assam State Museum, Bordowa Mini Museum, Tezpur District Museum and Barpeta Satra Museum were selected for the detailed studies. I visited all these museums and made my own personal observations and held discussions with the staff of all levels. The reports and other data available with the museums were also used for extracting the desired information.

Minimum Standards and Professional Ethics

The objectives of a museum are not easy to fulfil as it demands the highest standards of professional practice as per the standards laid down by the International Council of Museums (ICOM) in defining the code of ethics. Museum professionals and the general staff should possess adequate intellectual ability and professional knowledge, complemented by a high standard of ethical conduct. The museum's functions demand involvement of qualified personnel with different skills and expertise. There should also

be adequate opportunities for continuing education and professional development of museum personnel.

The main functions of a museum are to acquire, preserve and exhibit objects and also spread knowledge about these objects. Care is necessary in all these activities, as there may be particular sensitivities; cultural, ethnic or religious. Sensitive objects and material of sacred significance should be acquired only if they can be housed securely and cared for respectfully in a manner consistent with professional standards and the interests and beliefs, where known, of members of the community, ethnic or religious groups to which the objects belong.

The Assam State Museum

The Assam State Museum holds some significant and important collections of archaeology, numismatics, manuscripts, etc. The museum presents a sad scenario in its maintenance and display of its collections. Some observations made during the visit to the museum are given below in short:

- No laboratory for conservation treatment of the objects.
- Under-staffed; sometimes no staff is available to guide visitors or answer their queries, if any.
- Only one security guard for the entire museum.
- Cleaning and dusting of galleries and objects are neglected; done only 2/3 times in a month.
- No visitor survey done.
- No training given to staff in collection, care and security of objects.
- Very poor professional conduct shown.
- Certain objects (seeds, rice, etc.) are on display continuously for the last 15 years.
- Insects and moths can be seen with the naked eye moving in most organic objects.
- No backup for breakdown of electricity. Electricity cut 2 hours every day.
- Fire extinguishers after expiry dates have not been replaced.
- CCTV cameras installed in only some galleries.

Barpeta Satra Museum:

Situated in the Barpeta District of Assam, this museum holds collections of Sankardev's period like wooden masks, manuscripts, door panels etc. The museum runs on a very low budget supported by the District Commissioner for its care and maintenance. There is no security arrangement. It is the keeper cum security guard who also does the cleaning and basic conservation and restoration work of the objects.

Tezpur District Museum

The museum has around 532 objects which include metal objects, manuscripts and paintings. The collection is distributed in two halls and one security guard looks after the security arrangements of the entire museum. In such a small museum it is not practical to have a properly equipped conservation laboratory, and whenever required, objects are sent to the Assam State Museum. Sometimes cleaning and other minor treatment to objects is done by the employees themselves without any professional knowhow. It is not surprising that sometimes wrong treatment is given to objects. Thus, professional conduct is a much bigger concern here. It can also be negligence on the part of higher authorities, that untrained hands opt to handle objects and damage them in the process of so called conservation. The museum does not have even a small generator.

Bordowa Mini Museum

The museum has personal collections of Shrimanta Sankardeva and is situated in his birth place called Bordowa in Nagaon district of Assam. The collections are mostly wooden objects and a few metal objects, and it has some masterpieces of late 14th century. The objects are displayed in two corridors and two rooms, and only one person is employed in the museum to assist visitors. No proper documentation is maintained other than just an entry in a register. Some of the conservation work done on the objects comes as a shock, as the objects are not even properly fastened to the support. The museum has no security system, and the museum is left without any guard during the night. The solitary museum staff accepted, during conversations, that it is difficult for

the museum to survive here with very little funds, or sometimes, with no funds. He has to act in multiple roles like guard, instructor, keeper, guide, conservator, etc. Professionalism is just a dictionary word for him, and it may be the reason for the present state of the museum. The care and maintenance of the collections rests with only one person; the entire security and safety of the objects is left in the trust of a lock put on the door.

Suggestions:

Manpower Requirements and Their Training

Most of the posts remain vacant for decades and frequent changes of professionals at the higher levels, with charges of misconduct often pending against them, has led the entire museum scenario of Assam into darker shadows. Members of the museum profession should observe accepted standards and laws, uphold the dignity and honour of their profession, and safeguard the museum property from illegal or unethical conduct of any one whether insider or outsider.

It is a professional responsibility to consult other colleagues within or outside the museum when the expertise available in the museum is insufficient to ensure good decision making. In addition, available staff should be given training in their areas of duties and responsibilities. “Hands on” practice is essential for all staff handling collections, and their training should be a periodic exercise. Reference books and training videos should be made available for the use of all staff.

Handling of Objects

Proper handling is essential for the safety of objects. It reduces the likelihood of physical damage to the objects. Establishing and implementing handling procedures in a museum promotes professionalism in the staff. The benefits include greater safety for the collection, and an enhanced reputation for the museum.

Every museum should have a set of handling procedures which is taught to all staff members as soon as they join the museum, although supervision will be required until new staff are experienced enough to manage things on their own. Once training is complete, it is important to foster good handling practices and persons in positions of authority should serve as role models.

Some general guidelines regarding handling are:

- Wash your hands and wear gloves before touching an object.
- All materials and surfaces in contact with the object must be clean.
- Keep potentially dangerous articles such as pens, tools and sticky labels away from the objects.
- Handle each object as though it is irreplaceable and the most valuable in the collection.
- Handle objects as infrequently as possible.
- Handle only one object at a time and using both hands. Handle separate pieces of an object individually.
- Never hurry while handling objects. Move slowly. Handling objects requires total concentration.
- While handling an object a good guide is the “*no noise*” rule. The objects should not produce any sound when moving or handling them.
- Be aware of health implications in handling an object. Organic matter, particularly natural history specimens, may be heavily infested by harmful organisms.

Packing and Transportation

Movement of objects within the museum or outside the museum quite often becomes necessary, for which it is essential to:

- Know the condition of the object before beginning to move it.
- Identify basic handling and moving techniques for various sizes and types of objects.
- Identify basic packing techniques for the objects and also whether specialist packing is required; make available appropriate packing materials for the purpose.
- Maintain movement registers to keep track of objects.

Documentation

Documentation of the museum collection is also considered a very important aspect of museum security. To claim legal ownership of the object, every object in the collection should be photographed, documented and catalogued

Condition Report and Conservation

The condition of each object of the collection should be monitored periodically. In case signs of deteriorations are observed, the first task is to assess the suitability or otherwise of the display/storage technique. Such periodic examinations will also help to determine when an object or specimen needs conservation treatment. The major concern of all museum staff is to protect the collection from the detrimental effects of the museum environment, and the principal goal should be the stabilisation of the object. Temperature, relative humidity and light levels should be monitored and maintained as per specifications, as far as possible. Conservation treatment should be considered as the last resort, and it must be performed only by trained hands. There are some ethical considerations in the conservation treatment process, and if treatment becomes necessary they should be followed strictly. There are instances when objects have been damaged by a careless approach to conservation treatment and handling. Hence, professional training of the staff with periodic upgradation is a must.

