

**A FEASIBILITY STUDY FOR  
ESTABLISHING A MARITIME  
RESOURCE CENTRE IN MUMBAI**



**FINAL PROJECT REPORT**

**APRIL 2005**

**CENTRE FOR ENVIRONMENTAL RESEARCH AND EDUCATION (CERE)**



## EXECUTIVE SUMMARY

- 1. Title of Project** : Feasibility Study for Establishing a Maritime Resource Centre (MRC) in Mumbai *Maritime Resource*
- 2. Aims and Objectives** : To determine the true need, scope and span of a MRC in Mumbai.  
: Feasibility for VJSMF to establish MRC in terms of resources needed and available
- 3. Duration of Project** : 12 months + 6 months
- 4. Date of Submission** : 30<sup>th</sup> April 2005
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## Feasibility Study for the Establishment of a Maritime Resource Centre in Mumbai

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- c) Identifying the need/s of the community
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## 1. Introduction

It is from the ocean that life on earth began. It is the ocean that covers two thirds of the earth. It is the ocean that decrees our weather. It is the ocean that holds the largest store of our bio-diversity, and it is through the oceans that the bulk of our goods are transported.

*Yet, it is the ocean that we humans least understand.*

India has a coastline of 7,500 kilometers dotted with numerous maritime cities and yet the country does not have a single comprehensive, modern National Maritime Museum or Maritime Heritage Park or a Maritime Resource Centre. On the contrary, the seas around India are becoming cesspools.

The seas can be saved if people understand them better and the country should commit itself to work towards bringing the seas closer to people. If we are to awaken an interest in our maritime heritage and create awareness about the rich, local marine environment on a national scale, there exists a need to establish a Centre of Learning and Discovery, focused on the maritime world. Such a Centre must go beyond the conventional concept of a "maritime museum" and must be a vibrant and dynamic hub of activities that would raise the levels of awareness and knowledge about the oceans and that would benefit the maritime world across the country, by providing a comprehensive overview into the marine and maritime world.

The Centre for Environmental Research and Education (CERE) has undertaken a feasibility study to determine the various parameters required for the establishment of a Maritime Resource Centre, and this report is a compilation of the findings and results of this study. This report will act as a blueprint for the establishment of the Maritime Resource Centre.



## 2. Aims and Objectives

The main aims and objectives of the one year Feasibility Study as listed in the Project Proposal are as follows:

- i) Determining the need, scope, and span of a Maritime Resource Centre in the city of Mumbai by establishing contact with the 'target audience' such as a) local teaching institutions like local schools and colleges, b) organizations working in the field of maritime-related activities c) Government bodies like the Navy, Fisheries Survey of India, ASI, NIO, and d) others.
- ii) To explore the feasibility of establishing a Maritime Resource Centre in Mumbai in terms of
  - a) Resources required namely manpower, time, effort and money
  - b) Physical space availability options
  - c) Possible national and international partnerships / collaborations
- iii) Conceptualising the MRC with all its varied arms. Defining the material and human resources needed to set up the MRC as an attractive hub of activity.
- iv) Developing a resource directory, of experts / institutions and organizations, in the Maritime field since all will be needed when the project commences.
- v) Documenting other such MRC in the world in order to gain ideas, concepts, designs and prototypes from these institutions.
- vi) Charting ways and means by which the MRC would operate in an independent and self-sustainable manner after an initial investment by VJSMF and partners.
- vii) Drawing up plans to ensure that the MRC has high visibility and draws individuals from different spheres of life to learn from and contribute to the Centre.



- viii) Forging links and networking with local organizations in order to gain recognition for VJSMF and play a catalytic role for other initiatives besides setting up a MRC, if the opportunity arises during the study.

### **3. Project Methodology**

The project methodology was divided into 3 phases:

1: Establishing Ground Realities

2: Building Partnerships

3: Establishing the Maritime Resource Centre

#### 1: Establishing Ground Realities

The first phase involved drawing up the broad parameters within which the Maritime Resource Centre would be detailed. This phase was further divided into:

##### **a) Study of the Maritime World**

In order to comprehensively determine the scope and outline of the Maritime Resource Centre (MRC), it was important to study the maritime world and thereafter, position the MRC within its portals because the proposed Maritime Resource Centre should not become the next small initiative amongst the already existing ones.

The many areas and aspects of the maritime world such as the Navy and the Coast Guard, the shipping and trade industry, coastal communities and eco-systems, the marine ecology and environment, marine exploration and research, etc, were explored. The conclusion drawn from this was that the maritime world occupies a huge arena and is made up of a number of closely-linked components, all of which need to be high-lighted and showcased, to bring about an overall general awareness about the oceans.



#### b) Study and Survey of existing establishments

Numerous case studies were undertaken, in Mumbai, in India, and across the world to understand the need, scope, and outreach of Learning Centres. The study examined government run institutions, private initiatives, specialized museums, libraries, research centres, theme parks, aquariums, etc to document best practices and cull from different feasible models for the Maritime Resource Centre.

The institutions that have similar themes and organizational set-ups to the proposed MRC, that were studied in Mumbai include:

- 1) The Vikrant Naval Museum
- 2) The Naval Dockyard - Museum and Heritage Walk
- 3) The Mumbai Maritime Gallery, World Trade Centre *WSTM*
- 4) The Maritime Gallery of the Prince of Wales Museum
- 5) The Marine Museum at Nhava Sheva
- 6) The Maritime History Society, Navy Nagar
- 7) The Taraporewala Aquarium, Marine Drive
- 8) The Regional Centre of the National Institute of Oceanography, Versova
- 9) The Nehru Science Centre, Worli
- 10) Soonabai Pirojsha Godrej Marine Ecology Centre, Vikhroli
- 11) Indian Maritime Foundation, Pune

Maritime Centres and Museums from across the world were studied to understand their content, structure and target audience, as well as the events and programmes that are conducted by such Centres. (A summary of the institutions studied is available for reference as Annexure 2)

The survey of existing establishments helped to:

- Establish a target audience and design the MRC towards this audience, while also keeping in mind other target groups





- Understand the dynamics and working of existing organizations; their organizational set-up and management structure
- Understand how such Centres are built up, starting from a small base, and gradually expanding and growing to take up more functions.
- Formulate ideas on the content of the MRC – what to include, and how to represent the proposed content

**c) Identifying the need/s of the community**

By the nature of the maritime world itself being extremely diverse and varied, there is no one single community to whom the MRC can be addressed. It was realized that several of the players within the maritime world, quite often have differing views and diverse needs, and so to directly address these would be difficult. For example: The shipping and trade industry would require high-end business services that would however be of little benefit to the other players. Similarly, the issues of marine pollution and environmental threats to the oceans quite often are caused by the establishment of ports and poor environmental regulation. *So where is the middle ground?*

It was universally agreed that what the entire maritime world did suffer from was inadequate representation and extremely poor awareness about the close links and relationships that we have with the maritime world. By sensitizing people to the oceans the many activities that it supports, the Maritime Resource Centre will be serving the entire maritime community, while also bringing about a significant change in the awareness levels that currently exist about it.