Museum Security against Manmade, Accidental or Natural Disasters

The aim of museum security is to prevent loss or damage to objects by any possible cause; the most rampant are man-made disasters (theft and vandalism) and accidental disasters (fire). Examples are available when natural disasters have considerably damaged museums and the objects housed therein.

Objects may suffer damage by various factors other than theft or fire; therefore, the security aspect should be a built-in feature in all activities of museums. Preventive conservation is the technical term for this. Thus preventive conservation is the key to museum security.

Unfortunately, security arrangements were lacking in all the museums of the region included in these studies; even adequate numbers of security guards were not there, what to speak of electronic devices. In Assam alone, six temples around Guwahati were raided in 1976 and the idols under worship and other valuables were stolen. It is a matter of regret that no recovery of most of the objects could be made yet. Of course, the Brindabani Vastra resurfaced in a foreign museum.

Basic steps in preparing against disasters are prevention, detection, response and counteraction. If these steps are planned and acted upon as envisaged, damage can be minimised. If nothing else, at least some fire fighting equipments must be installed and maintained, even though help from local fire brigade may be available.

Security problems in the Museums of Odisha with special reference to Odisha State Museum

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***Abstract:** Now-a-days, security problems in museums the world over are increasing due to high demand for objects of art. As a result, art smugglers are very active and are involved in illicit trade in Indian art objects resulting in high scale theft in Indian museums. The museums of Odisha, including branch museums, private museums and the Odisha State Museum possess rare objects of art and artefacts. These are highly prone to vandalism, natural calamities and theft due to improper security like lack of trained security personnel, unsuitable buildings, absence of modern gadgets like CCTV, detectors and alarm systems, metal detectors, fire fighting systems, improper display, etc. Therefore, it is a crying need of the hour to protect antiquities against all such security issues. In this paper an attempt has been made to highlight the various issues of security problems in the museums of Odisha in general and Odisha State Museum in particular, and their remedial measures and solutions.*

The vast treasures of antiques and artifacts preserved in the museums of India represent the rich cultural heritage of our country. However, they are seriously neglected and undervalued in the government's plans and programs in respect of security, preservation, research etc. On the other hand, due to large scale increase in the value of antiquities in international markets, antique smugglers are very active in theft cases. Normally the museum authorities open their eyes only when such theft cases occur and the media makes a hue and cry. Unfortunately, the authorities again forget to take precautionary security measures to be undertaken. Proper security of the collections is the first and foremost function of a museum. Therefore, museum security requires careful and effective planning. A large number of Indian art objects are stolen from different museums and smuggled out of the country, which is a great menace to museum security.

Recent Theft Cases in the Museum

Artifacts like filigree works, a curved knife, a rare bronze image, a rare palm leaf manuscript of *Bhagavata* in the form of a garland have been stolen even from the Odisha State Museum, what to talk of local museums where security arrangements are grossly inadequate and objects prone to theft. One rare image of Muchilinda Buddha was stolen from village Ganiapali under Gaisilet Police Station of Bargarh district which is yet to be recovered. Different types of stolen and unclaimed antiquities are stored in different Police and Court *Malkhanas* of Odisha, and on the initiative taken by the Odisha State Museum a number of such antiquities have been recovered and preserved in the museum. Rare punch-marked coins numbering 325 from the Tarabha Police Station in the district of Suvarnapur and one rare Manasa image seized by GRP, Katak have been brought to the Odisha State Museum.

Odisha, the ancient *Kalinga*, *Utkala*, *Odra* and *Koshala* is a land par excellence in art and culture. Monuments like temples, *mathas*, palaces, monasteries, forts etc. are dotted in all nooks and corners of Odisha. The different types of museums located in different parts of the State are as follows:

1. Odisha State Museum, Bhubaneswar
2. District Museums in the district headquarters of Puri, Dhenkanal, Baripada, Bargarh, Bolangir, Bhawanipatna, Nuapada, Balasore, Jeypore, Berhampur and branch museums at Khiching, Chhatrapur, Salipur and the Jayadev Museum at Kenduli.
3. University Museums at Sambalpur University, Utkal University and the Insect Museum at Odisha University of Agriculture and Technology.
4. ASI Site Museums at Konark, Ratnagiri and Lalitagiri
5. Museums under Government of India
 - a. Regional Museum of Natural History, Bhubaneswar
 - b. Regional Science Museum, Bhubaneswar
 - c. Aquarium Museum, CIFA, Bhubaneswar
 - d. Pearl Museum, SIFA, Bhubaneswar
 - e. Oryza Museum, CRRI, Katak
6. Museums under Private Sector
 - a. J.D. Centre of Art (Museum), Bhubaneswar

- b. Koraput Tribal Museum, Koraput
 - c. Sudarshan Sahoo Art Museum, Bhubaneswar
 - d. Sukarnika Museum, Banki
 - e. J.P. Singhdeo Collection, Khariar
7. Museums under Trust
- a. Martime Museum, Paradip
 - b. Maritime Aquarium Museum, Paradip
 - c. Dasarathi Patnaik Museum, Udayapur, Nayagarh
 - a. Netaji Birth Place Museum, Katak
 - b. Madhusmriti, Katak
8. Museums under State Government
- a. Handicraft Museum, Bhubaneswar
 - b. Maritime Museum, Jobra, Katak
 - c. Museum of Tribal Art and Craft, Bhubaneswar
9. Museums/Sculpture Sheds under Odisha State Archaeology
- a. Jaina Heritage Museum, Pratapnagari, Katak
 - b. Swarajya Ashram, Katak
 - c. Brahmavana Museum, Salipur, Katak
 - d. Sovenesvar Temple (Sculpture Shed), Adaspur, Niali, Katak
 - e. Suklesvar Museum, Mahanga, Salipur, Katak
 - f. Bishnupur Museum, Nimapada
 - g. Ayodhya Sculpture Shed, Balasore
 - h. Bankadagada, Banpur, Tangi, Khurdha

Although Odisha has a number of museums of different types, the antiquities are not safe due to lack of proper security arrangements. Most of the museums are located in remote corners of the State without suitable buildings and proper watch and ward staff. For example, the Branch Museum at Khiching, located on the border of Jharkhand, Odisha and Chhattisgarh, preserves rare and valuable antiquities. Thousands of tourists visit this Museum daily as it is located in the famous Kichakesvari temple premises. The location of the museum building is ideal, but unsuitable and unsafe from a security point of view. Life-size sculptures and several rare objects are cramped in two small rooms. The old museum building belongs to the colonial period and is collapsing. The Odisha State Museum worked

in close collaboration with the district administration, and the building has been renovated recently with financial assistance from the Government of India. But the museum is being looked after by a single attendant without armed guards. There is complete absence of modern electronic devices like CCTV, metal detectors, fire fighting equipments, alarms, etc. In the recent past, one rare copper plate grant is reported to be missing from the museum because there is neither internal security nor external safety in the museum. The objects are prone to insect attack, humidity, etc. and, as a result, the objects are deteriorating fast. This state of affairs can be observed in all the Branch Museums and District Museums of Odisha.

Odisha State Museum is one of the premier museums in the country. The genesis of the State Museum goes back to the year 1932, and after a long journey, the foundation stone of the present museum building was laid on 29th December 1957 by the then President of India, Dr. Rajendra Prasad. The construction of the building along with an administrative block, an auditorium (Bhanja Kala Mandap) and a guest house was completed in 1960. The museum stands majestically at the junction of the ancient temple town of Bhubaneswar and the new capital city of Odisha reminding us of our rich cultural heritage. It has preserved more than 56000 rare artifacts ranging from early times to the modern period. The collection is spread over eleven sections namely:

1. Archaeology
2. Epigraphy
3. Numismatics
4. Mining and Geology
5. Natural History
6. Art and Craft
7. Contemporary Art
8. Patta Paintings
9. Anthropology
10. Manuscripts
11. Armoury

The antiquities make the onlookers exhilarant and spellbound. The sprawling garden, green house, open air sculpture park, children's park, enchanting fountains and above all the DVD presentation on the heritage of Odisha in the entrance hall are added attractions. Apart from

this, the State Museum has a very good research library, central store, conference hall, conservation laboratory, photography and microfilm unit, carpentry, electrical, taxidermy sections etc. To attract still more visitors, new projects are in progress like renovation of the galleries, academic and cultural activities, National Mission on Monuments and Antiquities, and the National Mission on Manuscripts. No doubt, Odisha State Museum is a centre of Odishan culture, a place of learning and an important tourist destination of the country, but unfortunately it suffers from certain serious security problems as follows:

Designing of museum buildings must incorporate security in all its elements like internal layout of spaces, fittings and fixtures and above all the location of the building. So far as the location of the Odisha State Museum building is concerned, it is situated in a prime location in the city. Even during the super cyclone of 1999 in Odisha, the museum objects and the buildings were not affected; but there are no built-in security systems or additional security devices in the building. The type of fencing around the museum campus is not adequate. Protection against theft and fire has not been done in the initial stages of the building. The vulnerable points which contain rare objects are not properly sealed. For example, the central store, though located in the interior part of the building, have external walls and direct access from the public entrance. In the ground floor, the windows are not properly secured and miscreants can force their entry from these. The other fixtures like water and drainage pipes in the building can also give easy access to thieves to the first floor. They should be covered with barbed wires so that footholds and grips are not possible. There are many entry points and exits in the building which is creating a lot of problems in controlling entry of unwanted persons and miscreants. There are as many as six entry points in the museum building which provide miscreants with easy access and escape points after committing a crime. One private organization namely, INTACH (ICCI) has been accommodated in the building premises, which has been creating a lot of confusion and security problems for the museum since 1996.

External Security Problems :

There are many entry points to the museum precinct and, as a result, unwanted persons, criminals and miscreants enter into the campus and resort to vandalism. Therefore, this must be stopped by fencing the perimeter walls and gates. Sufficiently high barbed wire fencing should be provided to prevent persons from jumping over it. With the Odisha State Museum having a huge complex with lawns and gardens, hideout points are to be checked and gates

are to be closed only after ensuring that none stays back inside. In no case there should be a thoroughfare through the Museum premises. The premises of the museum are not adequately illuminated and it is very difficult to detect miscreants during the night. This could be done by flood lighting the whole museum campus.

Doors, Ventilators and Windows :

There should be only one entry and one exit point so that visitors could be controlled effectively; all other doors and entry points should be closed. The windows and ventilators are not protected and properly secured, and anyone can enter the galleries through them. Therefore all these places are to be provided with bars and grills for security.

Control Room and Security Post

There is complete absence of a control room and security posts in the Odisha State Museum which is an essential requirement to regulate visitors and make inspections by using scanners and metal detectors. Important galleries of the Museum should be provided with armed guards so that immediate action could be taken in case of an emergency like vandalism or theft.

Internal Security

There is no Security Department in the Odisha State Museum. One Security Officer of Gazetted rank should be posted to look after the security needs. The Gallery Attendant and the volunteers should be well trained, well dressed and presentable so that they can maintain strict vigilance and control over the visitors. There is no provision of grills and shutters in the galleries. This should be provided to add security and safety. The Central Store located in the ground floor should be completely separated from public access. There is no provision of electronic gadgets like CCTV, fire detectors, glass breakage detectors and alarm systems. All these aids will enhance the capabilities and efficiency of the manual system in providing security. A gate pass system should be introduced so that objects once allowed to come in should not be taken out without a valid gate pass.

Documentation of Museum Antiquities

All the artifacts and antiquities in Odisha State Museum have not been properly documented and legal problems are created in case of loss of objects, for e.g. by theft. Therefore, all the

artifacts and antiquities in Odisha State Museum should be documented properly as per the standard norms. On the initiative and with financial assistance from the National Mission on Monuments and Antiquities and National Mission on Manuscripts, museum objects are now being documented in the standard format.

Security against Fire

Fire fighting equipments have been installed in the Odisha State Museum recently, but the staff is not properly trained to handle such equipments. Therefore, the staff has to be trained immediately in handling such equipments. The Odisha State Museum building is not constructed as per the specifications laid down in the National Buildings Regulation Act. There is no fire detection system and the electrical installations are cluttered and having naked wires, which may create short circuit or sparking leading to fire. Therefore electrical wirings should be re-done properly.

The Katak-Puri bus stop located just adjacent to the Museum main gate creates a lot of traffic problems, noise and pollution and it should be shifted to some other place for the safety of the visitors as well as the museum objects.

Besides the above, awareness must be created among the general public by involving the media, intellectuals, academicians, students and heritage lovers to respect and safeguard museums and the artifacts and antiquities housed in the museum.

PREVENTIVE APPROACH FOR MUSEUM SECURITY: A PARAMOUNT ISSUE

R. K. TRIVEDI

This paper deals with the security management of museums. It highlights issues like practicing effective preventive conservation to secure the objects under the security system, so as to protect the nation's cultural heritage for future generations.

Security is an essential parameter in the building maintenance. If security measures are not properly taken care of, there is a threat of lapses in the form of theft and vandalism. The associated negative factors are mainly vandalism, which is grimmer during natural and man-made calamities such as destruction of building due to earthquakes, fire, bombarding and terrorist attacks.