The need of the hour is to provide a Centre of Learning focused on the marine and maritime world, as such a Centre serves the dual need of raising awareness about the maritime world, as well as developing and nurturing a life-long bond with visitors to the Centre, through its programmes, activities and events, that generate and sustain a continued interest in the oceans and their activities. (Annexure 1 explains the rationale behind the MRC as a Centre of Learning)



#### **d) Scope and Outline of the Maritime Resource Centre**

After extensive dialogue with persons from across the maritime world as well as educationists and researchers, it was felt that a broad-based comprehensive MRC is the need of the hour that will provide all visitors with an overview into the marine and maritime world. Simultaneously, the MRC could also provide opportunities for specialized research or in-depth study on particular aspects of the maritime world through its library, research centre and especially through its partnerships and collaborations with institutions across India.

Through the study of existing establishments of a similar nature, it was also observed that a dynamic resource centre is made up of a combination of exhibition and gallery spaces, as well as facilities for research such as a Library. Further, numerous events and activities are built into the programme of the Centre, thus requiring an auditorium, as well as an Outreach and Awareness Cell, and all these have been included in the design of the proposed MRC.

A Definition Note was prepared for the Maritime Resource Centre in March 2004 and presented to VJSMF for inputs and a final Definition Note was prepared and submitted in April 2004. All subsequent work on the detailing of the MRC was done keeping this Definition Note as a guideline. (Annexure 3)

The most salient feature of the MRC, as indicated through the Definition Note, is that it would be a broad spectrum centre, based on a series of partnerships and collaborations with the organizations that are most qualified for a particular component of the MRC. For example: the Coast Guard, which is mandated to protect the marine environment and coasts of India, could partner with the MRC in raising awareness on issues of marine pollution and prevention. Similarly, the National Institute of Oceanography could collaborate with the MRC to highlight the research and explorations being undertaken in the oceans. Preliminary meetings and discussions have already been held with a number of organizations, who are willing to come on board and collaborate with the MRC, once established, and once their roles are clearly defined.



## 2: Building Partnerships

### **a) Government and other Organisations**

For the establishment of a Centre such as the MRC, the Government invariably has a significant role to play, either as initiator, or partner, or long-time supporter of the project, as such public-private initiatives should best enjoy the patronage of the State.

For the MRC, many partnerships were sought: from the Municipal Corporation, Mumbai Port Trust and National Textile Corporation, for possible physical space; from the Navy, for space, artifacts, logistical support and collaboration, as the Navy has already established several Naval Museums across India, and is in the process of developing the decommissioned aircraft carrier, Vikrant into a Naval Maritime museum; from the Coast Guard for logistical support; and from the Nehru Science Centre and the National Institution of Oceanography for consultancy and research support.

### **b) Resource Persons**

Apart from this, several private organisations were also approached, as well as individuals, experts and resource persons. (For list of resource persons contacted refer Annexure 4) This also thoroughly tested out the concept of the MRC, and the feedback received enabled the idea to be developed further into a more realistic one.

**At the end of this stage, the concept of the Maritime Resource Centre was crystallized, and its scope and definition defined. Broadly, the various partnerships that could be established were identified, and the amount and kind of space desired was identified.**

## 3: Establishing the Maritime Resource Centre

### **a) Identifying sites**

A set of criteria was drawn up for potential sites for the MRC, and these are briefly summarized as under:



- 1) The Maritime Resource Centre should be in close, if not actual, physical proximity of the sea.
- 2) The Maritime Resource Centre should be located at or near an already existing tourist/visitor magnet.
- 3) An existing building that can be adapted for re-use as a Maritime Centre would be preferable to a completely vacant site.
- 4) Ideally, the building for the maritime resource centre should be one that is presently lying unused, or under-utilised, or one that has changed its old function.

Based on the above broad criteria, the following potential sites within Mumbai were identified and then studied:

- 1) INS Vikrant
- 2) Navy Nagar, Colaba
- 3) Yacht Club at the Gateway of India
- 4) Admiralty House at the Gateway of India
- 5) Sassoon Dock, Colaba
- 6) Mumbai Port Trust Lands: Carnac Bunder Pumping Station

Warehouse at Sewri

- 7) Nehru Science Centre Complex, Worli
- 8) Love Grove Complex, Worli
- 9) Bandra Kurla Complex
- 10) Mill Lands: the Mukesh Mills in Colaba,  
the National Textiles Mills, United Mills No.III on Veer Savarkar Marg,  
Mahim

From the available sites, a shortlist was prepared of the few that were appropriate for the Maritime Resource Centre, and efforts were directed to secure the same for the Maritime Resource Centre. A positive response was received from the Mumbai Port Trust, after a meeting with the Chairperson, Ms. Rani Jadhav, who herself suggested possible sites for the MRC. Accordingly, after initial discussions and site visits, the Hydraulic Engine



Building at Carnac Bunder was identified as a potential site, and MbPT gave CERE an in-principle agreement for the use of the building for the establishment of the MRC. (Refer Annexure 5)

The reasons this site is favourable for the establishment of the MRC are:

- It is a presently unused building, slated for demolition, and hence by infusing new life into it, and establishing the MRC here, a valuable part of the city's maritime heritage will be preserved.
- The site and history of the building are closely linked to the maritime; the building faces the docks, and was once a significant part of the functioning of the Port of Mumbai.
- The size, quality of spaces and character of the building is suitable for conversion to a Maritime Resource centre
- The location of the building, within the Tourist District of South Mumbai, makes this site favourable over other locations such as Sewri or Parel, where a magnet for visitors will have to be created.

(Site plan of the Hydraulic Engine house, archival drawings of the building, and photographs are available for reference in Annexures 23, 24 and 25)

The other site that has been identified for the MRC is the Oyster Island fortification where it is proposed to permanently berth the INS Vikrant, which has been converted to a Naval Maritime Museum. Reports have suggested that the Vikrant Museum project is a fully government managed initiative, where the Central Govt., State Govt., Indian Navy, MMRDA and the MbPT have formed a partnership for its execution. However, this proposal is currently pending sanctions from various State and Central Government Departments. Moreover as the current proposal stands, there is little or no scope for partnership with private parties, and hence, presently further explorations into this option are kept aside.