In order to give a real life situation, the case study of Delhi Archives has been described in the presentation and accordingly security measures and steps have been suggested as an academic and technical orientation of the issue.

Background

Security is an important component for maintaining and sustenance of a museum or any cultural institution. What is security? It is risk management on a preventive scale to protect its assets including heritage wealth of tangible and intangible significance. Every year, it is believed, millions are spent for the better and systematic management of objects housed in museums, art galleries, libraries, archives, places of worship, or any place associated with heritage from theft and vandalism. Some of these incidents are premeditated; others are simply "crimes of opportunity." Most could have been prevented had there been an effective security programme with good controls in place. During preservation, they are well established in the field of security and would be recognized by any security officer working in a museum.

As a trained professional in heritage, conservation and security, I have been trying to understand the significance of security and also, the essentials steps, guidelines, and measures to assure the best possible ways, methods and means for security of objects, buildings, campus and institutions in a collective manner. In order to make my presentation appealing and easy to digest, I have taken the case study of Delhi Archives in my presentation. This real

life example makes it convincing and practical. It will add the applied value of security management as well.

Description

The first concept associated with security is *threat* and *risk assessment*, which will help us determine the new security measures required. For assessing risk, security measures in place must also be taken into account. What are the security measures? The security measures for risk management are the concepts of protection, detection, and response.

Protection includes *avoid* and *block*. Zoning is frequently used in a Museum's security where a building is organized into different defensible spaces – *public zones* to *high security zones*. Each zone will have different levels of protection, detection, and response according to the vulnerability of the collection and the access required. For reasons of practicality, security should have top priority in a museum.

For the management of a museum's security, the first thing which is done is the identification of the assets of the museum; the collection should have the best level of protection. The most important or valuable items in the collection should be given the greatest attention. Global vulnerability of the collection can be assessed; it is better to identify which objects or parts of the collection are more vulnerable to thieves and vandals. Some of these items may also be small and, consequently, easily portable which, if not properly protected, will be attractive to thieves because of their high resale value.

Theft

What is theft? Theft is the opportunistic human factor of willful and illegal removal of an asset. Most thefts from museums tend to be isolated and are not done by a professional thief but by a visitor; the visitor seizes the opportunity to steal something that is readily available or unprotected.. It would not be inappropriate to describe that theft itself is a serious issue in the historical context of heritage development in India and everywhere in the world. In India for example, the methods and techniques of a various forms of theft have been described in a scientific manuscript – *Chaurshashtra* – written in Sanskrit. The literal meaning of the word, *Chaurshashtra* is the science of theft.

Vandalism

What do we mean by vandalism? Vandalism is a deliberate and willful act by which damages are caused to the museum objects, which may include destruction or disfigurement. Very few acts of vandalism turn out to be premeditated; most are opportunistic, carried out by visitors.

The security arrangements at a museum will only work if all the staff support the idea that security is necessary. Whilst the Director will carry the ultimate responsibility, it is vital that all staff take part in ensuring that the collections are secured and preserved for future generations.

The systems should have good equipments for detecting that something is wrong. The equipments should be friendly for the use of museum security. However, in managing museum security, account must be taken of the risks. Plans should be made to reduce the risk of degradation and loss of the collection over short and long periods. During the selection of site for a museum's collection, the following criteria should be evaluated:

- The environment, security, care of collections, conservation, loading and unloading area for export and import of collection, conservation lab, space for emergency exit;
- The museum's location, which is a treasure house, attracting sophisticated thieves. Therefore, from a site selection view point all such factors should be monitored for the building. Entrances, exits, ventilators, emergency exits and all such openings in a museum, should be security proof, keeping in mind that for preventive steps the merging exits should be alarmed. Doors should be secured when not in use to prevent it being used in a robbery, by upgrading technical obstructs to prevent entry of any unauthorized person or outsiders.
- Obstructs should surmount the delays for enabling security persons to respond and for action by the police or security within the shortest duration. Generally museums are located in an isolated area, where police take a long time reach during a man-made disaster.
- The space for a museum should have expansion limit. It means sufficient space for further growth to be planned. The site area allocated for future expansion should have space for storage and display with full security precautions.

As part of the planning for preservation, it is essential that every museum collection, repository, monastery or collection center should have a preservation programme of its own. The preventive programme should contain all such actions, direct or indirect, aimed at increasing the life expectancy of an element or a group of elements in order to make them accessible to the public.

The preservation programme should pay attention to:

- Positive attitude and high morale of security persons for preservation;
- Well maintained building in a healthy environment;
- Establishment of safe and protected unit as per established standards;
- Enough funds for preservation, monitoring of security
- Organize training and awareness programme for up gradation of security staff in emergency.

Since building codes should have safeguards for safety of life, fire alarm detection, fire suppression system, heat detection system in interior environment, infrared detection inside the museum and display should be very proper. Interior spaces should be protected with a plan of preventive conservation. The area should have Closed Circuit Television (CCTV), especially for the collection display area while the storage may have Close Coupled Discharge (CCD) cameras.

To protect cultural property inside the collection center, it is essential to provide a security system from theft and vandalism as preventive conservation. Exterior openings should be protected by high technical upgradation on the magnetism principle through magnetic switches. Detectors should be based on the acoustics principle to detect glass breakage of doors, windows, boxes, openings, showcases, etc. Doors should be secured with six pin tumbler deadbolt locks with high resistant metallic alloy.

As far as fireproofing is concerned, the museum building should have fire resistant doors and walls with smoke detectors installed. Fires may have different causes, of which electrical short circuits are one of the the main causes. Loose wires, electrical fixtures, and use of electric appliances, fans and lights may promote fire inside museums. As a preventive action, all switches should be outside the collection area.

The building should have automatic fire or smoke detectors. After detection of smoke or fire, extinguishers, sprinklers, fire fighting appliances control the fire as preventive conservation. These tools should be installed during the planning and construction of the museum building. During fires, the risk and probability of theft and vandalism are maximum.

Through preventive conservation, it should be possible to maintain the artifacts or objects in the same condition as was received. Here we are describing the preventive steps for safety management inside the museum, circulation of artifacts and staff and visitors' activities.

As the movement of artifacts and visitors may sometimes coincide, it is possible that objects and collections may be stolen or taken away during such circulation. It is well known that the layout of the shipping and receiving areas needs to be carefully considered, as unused spaces for stacking and other purpose can be a cause for disaster.

The Policy

The policy has five essential factors that deal with physical defences, intruder alarm system, fire alarm system, invigilation and internal security management. Experience has shown that where this policy has been used, the risk to the collection has been reduced.

Physical Defences

Brick, concrete or stone buildings will provide the necessary resistance against forcible attacks, allowing time for the following alarm systems to initiate a response.

- Intruder alarm system
- Fire detector systems

Invigilation

Objects must be physically protected if they are to be viewed and enjoyed as the artist intended. Furthermore, many institutions provide access to collections for researchers and students and the possibility of theft or damage cannot be ignored. Security attendants must, therefore, be employed and be given the duty to ensure that fundamental rules of security are followed to prevent theft and damage. The ultimate responsibility for the

security of a museum will always lie with the Director and he must be given the means to protect the institution and the collection.

Internal Security Arrangements

These arrangements must, of course, be designed to suit the nature and use of the building. Clear and unambiguous policies and instructions should be devised to cover such matters as key security, supervision of contractors, access to non-public parts of the building, identification of accredited researchers, reception and collection of deliverers, inspection of displays, searching and closing of the building and emergency procedures in case of theft, vandalism, fire, flood or bomb threats. In addition, some particular premises will need policies and instructions regarding the searching of visitors and whether to allow bags to be carried through the museum. There will always be contradictory interests, but a well thought out policy which seeks a balance between conflicting demands and which is incorporated in a training programme for all museum staff will receive support.

Building Protection

Thefts from museums occur for a variety of reasons and are committed by both amateurs and professionals. Studies have been made on the complex motives behind some thefts and acts of vandalism.

The risk of a large volume loss during the closed hours can be diminished by protection. The scale of protection will depend on the nature of the collection. Factors to be considered include value, portability and disposability, whilst not forgetting that theft may be committed to extort money or due to changes of policy.

In the case of a new building, responsible planning and design can ensure that basic security measures are built into the premises.

Museums, unlike banks and jewellers shops, do not lock their valuable items in strong rooms or safes at night. The purpose of a museum allows the criminally minded

considerable access to the premises and the opportunity to reconnoiter his target and study the protective measures.

Consideration of security requirements at the design stage cannot be overstressed. It should be possible to avoid features that provide access, albeit unintentionally, through the openings in the shell. Thieves can, and do, take advantage of pipes and buttresses to reach windows, roof lights and doors that seem inaccessible.

Fire Detector Systems

There have been many examples in recent years of the rapid spread of fire, some of which were no doubt aggravated by the age and condition of the buildings. Many museums are housed in premises built at a time when far less was known about fire precautions.

Automatic systems based on the detection of heat and/or smoke, which can arouse a response in a manner similar to an intruder alarm, are available from many sources. In addition to specialist companies, the major intruder alarm firms operate divisions giving appropriate advice about installations. Information on the UK fire authorities and private companies offering such services is printed annually.

Whilst fire detector systems have become more acceptable to museum authorities as reliability has improved and the cost of providing night guards has escalated, there is still much resistance to the use of automatic repression systems like the 'Sprinklet'. Understandably, directors and curators fear the consequences on collections of accidental discharge of water.

Invigilation

One cannot quarrel with the idea that to obtain maximum enjoyment and appreciation, exhibits in a museum must be displayed in as free and unobstructed a manner as possible. This policy demands the deployment of a team of guards or attendants in order to deter or detect the actions of the criminally inclined. No system has been found that will completely replace a loyal and well trained attendant team.

Certain signs such as 'no smoking' must be exhibited for the benefit of visitors. An attendant needs a written guide in a compact form that is easy to carry and study.

Many attendants are required to perform tasks that are not strictly related to security. Cleaning, portaging and small repairs often fall to be lot of the attendant and, indeed, help to vary the working hours and enhance the feeling of belonging to the organization.

Some of the above factors will also need to be considered when deciding on the necessity of night guarding. In addition, however, it is necessary to judge the resistance of the building to penetration, the ability of an alarm system to detect an attack and the lapse of time needed for a response to an alarm.

Care needs to be taken at the design stage to ensure that sufficient space is available for mechanical and electrical office equipment used by the staff. Examples have been seen of such machinery housed in storerooms, thus encouraging the issue of important keys amongst too many employees. The need to give curators and keepers maximum flexibility in exhibition design will lead to changes in internal layout that will frustrate the purpose of intruder sensors and emergency routes if insufficient thought is given to the project. Whilst it is not suggested that it is for the security manager to tell an architect or designer what he can or cannot do, it is surely helpful if the consequences of his decisions are pointed out and suggestions made to find acceptable alternatives.

Preventive Conservation Plan

Due to lack of security, criminals generally steal small or portable artifacts, and symbolic artifacts from a museum. The majority of the objects/ collection of a museum are housed in display and storage area in the meantime some of the items in the collection are objects seized by the customs at the border or by the police in the antique shop in international market.

If we examine different case studies, it appears as if the public cannot come to the collection for security reasons. The collection has to go to the public. In practice,

education kits have been developed for different objects like ceramics, textiles and fashion. They are brought to schools and presented by the educational officer of the museum.

Generally speaking, cultural heritage is subjected to numerous decaying factors that may be natural, man-made, public, and professional. Due to the geographical location, the type of building and the type of collection are suffered by more than 60 aggressors. In order to implement a preventive plan for security in a museum, strategies to avoid aggressors and decaying factors or to block their impact has to be devised.

Aggressors discussed on Natural Museum for security purpose.

- lack of security
- lack of commitment for their jobs
- description of jobs
- lack of proper training of staff
- improper location of Study

Case Study for Delhi Archives

In order to make things easy and convincing, I would like to share the case study of the Delhi Archives. The case study is presented the way I have understood it as a professional. The case study of Delhi Archives can be explained in three steps and where it lacks the sense of security in totality:

- A) Lack of control – collection may be misplaced, mishandled, damaged.
- B) Lack of documentation – no accuracy in inventory numbers, no label
- C) Objects may be stolen due to lack of above

During identification and study of the Delhi Archives Museum's/and storage area may includes all possible causes of deterioration of object; actions have been implemented, environmental condition, condition of building, infrastructure facilities available, threat to object, risk preparedness etc.

During assessment for identification of element or group of elements on the state of preventive conservation is to be prioritized. Some are poor, some are pathetic some are in a very dilapidated condition. And, in such a situation it becomes difficult to decide the priorities.

Preservation of museum's security as per collection and assessment: Above proportion should be focus and upgraded. The priorities are short and long term action activity in respect of preservation of museum's security. Such improvements are also classified as technical and non technical up gradation depending upon proper execution of the plan on scientific scale.

Conclusion

Security is a man-made factor which is very essential to retain objects and buildings in their original place without any theft or vandalism. This is possible when the associated human resources are sensitized to themselves become emotionally, intellectually, culturally and morally linked with the objects and the institution. This bonding is essential. And, this bonding is possible when the human resources associated with the security are well paid and also highly concerned about the cultural heritage. Right from the bottom to the top, everybody has to be morally, emotionally and culturally associated with the concern of security, with the added skills and techniques of security. I am reminded of a very popular saying of Hindi folklore which goes like this चोर के सामने में ताला क्या / बेईमान के सामने में केबाला क्या/

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Glossary

Associative collection

Museum objects acquired only when they have a direct association with a specific location, person or event.