In order to arrive at an estimated time frame and cost for the proposed Maritime Resource Centre, at the moment, it is assumed that the site for the MRC will be the Carnac Bunder



Pumping Station of MPT. However, the MRC can be designed for any of the above mentioned locations, or even other locations, as required.

**b) Estimated costs**

This has been divided into 3 sections:

**a) Cost of re-structuring / restoring the building**

Any chosen site will have to undergo some modifications so that it is made appropriate for the functions of the proposed MRC. In the case of the Hydraulic Engine House owned by MbPT, that was identified as a suitable site for the MRC, the premises were inspected for structural stability and scope for modifications. Conservation architect Vikas Dilawari was invited to inspect the site, and he pronounced the building in fair condition, with a good scope for adaptive re-use to a Maritime Resource Centre. Based on the present physical condition, he has drawn up an estimate for the restoration of the building, as well as a note on his inspection. The estimated cost of restoration is Rs.2.5 crores.

This includes the repair of the roofs, floor, balconies, fabrication, carpentry, flooring, painting, external site work, basic electrical work, plumbing and part air conditioning of the premises. (Inspection report and detailed estimate is available for reference in Annexure 6).

**b) Content and Design Development Cost**

A significant proportion of the project cost will go towards developing the content, display and design of the exhibits within the MRC, and hence, a conceptual design was developed for the interior of the MRC, which helped arrive at an estimate for the Content Development. Exhibition designer Samir Parker prepared a proposal for the MRC, and estimated the content development to cost Rs. 1.5 crores.

This includes the development of the graphic and signage, printed panel displays, a central glass aquarium, interactive displays, models, display stands, seating, audio-visual units, etc. (The detailed estimate is available for reference in Annexure 7)



c) Administration and Running costs:

Based on the proposed components and sub-cells of the MRC, as spelt out in the Definition Note, a list of basic staff and services was compiled, that would be required to keep the MRC running on a daily basis. The expenses are categorized as:

- i) Staff salaries : 25 lakhs
- ii) Running Costs (electricity, maintenance, etc) : 25 lakhs
- iii) Capital costs (office equipment, furniture, etc) : 25 lakhs

The total administration and running costs is therefore Rs. 75 lakhs, of which Rs.50 lakhs is the annual administration costs for the MRC. (Detailed estimates in Annexure 8)

The total Project cost for the establishment of the MRC, from a), b) and c) is therefore Rs. 4.75 crores, which includes administrative costs for the first year. Thereafter, the MRC has to generate and raise funds to keep itself running, and hence it would be prudent to raise an additional sum of Rs. 1 – 1.5 Crores as a basic corpus fund for the MRC, that would ensure its smooth functioning in the initial years of establishment.

**c) Time frame**

After the funds have been raised, the MRC can be established in a period of 3 years, in a phase-wise manner, starting with the restoration of the building, while simultaneously researching and developing the content and then fitting it into the building (Annexure 9 for tabulated time frame). The various sub-cells and components of the MRC will also be set up in a phase-wise manner, depending on the partnerships and collaborations that are established initially, and that will build up to the comprehensive Maritime Resource Centre.

**d) Funding Mechanisms**

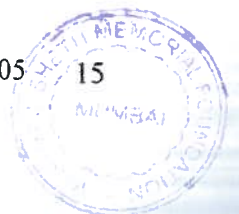
At an initial stage of the project, possible funding partners were identified for the establishment of the MRC, and once the estimated project cost was determined, efforts were initiated to raise a part or total of these funds. It is to be noted that raising funding



was not part of the stated aims and objectives of the feasibility study because the process is known to be long, but was nevertheless initiated at this early stage of the project, to take advantage of the interest and support expressed by various persons to the proposed MRC.

The following steps have been undertaken:

1. Once the preliminary estimates were drawn up, a funding proposal was prepared to present to potential funders and supporters. This proposal includes a background and rationale for the Maritime Resource Centre, as well as details of principal players, estimated costs, time frame, etc. A brief one-page project proposal was also prepared to send out to interested persons. A copy of the funding proposals was submitted to the VJSMF office for perusal in June 2004 (Annexures 10 and 11).
2. The strategy that has been adopted is to try and raise at least half of the total funds required through one large donor, preferably an international funding agency, and then leverage that grant to raise the balance funds from the Indian government and corporate houses.
3. From May 2003 onwards, a number of applications have been made to various agencies, both in India and abroad, and the details of these funding applications and their responses have been tabulated (Annexure 12).
4. Several of the applications are in progress, and it is estimated that a minimum period of 9-12 months will be required to raise the estimated amount.
5. Several single page proposals have also been sent out to interested persons, who are in a position to recommend or suggest possible funders for the MRC.
6. A second strategy that is now underway is to consider breaking up the entire amount to be raised into smaller parts that can be then taken up for part sponsorship by a donor for a particular component of the MRC. For e.g.: the Library can be set up by a donor; or the corpus funds can be donated by one party, who will then be permanently associated with the MRC. This helps to





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break-up the entire amount of Rs.4.75 crores into smaller parts that would be easier to raise. This strategy has been summarized in Annexure 13. ✓

7. Further, these components have been detailed, to the extent possible, so that potential funders are able to get a clearer idea about what the MRC contains. Refer Annexure 14

8) CERE is also presently working on a establishing a list of patrons for the MRC project. These patrons, who will be 3-4 in number, will be eminent persons from the field, who are convinced about the project and its feasibility, and who would then be in a position to raise interest and support for the project. (Refer Annexure 4 – List of Resource Persons – for Patrons contacted) ✓

**e) Preparing a legal framework**

A range of legal documents that would be required for cementing official partnerships between concerned parties involved in establishing the MRC were prepared after studying in great detail similar agreements and initiatives undertaken in the city, as well as worldwide, where public-private partnerships are established for projects of such a nature. The following 3 drafts have been drawn up:

**i) Agreement between CERE and Owner of the Site/Building**

No acquisition of property is proposed for the establishment of the MRC, hence an Agreement will have to be drawn up between CERE and the Owner of the chosen site/building, for the establishment of the MRC.

As an example to follow, once an expression of interest was received from the Mumbai Port Trust, a draft Agreement for the Terms of Understanding was drawn up, that spells out the terms and conditions under which MbPt is agreeable to the Hydraulic Engine House building and site being used for the setting up a Maritime Resource Centre by CERE. (Annexure 15 - A)

**ii) Agreement between CERE and Donors**

A Draft Agreement between CERE and the Donors, has also been drawn up, in preparation for discussions with the funders, when required (Annexure 15 - B).



iii) Trust Deed for the Maritime Resource Centre Trust

Once the Maritime Resource Centre is fully established by CERE and is operational, it will be managed by an autonomous Trust that will have members of CERE, MbPt. VJSMF, the principal Donors, as well as renowned persons in the maritime world as its Trustees, to take this Centre forward. A draft Trust deed has been drawn up for this purpose (Annexure 15 - C).

It is to be noted that these draft legal documents have been prepared using models of other similar agreements, under basic legal advice and guidance. However, prior to the signing stage of the documents, further legal counsel would be required to fine tune the documents after consultation with the partner.

**f) Content and Design**

After determining the scope and outline of the MRC, possible location, and estimated cost, the next important step was to determine *what the MRC would physically contain and what would attract visitors to the MRC*. The answer to the two questions lies in the content of the MRC. What the MRC houses and showcases, and the methodology of its display and design is essentially what will bring in the crowds and ensure a regular stream of visitors.

Preliminary research was undertaken into the main components of the MRC as mentioned in the Definition Note, namely the sections on the (i) Maritime history of the world and India, (ii) History of shipping and modern shipping, including Commerce and Trade, (iii) Ports, Docklands and Mumbai as a port city, (iv) the role of the Navy and Coast Guard, (v) Marine Ecology, vi ) Explorations and Research, and (vii) Environmental Issues and Pollution.

✓  
A series of papers has been prepared on each of these sections/topics, and these are available for Reference in Annexure 16.<sup>✓</sup> These papers assist in providing a better idea of the content of the MRC exhibitions, the possible story-line and linkages between



galleries, and also serves as a base from which the eventual detailed research and documentation team, can start working, for the content development.

The eventual layout and structure of the Maritime Resource Centre will be done in such a way that the sections seamlessly flow into each other, and do not exist in isolation, and this concept has been illustrated in the *Maritime Time-line* that has been developed.

The basic structure of a *chronological time-line* has been used as a framework around which the various components have been conceptualized. This allows us the scope to develop a particular component in greater detail, if required, as well as logically integrates the eight sections in a seamless manner to provide a holistic view of the maritime world. (Refer Annexure 17 for sample of timeline)

A significant feature of the time-line is that while providing a broad structure and understanding of the maritime world, it also allows us scope to independently expand in a particular area. What this means is, that as the MRC is established initially, and while it grows and forges further links and partnerships, at the inception, those aspects of the time-line where the partnerships are in place, or where the content and material has been realized can be executed, leaving the rest of the areas open-ended for future expansion.

Further, this preliminary research also enables us to have realistic idea of the kind and range of exhibits that could be displayed, and from the research it emerges that a majority of the exhibits can be easily replicated from pictures of the original. A range of options is available for display, from traditional 2-dimensional posters and panels, to models and recreations, to sound-and light set-ups, as well as interactive displays that can be used to make the visitor-experience an enriching one. Some of these replicas are available for sale at affordable prices. Some basic material for the content can also be sourced from the partners of the MRC. For example: MbPT's extensive photographic and technical drawing archives are well documented and available for display (Annexure 18).



As is seen in the case of several museums studied, a zero-artifact resource Centre is possible to begin with, with the potential for acquiring a collection of artifacts being explored later, once the MRC establishes itself firmly.

A proposal has also been drawn up to design the interior spaces of the MbPT building for the proposed MRC. This proposal looks at the best optimization of the spaces within the MbPT building, that once housed an old hydraulic engine and pump, and how this can be adapted effectively to a state-of the art Maritime resource centre. Such a proposal would assist in the fine-tuning of the estimated costs, and also help to convince potential partners of the feasibility of the scheme (Annexure 19).

**g) Making the MRC self-sustainable**

It is a peculiar phenomenon that institutions such as learning centres, museums, parks and gardens frequently find it difficult to become self-sustainable, once established through the initial funds raised. Despite serving an acknowledged role in society and in education, such institutions rarely find themselves functioning independently, and commonly have to depend on donors, well-wishers and state sponsored grants to keep themselves running. While several strategies have been introduced to generate income for the MRC (such as an Outreach and Awareness Cell, outdoor café, souvenir shop, library) these are small as compared to the considerable outlay required to run the establishment. Also, while addressing the larger audience of under-privileged sections of society, the Centre is unable to charge premium rates for entry, as this would limit a large number of visitors.

CERE has surveyed, interviewed and closely interacted with various organizations (Annexure 21) to understand how they are able to resolve this issue, and the following points have emerged though this:

- A great majority of the learning centres, museums and cultural organizations are state sponsored and receive continuous support from the government. For e.g.: the Ministry of Culture supports the National Council of Science Museums in India, which has founded the Nehru Science Centre, and supports it annually. Similarly, the Taraporevala Aquarium is under the Ministry of Dairy and Agriculture's



Commissioner of Fisheries, which is currently unable to provide adequate support to the aquarium; hence its dismal condition, and the imminent plans to redevelop it with a private partner at a cost of over 100 crores.

- In the case of a public Trust such as the Prince of Wales Museum, the Museum uses interest from an initial corpus fund that was created at its inception. Besides this, it continuously seeks corporate and government sponsorship and donations. A Society called the “Friends of Prince of Wales Museum” has been created to specifically work on raising funds for the Museum. The Museum also avails of grants from the Government, both central and state, specifically from the Ministry of Culture, which is mandated to support and encourage museums across the country.
- In the case of a smaller, private museum like the Marine Museum at T. S. Rahman, the situation is similar. This Museum is also unable to sustain itself completely, though being a part of a larger complex and community at Nhava Sheva, that consists of a maritime training college, school, hospital, library, etc, it is able to continue running. The Museum applies for grants, from both India and abroad, and is continuously trying to increase its number of visitors.
- In most cases, where such Centres are established by public charitable trusts, commercial activity that is not connected to the Centre’s goal cannot be undertaken. Further, the land/building/premises are frequently leased out by the State for the purpose required on the condition that no commercial activities are undertaken, and hence beyond the basic functions, such Centres are unable to generate the required income.

The following conclusions emerge:

- 1) A part of the annual running costs can be met through ticket sales, sale of souvenirs, etc. Income can increase as visitor numbers increase but is unlikely to cover the total cost.
- 2) A basic corpus fund will be required, that will keep the Centre running.
- 3) An annual fund raising plan will need to be drawn up, to meet the requirements of the Centre, and a team of fundraisers will have to raise the funds required.