Documentation

Preparation and maintenance of a permanent record of the history and description of collection with their significance.

Conservation

Maximizing the endurance or minimizing the deterioration of an object/ antique through time and action - direct or indirect , with little change to the object as possible.

Criticality

Correlation of the probability of a security risk and the degree of its impact (vulnerability) used to determine priorities among security requirements.

Lux –

Metric unit for measuring the intensity of light. (1 food candle = 10.76 lux).

Lux level-

The amount of visible light to which a museums object is being exposed, most accurately calculated as lux

–

hours per annum, being the lux level at any given time

Kebala –

A Legal document made for movable property land description with owner ,measurement, and authentication

Chaurshashtra –

It is a written in Sanskrit. The literal meaning of the word, *Chaurshashtra* is the science of theft.

RCMP- Royal Canadian Mounted Police ,

GSP -Government of Canada Security Policy

TRA -Threat and Risk Assessment

Museum Security and Ticketing System: Problems, Suggestions and Solutions for Indian Museums

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and

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Abstract: *Museums have a unique set of characteristics that make their security and safety requirements different from those of other buildings. They must simultaneously accomplish two things; on the one hand, they must safeguard precious objects and patrons and, on the other, they must remain open to the public, and be designed in a way that lets visitors feel relaxed and focus entirely on the museum experience. Traditional “defence-in-depth” security is knowingly compromised because of the need to let patrons come near valuable assets, so a more innovative approach to security is required. Good security in a museum should be minimally intrusive but at the same time be maximally effective.*

While there are various security measures in different museums in the country to ensure their safety and the safety of the objects contained within, entry of visitors and their movements inside the building is not regulated appropriately. The prevalent practice of issuing computerized tickets and keeping vigil manually does not meet the standards set for museum security and does not ensure that entry and movements of visitors inside the museum is regulated. It is common knowledge that due to flaws in the ticketing system people enter museums with invalid passes, used tickets, etc., which may lead to risk. Thus entry of visitors in the museum and to keep vigil on their movements is an important task for museum security.

An in-depth analysis of the problem was made and based on many field surveys, discussion with museum professionals, scrutiny of various products, feasibility, cost effectiveness, etc. a flawless solution for a ticketing system for museums has been proposed. The system is people friendly and by this system security personnel can keep an eye on visitors movements, time spent by them in the gallery or near a showcase/object etc.

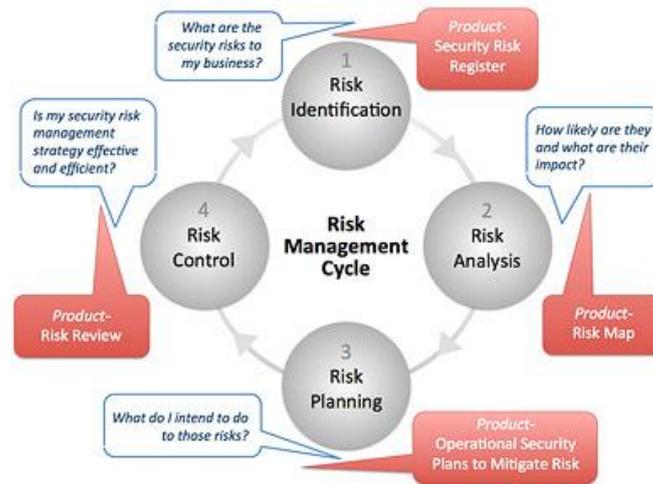
The prime security responsibilities of museums are:

- To protect the collection against fire, burglary and other disasters
- To install alarms and security electronics
- To be prepared for retrieval of objects in case of disasters
- To foresee ability of crime against the collection
- To have mechanisms for key control, training of staff in security aspects, internal security, access control, parcel control, etc.
- Regulating and management of visitor's entry and their movement in the museum.

So, an ideal and alert museum security has to ensure the following:

- Threat, vulnerability and risk assessment of primary locations and surrounding areas
- Asset and risk registration
- Identification of user and program requirements
- Determination of inter-relationships
- Physical security audits and assessments
- Operational and organizational audits and assessments
- Review and development of policies and procedures
- To regulate the Visitor's Entry and their movements etc.

A museum's security problems and its solution could be seen and understood as devised by an agency 'Good Harbor':



Our main concern here is a proper ‘Ticketing System’ which is able to regulate and manage visitor’s entry and their movements inside the museum.

Almost all museums of India allow visitors only against proper entry tickets. But in most cases there are many shortcomings in designing and maintaining the records (in terms of revenue generation and numbers of visitors). Also, these tickets are mostly sold manually which are prone to be tampered. The design and kind of ticket itself requires certain modifications to match international standards. It was being felt for long time that in India that the design of tickets and the ticketing system as a whole should be revamped using available technical advancement in the field. Ministry of Culture, Government of India also was concerned about it, and decided that the ticketing system, including the design of tickets of all the museums should be changed, so that the system becomes flawless and the tickets become attractive. It was further decided that the system should be foolproof, economical but effective.

In this connection, as directed, the authors assessed the needs of different categories of museums paying special attention to national level museums, had discussions with different specialists engaged in museums, contacted agencies for the procurement of an affordable but effective system of ticketing in museums. The outcome of this effort was as below:

After a comprehensive survey, discussion with experts, specialists etc., we have identified the system to improve the efficiency of museum for the issuance of tickets, which can be beneficially

used and having all the technical support to make them almost tamper proof. In addition, the system will enhance the security of the museums. This proposed system is totally electronic and based on new technology, which is summarized as under:

Every museum has in its possession approximately thousands of works of exquisite art of a diverse nature, both Indian and foreign, and its holdings cover a time span of more than five thousand years of our cultural heritage. The activities of a museum include the splendid chronological display of selected art objects in various galleries, screening of educational films related to art and culture, guided tours, etc. Almost all Indian museums are situated in a majestic building on a well-known road or area. Talks by experts, special lectures and training programmes, facilities for photography and access to the reserve collection and library for study, and advice on identification of art objects have brought immense laurels to many museums. The conservation laboratory had made its existence felt even in other countries.

Objective

There are many challenges in 'real time' monitoring of visitors in museums and also in generating MIS including:

- Total number of visitors
- Visitors under various categories
- Total revenue within defined duration
- Total revenue under various categories

These challenges lead to the need to develop a system to augment capabilities of the available workforce of museums in India. All of this must be done without incurring undue costs. Any hardware required must be lightweight, unobtrusive, and energy efficient. It is also crucial to not disrupt the current working of the museum. Furthermore, the system must be highly scalable and user friendly. To alleviate this, we proposed a Radio Frequency Identification Device (RFID) based Local Area Networking (LAN) system. The proposed system would enable the museum to track the number of visitors under various categories in 'real time'.