Through fund raising efforts, if the corpus is made sufficiently large, its interest can then be used to run the Centre.

- 4) Long-term partnerships with corporate houses, sponsors, sister institutions need to be established.

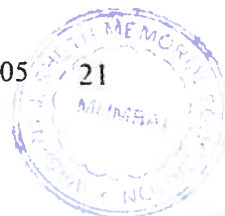
Based on these conclusions, guidelines to help the proposed MRC become self-sustainable and raise the Rs. 50 lakhs required annually to keep it running, have been compiled and tabulated in Annexure 20.

#### **4. Observations and Inferences**

At the end of a year of the feasibility study for the establishment of a Maritime Resource Centre in Mumbai, the following conclusions have emerged:

i) As the scope and outreach of the MRC was explored and defined, various options were considered about where exactly the MRC should be positioned, and that it should serve a felt need of the maritime community. It has been concluded however that there is no such direct need that the MRC can fulfill, apart from raising awareness levels about the maritime world, and sensitizing people to the oceans. This then primarily becomes the main aim and focus of the MRC: to function as a Centre of Learning and Discovery about the maritime world.

ii) The MRC must be a broad-spectrum comprehensive resource Centre covering all aspects of the marine and maritime world. Only such a holistic Centre would provide visitors with an overview of the maritime world, while also allowing for further explorations into some areas, through facilities such as the Library and research cell that are available. A broad spectrum MRC would also accommodate and integrate the various partners and collaborators on a level platform, allowing equal representation to each partner, be it MbPT, who has offered the space for use, and would like representation on the history of the Mumbai Port, or an ecological NGO, who may offer some exhibits and training programme modules, and like to highlight issues of ecological concern.



iii) The MRC must be established as a modern and reasonable well-equipped Centre with a potential for future expansion. Considerable finances will need to be raised and expended on the MRC, and the Centre must go beyond being one of the many such initiatives that have come about, and must be world class in its execution and outlook. The MRC will begin at a modest scale depending on the partnerships that it is able to forge at its inception, and will then gradually grow to cover all aspects of the maritime world.

iv) Partnerships are the key to the successful establishment of the MRC at every stage. CERE is aware of its strengths and limitations and does not profess to be an expert either on the maritime world, or in the area of establishing a learning centre. However, as has been the case of the feasibility study, the partnership of CERE and VJSMF has resulted in the idea of the MRC being nurtured and detailed into a full-fledged project; similarly from this stage forward, strategic partnerships will enable the MRC blue-print to become a reality.

v) The critical stage that the MRC project has now reached is the fund-raising stage. Since the MRC is a felt-need of the city, country and society at large, and the feedback to the project has been positive, now that several of the details for its execution have been identified, what remains is to raise the funds required. This is acknowledged as a challenging part of the project, and it is estimated that considerable time and efforts will have to be focused to produce results in the time frame desired. Concerted efforts are already underway, and in the meantime, all other aspects of the project are being fine-tuned, so as to be fully prepared to begin the execution process, whenever required.

## 5. Results

i) The scope of the MRC has been clearly defined in the Definition Note. This Definition Note was prepared after extensive consultation and dialogue with several people, and can be considered to define the Scope and Outline of the MRC.

ii) At present, a location within Mumbai has been identified for the MRC. This is the MbPT Hydraulic Engine House at Carnac Bunder in the Tourist District of South Mumbai. MBPT has agreed to the in-principle use of this building for the establishment of the MRC. It fulfils the basic criteria that were outlined for potential sites, and negotiations to formally confirm this are underway. However, any of the short-listed sites, if found feasible, can be taken up further for the MRC.

iii) An outline of the content of the MRC has been prepared, to enable a further detailing of cost and also to further determine the interior requirements of space and planning within the MRC. The developed content also gives indications of how and where the exhibits can be physically sourced from or re-created, etc. It is to be noted that this content is not site-specific and can be used at any site, if required.

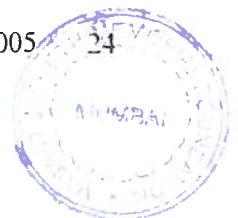
iv) A comprehensive list of resource persons have been identified and contacted. Several of them have already made contributions towards preparing the blue-print for the MRC, and several others are willing to offer their services, resources and expertise for the MRC when established.

v) An estimate of resources required for the setting up of the MRC, in terms of financial outlay has been drawn up. This is a conservative estimate at Rs.4.75 crores, and includes running and administration costs for the first operational year only. Apart from raising these funds for the establishment of the MRC, a minimum corpus amount of Rs. 1 – 1.5 crores will also have to be raised, to ensure that once established, the MRC keeps running smoothly.



vi) Fund raising efforts have been initiated and a minimum period of 9-12 months has been estimated to raise the funds.

vii) Based on studies of existing establishments, a working model has been prepared for making the MRC self-sustainable. Since the primary aim of the MRC is mainly educational and cultural, the Centre cannot take on any commercial activity other than those such as a souvenir shop and café that are linked to its primary function, in order to raise income. However, with growth and increasing visitor numbers and activities, the MRC could soon become a sustainable model, attracting extensive sponsorship and donors who would like to be associated with such a project.



## 6. Role of the Vasant J. Sheth Memorial Foundation

i) The chief role of the VJSMF has and will continue to be as a patron of the MRC project. The VJSMF has been the catalyst of this project, and assisted CERE in detailing it and bringing it to this stage, and the continued support, advice and feed back of the VJSMF trustees will enable the MRC project to go further to the next stage. The Foundation's patronage of the MRC project will also add to the project's value and would influence people to support it.

ii) All the Trustees of the VJSMF have considerable expertise and sound knowledge, both within the maritime world, as well as in other areas such as institution building and long-term strategic financial planning, and hence would be the most qualified resource persons to whom CERE could refer to for guidance for the MRC project.

iii) The VJSMF having worked actively in the maritime world for several years in the development and promotion of maritime education, welfare and conservation of maritime heritage, has extensive knowledge and contacts within this arena. Hence VJSMF will be in a position to assist the MRC in developing strategic partnerships and providing important contacts, especially for fund-raising.

iv) The VJSMF itself is already a strategic partner with CERE in the MRC project, and could consider continuing this partnership through the next stage as well as beyond after the MRC has been established, by being a part of the proposed MRC Trust as well as partnering to set up some key components of the MRC such as the Library, or the Outreach and Awareness Cell.



## 7. Conclusion

The feasibility study for the establishment of a Maritime Resource Centre in Mumbai has been conducted over a period of one year, with a further extension of 6 months, and during this period, all the stated aims and objectives of the project proposal have been achieved. These include the critical components of defining scope and outlook of the MRC, identifying physical space, estimated project costs, content and matter, establishing partnerships as well as initiating fund raising efforts.

Through the findings, observations and results of the feasibility study, it has been established that:

- a) A Maritime Resource Centre in Mumbai is definitely the need of the hour, and
- b) The establishment of such a Centre is feasible, given that a number of individuals, organizations and institutions have expressed a willingness to be a part of it.

What remains now is to raise the required funds for the establishment of the Maritime Resource Centre following which the findings of the feasibility study can be put into practice for the execution stage of the Maritime Resource Centre.

CERE KNOWS .....

....that the Maritime Resource Centre can be the voice of the sea.

....that the Maritime Resource Centre will grow with time and with partnerships.

....that without the Maritime Resource Centre, the seas will be cesspools, leaving behind only the history of how they became so.



**List of Appendices to the Final Report for the**  
**Feasibility Study for the Establishment of a Maritime Resource Centre in Mumbai**

1. The Maritime Resource Centre as a Centre of Learning – Research paper prepared by CERE
2. Analysis of theme and content of museums of navigation across the world
3. Definition Note for the MRC
4. List of resource persons contacted for the MRC project
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12. List of funding organizations contacted and their response
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*1. The Maritime Resource Centre as a Centre of Learning  
– research paper prepared by CERF*

## **The Maritime Resource Centre as a Centre of Learning**

A note on the focus and aim of the Maritime Resource Centre

The main aim of establishing a maritime resource centre, is to sensitize the people of India to her vast and varied maritime history and legacy, and focus attention on the marine environment, so as to create an aware and informed generation of citizens who will preserve, protect and be closely linked with the maritime world.

It follows that there is a need to bring in large numbers, and in order to do so, the target audience of the MRC is to be established along with the strategies that are needed to not only induce them to visit the museum but ensure that they are converted and care much more about the maritime world. Large numbers in turn will make the citizens support the MRC and make the museum financially self-sufficient and thus help it extend and diversify its activities.

A study of museums around the country and world and their target audiences would be of assistance in this area. CERF has studied the mistakes, successes and experiences of museums and other learning centres across the country and world, and from these a model will be proposed for the MRC keeping in mind the Indian context.

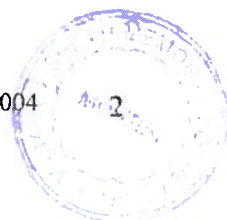
### ***Education as a focus***

Washburn, W.E., a historian who was director of American Studies at the Smithsonian for many years, in his book, "*Do Museums Educate?*" cites the ideas of Joseph Henry, the first secretary of the Smithsonian, who asserts that the primary purpose of museums is the pursuit of knowledge. With the possible exception of museums of art, Washburn believes that a museum's collection is not its *raison d'être*.

Arguing that unstudied collections are useless and that there is no guarantee that collections are permanent, he urges museum scholars to convert information about collections to more permanent forms such as books and computer databases. To fulfill museums' secondary purpose of disseminating knowledge, Washburn recommends that museums devote more of their resources to lectures, films and video presentations, than to exhibits, which he characterizes as the "least scholarly method of communicating knowledge." Although museums have come to depend on exhibits to educate visitors, they do not actually know what or whether visitors are learning from them. Washburn equates education and communication, and views learning in the museum as the acquisition of knowledge through various media.

Hence, the proposed MRC should not be hampered by a lack of artifacts at its inception, and should in fact, concentrate on using a variety of media to engage the senses of touch, sound, smell, taste, and sight that would contribute to an enriched learning experience. Further, as is seen in the case of the Nehru Science Centre, Mumbai, the exhibits can also be designed and re-created as models/replicas of the original, that would be as engaging and interesting to visitors.

### ***Linkages with other learning centres***



Diane B. Frankel is director of the Institute of Museum Services, USA. The role of the museum as an educational institution has been a focus of her career. Most recently, she was founding director of the Bay Area Discovery Museum in Sausalito, California. She has also held positions at the Center for Museum Studies, John F. Kennedy University, San Francisco, and at the San Francisco Museum of Modern Art. She says that, "Museums are treasure houses of materials that enliven our past, stimulate our enjoyment of the present, and help introduce our future. We are living in a time when museums and schools are rediscovering each other in ever new and more profound ways." In her experiences and research with museums across the USA, she says that:

"Museums and schools are working together as partners to craft real solutions to the challenges in education today. The common thread is this: when a partnership is developed in response to an expressed need, the result is a transformative experience. Teachers, students, and museum educators never think about learning in the same way again.

While there was never a question about whether museums were educational institutions, the relationship between museums and schools has been slow to evolve. Adults were seen as a primary audience in the early days. In the 1920s and 1930s, *John Dewey's* educational philosophy, with its emphasis on learning by doing, caught on in the schools and encouraged the relationship between the elementary school and the museum. The principal educational component for elementary students was the field trip. Teachers brought their classes to the museum for a rapid race through the exhibition halls. Museum staff usually led students into the galleries, letting objects and exhibitions speak for themselves. This approach proved more or less satisfactory for the students and the museum, and it continued to dominate the museum-school relationship for many years.

Over time, museums began to look more critically at the role they could play vis à vis schools. They decided that they had a true educational role and that the museum could be a place where significant learning could occur. As their education staffs became more professional and more familiar with the needs of their audiences, museums organized more substantial programs. Creativity flowed as museums began to try innovative approaches with schools.

Things have changed even more radically during the past decade. As museum education departments came of age and school systems defined what it means to educate their students, they began paying serious attention to how they could work together formally. Schools have articulated real educational needs, and museums have proposed real solutions. *If a museum has a collection or an exhibition that can make a concept in the curriculum more vivid, if a teacher can integrate what the museum has to offer into a curriculum package, the museum program becomes essential.* True collaborative programs that involve partnerships blessed at the highest levels of both educational institutions are beginning to emerge everywhere. As museum educators respect school educators as equals, they have become more sensitive to developing programming that applies directly to what is happening in the classroom. As teachers watch students who have problems with traditional learning models come alive in museums, they find new ways to reach these students.

Several of the teachers contacted by CERE said that "the right person is very important." If there is an expert who can create the link between the students and the Centre and relate the experience directly, the visit to the Centre becomes meaningful.



As directors and board members view *education as a core principle of a museum*, they endorse and actively support the formation of *long-term relationships with schools*. In the ultimate partnership, a number of museum schools have opened, and many more are on the horizon.