The system has the following features:

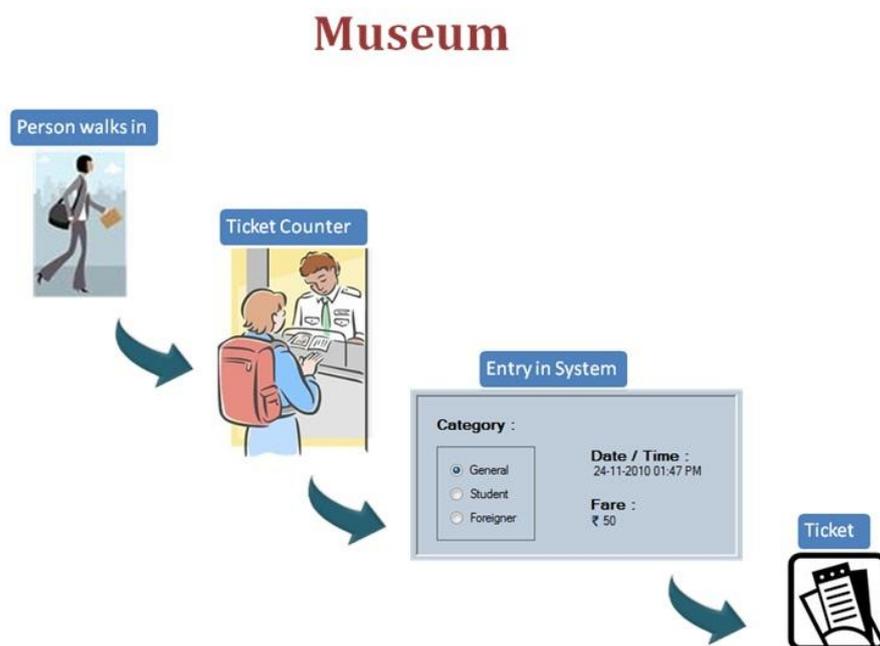
Software:

- ✓ Ticketing software interfaced with RFID based tickets

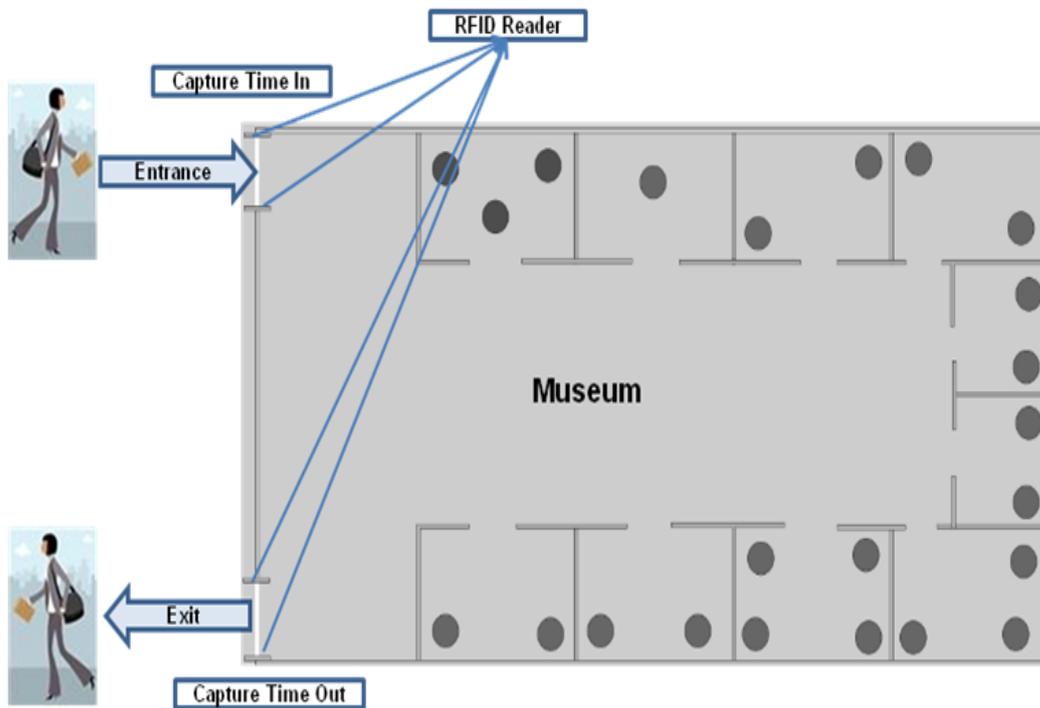
Hardware:

- ✓ RFID Enabled Card
- ✓ RFID Encoder
- ✓ RFID Reader

The visitor would receive a pre-printed RFID enabled ticket for entry from the ticket counter of the museum. While activating the RFID enabled card, the system would capture the necessary details of the visitor using the software of the system.



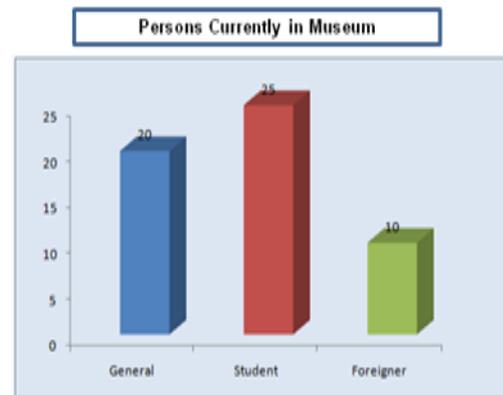
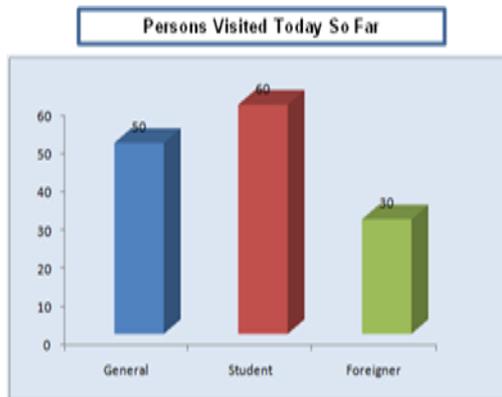
RFID readers would be installed at the entry and exit gates of the museum. Visitors would carry RFID enabled ticket and pass through the entrance gate of the museum. As soon as a visitor comes in contact with the RFID reader, it would capture the 'Time In' of the visitor



When the visitor exits the museum, the RFID reader would capture the 'Time Out' of the visitor and would deactivate the RFID ticket to prevent re-use.