Technological advances, which are having a strong impact on the way we educate our youth, also have tremendous potential to enrich museum-school partnerships. Museum educators are feeling euphoric again, and rightly so. The need to educate our young people is so great, and the problems are so enormous, that no educational institution can afford to sit on the sidelines. There will be moments of hesitation and questioning about the value of these partnerships, but the successes will so outweigh the concerns that we can look forward to many more fruitful collaborations between these two different but compatible educational institutions."

The MRC instead of being a repository for teaching materials, will also be a dynamic pre-service and in-service educational center that invites teacher participation in learning about and developing museum education materials. The center will also be the focal point for exploring the educational possibilities of the Internet. Almost all institutions studied in India, like the Prince of Wales Museum and the Nehru Science Centre, emphasised that networking with schools is one of the key strategies to bring in visitors.

### ***Targeting children and young adults***

Some other significant findings regarding museums and centres of learning have been summarized below, from:

"An investigation into the dynamics of children's museums: A case study of selected museums. Author: Holman, Yvonne Keck"

The origin of children's museums, their evolution, purposes, similarity of characteristics and unique features, and methods of interacting with children were examined for the purpose of developing a model for children's museums in the future. In addition to profiling 15 organizations, in-depth studies on The Children's Museum, Indianapolis, The Children's Museum, Boston, The Children's Museum, Denver, and Please Touch Museum, Philadelphia, were conducted and the material presented. On this basis the following was concluded:

- While considering each museum's goals, so many features were held in common: a non-threatening atmosphere of a participatory nature, a collection of tangible objects whether to be preserved or consumed, the intimate exploration of the world through real objects, a method of public relations, and a staff commensurate with the museums' purposes and ambitions.
- While children are the main audience, adults involved with them are included.
- School-museum interaction remains important.
- Any size and design of facility are appropriate if they meet designer goals and audience needs.
- Marketing of museum products and services seems promising, but raises questions concerning children as gullible consumers.
- A variety of programs in addition to the exhibit floor increases audience participation.
- Evaluation is an important element if children's museums wish to have effective programs.
- The museum's role in the community may be as a service or as a catalyst for community development.

- Ascribing to a role as an educational center broadens the possibility of interaction with other organizations and expands potential.

Focusing the Learning Centre towards children and young adults, does not exclude any other target group; in fact adults can re-discover their world, and enjoy an experience that is enriching, and different from the normal.

In his book, *The New Museum*, Author: Dana, J.C., who was a librarian and the founder of the Newark (New Jersey) museum, sets forth his museum philosophy and his experience in establishing a museum. In it he contrasts the *new community-based museum-as-workshop* (for which the Newark Museum was the model) with *the old museum-as-storehouse*, and offers practical advice to communities who might wish to establish this new type of museum. In his view, a museum collection of expensive objects housed in a Greco-Roman style building may promote civic pride, but does not serve community needs. *Collaboration with schools and libraries will strengthen the educational focus of the new museum*. His advice to museums is that museums should not spend money on expensive objects, but instead on brains that know how to tell an interesting and instructive story about the objects. His vision of a museum is that it is both indigenous to and an educator of the local community.

In 1982 the American Association of Museums established the Commission on Museums for a New Century to examine the issues facing museums in the 21st century: their role in society, their obligation to preserve and interpret our natural and cultural heritage, and their responsibilities to a changing audience. The Commission had three objectives:

- to explore societal trends affecting museums' future
- to identify trends in the operations and need of museums
- to describe the resulting opportunities and responsibilities of museums.

The report contains recommendations and related discussions concerning collections, education and learning, leadership, professional compensation, minority representation, small museums, public awareness, collaboration among museums and with community organizations, and finances.

The commissioners call education a primary purpose of American museums. By this they mean that all components of a museum, not just education departments, should be committed to fostering learning. Aware of the confusion that exists about the nature of learning in a museum context, they assign high priority to the establishment of a research program backed by a philosophical framework that would illuminate the nature of such learning. They also note the debate about formal versus informal learning, and the historic tension between the dual museum goals of preservation of objects and public access.

Additional recommendations are for a national colloquium to discuss school-museum collaboration, for special attention to the learning needs of adults in museums, and for research to guide the introduction of computers and other technology into museums and the potential of this technology for nurturing learning. This seminal report to the American museum community provides historical background for the Museum Learning Collaborative.

### *Experiential learning experiences*





In his article on *John Dewey's "Experience and Education": Lessons for museums*, Ansbacher, T. (1999), museum consultant Ted Ansbacher has summarized the major ideas from each chapter of Dewey's 1938 book on experience as the basis for all education, showing how Dewey's philosophical ideas are still current and in particular are relevant for the theory and practice of museum education. In describing and defending the principles of experiential education, Dewey's book offers guides for developing and assessing experienced-based educational opportunities, which Ansbacher connects to comparable issues in museum exhibit development. Dewey's distinction between internal and external aspects of experience, for example, provides a powerful framework for thinking about exhibit design.

Dewey's criteria for judging positive educational experiences—their continuity within each individual's prior and future experiences and the interaction between the individual and the external environment—reflect issues that are critical not only to museum exhibit design but to research on museum learning as well. Of these two criteria, Ansbacher agrees with Dewey that continuity presents "the more difficult problem" to resolve, especially for museums who must serve visitors with vastly differing prior experiences.

Current concerns about the danger of museums being lured too far into an entertainment mode were long ago addressed by Dewey as he discussed, albeit with schools in mind, the need to balance immediate enjoyment of an experience with its long-term effects so that learning can occur. Ansbacher takes Dewey's ideas that were developed for school situations and applies them to museum settings, suggesting how to develop and assess exhibits and to judge whether exhibits are not only pleasurable in the immediate encounter but also, in Dewey's terms, provide positive future educative impact and a basis for further growth experiences. Ansbacher's discussion of how schools can provide pre- and post-visit extensions to the museum experience reflects well established museum education theory and practice, and it resonates nicely in the context of Dewey's concern for continuity of experience as a cornerstone of learning. Both authors provide valuable insights for researchers and educators interested in the design of positive learning environments in museums.

*Lee Schmitt is director of Science Museum of Minnesota's Teacher Programs at the SMM and she says that:*

Effective museum education activities allow students to ask questions, interact with objects, and explore the processes that lead to a richer understanding of the world. In this era of standards-based curricula and high-stakes testing, it is worth reemphasizing the importance of keeping museum education focused in the direction of open, inquisitive use of material resources—not in the direction of the constrained, answer-driven minutiae of worksheets

In museums, complex relationships among people as well as between people and objects determine the efficacy of the learning experience. In the Experiment Gallery (at the SMM) and other areas of the museum, we do our best to give visitors tools that both encourage experimentation and make it fruitful. We want them to enjoy our exhibits as much as we do, to play with the phenomena and devise their own questions—and to be open to saying "Gee whiz".