This system would help to track the visitors / revenue in real time. It has a strong MIS system which generates various reports such as:

- ✓ Total visitors who entered the museum in a given duration
- ✓ Total visitors who entered in a given duration under various categories of visitors
- ✓ Average time spent by visitors inside the museum
- ✓ Total revenue generation in a given duration
- ✓ Total revenue generation in a given duration under various categories of the visitors



RFID enabled ticket

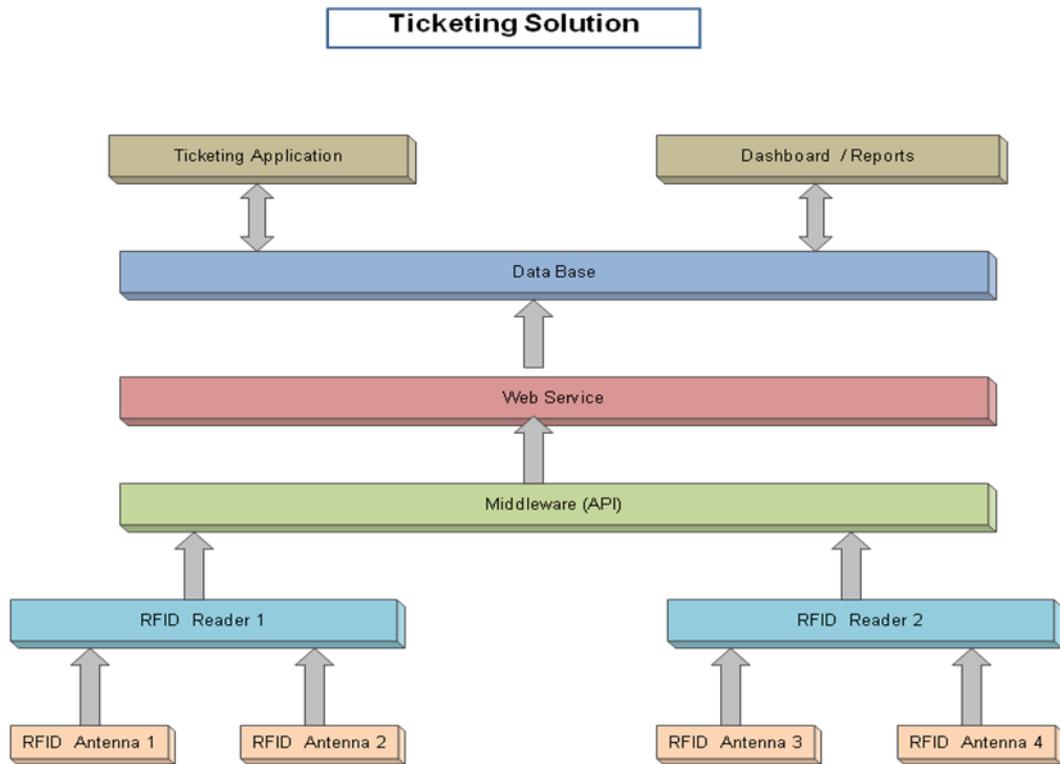
- Ticket will be pre-printed with the Museum logo.
- Ticket can be used only once.

RFID encoder

- RFID encoder will be used to encode the RFID card, to issue the ticket.

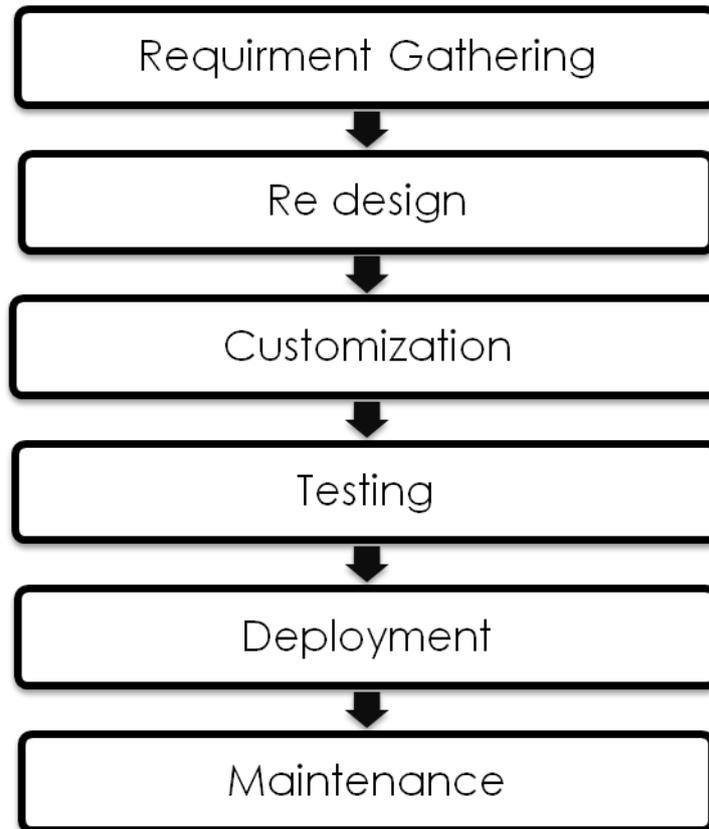
RFID reader

- RFID Reader will be installed at the entry and exit gates for secure access.
 - It can track the visitor's IN and OUT times.
-



(Vendor will follow a water fall approach to execute the project, so client involvement would be required in each phase).

How to Procure :



The project activities would start from the day of awarding the contract, taken as “Day- 0”. The various stages would include the following:

Requirement Gathering

The requirement gathering activity would include collection of detailed requirements. These requirements define the major functions of the intended application, define operational data areas and reference data areas, and define the initial data entities. Major functions include critical processes to be managed, as well as mission critical inputs, outputs and reports.

This would be done in a series of meetings with the clients. Notes would be shared and final approval taken on the business specifications decided upon.

Re-design

This phase would be used to finalize the look and feel of the application. Also, there might be changes required in the database as per the new requirements. This phase would include the changes to be made in the database.

Customization

The application would then be customized as per functional specifications. This would include changes in the code and testing it.

Testing

At this stage the developed application would be tested to ensure that the application meets the requirements. Any bugs found would be fixed and re-tested. Regression testing would also be performed to test the impact of the fixed bug on the rest of the code, if any.

Deployment

The implementation and handover phase will consist of implementing and deploying the application within the museum. The client may want to perform testing to ensure that the application is functioning as customized. Any defects found would be fixed. Also, training would be provided to the staff about the usage and functioning of the application.

Maintenance and Support

The application would be supported by the supplier for the maintenance period. During the support period, the supplier would provide support to fix any bugs found in the system.

Any updating required for the system can also be taken up during the support phase. For any enhancements, proper estimation of the cost required would be shared with the museum. Once approved, the enhancement can be incorporated in the existing application.

Cost

The total costs will include cost of the equipment and the necessary software, installation charges and running cost per year (Warranty period must be specified)

The above Report was prepared by the authors by surveying the market and in consultation with different individuals, agencies for a foolproof system of ticketing and allied services to be used in a museum. The authors are thankful to all concerned who helped and assisted them in this work.