At SMM, a major focus of our programs for educators is how to use museum resources as an integral part of classroom curriculum. Teachers may not realize the many ways that museums and science centers can support almost any science topic. Such resources include not only

exhibits, specimens, and artifacts, but also access to scientists, teaching materials, and professionals who can help plan field trips, answer questions, and design and present professional development. Every SMM program for teachers demonstrates both the powerful enrichment value of an informal institution and the effective use of museum resources.

At SMM, our marketing philosophy is simple. *It's all about connections*-about developing a professional network with teachers, school administrators, state education organizations, higher education, and our own museum staff. We don't send out flyers listing upcoming workshops and hope that teachers will register. Rather, we use our connections to market programs directly to school district administrators and staff development committees. This allows us to tailor programs to individual needs and be involved in a school's professional development planning over several years. SMM continues to host conferences for teachers. Along with exhibition and film previews, these events make us visible to schools, foster a sense of comfort with the museum, and help participants become familiar with available resources.

SMM has built a reputation for high-quality, sustained, teacher-focused professional development. As a result of our many collaborations, staff from SMM Teacher Programs now serve on the MnSTA Board of Directors and the St. Paul Schools Science Advisory Committee. We also act as state coordinators for the Minnesota network of *Building a Presence for Science*, the new systemic-reform initiative of the National Science Teachers Association. A bonus for the museum is that by actively representing our mission of inviting learners of all ages to experience their changing world through science, SMM Teacher Programs serve the entire institution. Classroom teachers interact with hundreds of thousands of students and parents, providing a vital bridge to the public understanding of science. They are an essential link in expanding science center and museum audiences.

### ***Making the MRC interactive***

Ben Gammon, Head of Visitor Research, Science Museum, London, May 1999, has presented a working paper on "*How do visitors use computer exhibits?*" based on the findings from 5 gruelling years of watching visitors getting it wrong.

The following points summarise what the staff at the Science Museum, London, have learnt over the last five years testing computer interactive exhibits, from mostly bitter experience:

- Computer screen-based interactives can be robust and very effective exhibits. They are extremely popular with visitors, especially children, although not to the exclusion of other forms of exhibitory.
- Visitors are not techno-phobic. They have detected little or no evidence of techno-phobia among visitors. Almost three quarters of the visitors questioned had at least some experience of using networked computers. In fact techno-fatigue rather than techno-phobia among some (but only some) of the adult visitors has been noticed.
- Visitors aren't stupid. These days they are not going to be amazed simply by a touch-screen full of words. They are expecting something exciting, colourful, challenging, with graphics, sound, movement.



As is demonstrated at the Nehru Science Centre, visitors are encouraged to touch all exhibits, several of which have audio, visual and mechanical aids; even to the extent of wearing out or damaging the exhibit. There is a full-time back-up team of workers, who will quickly step-in, repair, and if necessary re-design the exhibit, and put it back on the floor. The NSC team of exhibition designers and executors have now developed sufficient skill to offer their services as Consultants to public and private museums across India,

Nicky Hayes presented a paper at a symposium on "What makes interactive exhibits successful, held at the Second World Congress of Science Centres, held in Calcutta in 1999. The essence of the paper is a model of the psychology of interactive exhibits, which can be portrayed as follows:

- When we are considering how interactive exhibits impact with visitors, we need to look at how aspects of the design of the exhibits - the design constructs - interact with underlying psychological processes, to produce particular outcomes.
- Nowadays, we recognise that people do have intentions and that these may not be purely illusion. So we are able to reintroduce the cognitive domain. At the same time, we also recognise that there is value in looking at the behavioural domain, since intentions and actions do not necessarily always coincide. So we end up with four domains: cognitive, affective, conative and behavioural.
- This four-domain model of the outcomes of interactive exhibits is proving useful to many people for evaluating the impact of exhibitions. It has also been used to structure design proposals when developing exhibits. We need to conduct more research into appropriate methods of measuring the four domains, and some of this is already taking place. So far, however, the model has proved useful in several different aspects of interactive design.

One of the exhibits at the National Maritime Museum, Cornwall, called *Set Sail* is described as under:

"Experience racing in a regatta, the fury of a storm at sea, or the relaxing calm of an estuary at dawn, as you set off on your voyage around the Museum. Inside *Set Sail*, nine boats tell their stories in an audio-visual immersive experience that will enthral you whatever your background or interest. Film footage, sound tracks and still images, interviews with famous sailors and designers - all vividly bring to life the stories of the boats and the people that use them.

Watch spine-tingling footage of the canoe used in 1977 to break the world altitude canoeing record, then try and imagine what it would feel like to be rescued after drifting for over 100 days in an ocean-going life-raft. This dynamic gallery uses state-of-the-art technology to bring exhibits alive. Start your journey here. It is an experience guaranteed to stay with you for a very long time."

This is a good example of an interactive exhibit, which entertains as well as educates, and that would interest children, as well as adults, as it has a mix of adventure and history, and it is proposed to design such types of exhibits for the MRC so as to reach a wider audience.

### *Conclusion*



Thus, using *Education as a focus*, the MRC will be designed as a broad-based multi-disciplinary centre focused on the maritime world, and through *linkages with other learning centres*, such as schools and colleges, a dedicated visitor base will be addressed. However, though the MRC is *targeting children and young adults*, it will also respond to all types of visitors such as tourists, and will provide enriching experiences to a wide variety of people, and also develop research and academic facilities, through its library and auditorium. In the present scenario, where the visible world has lost much of its mystery, the MRC will have to engage all the senses of a visitor and developing and designing *Experiential learning experiences* will be the key to ensuring that there is a significant 'take-home' value for each visitor. The *MRC will be made interactive* with emphasis on participation and doing, and with a long-term focus on community participation and interaction.

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2. Analysis of theme and content of Museums across the world

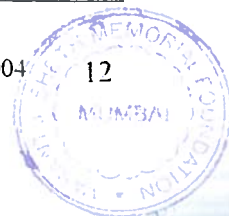
Museums on the Maritime, Marine and Sea Navigation –  
Analysis of Theme and Content

No	Name	Country	Details	Content
1.	Nausicaa – Centre National de la Mer, Boulogne/Merr,	France	NAUSICAA – A close Encounter with the Sea. The mission of Nausicaa is to help people discover and better appreciate the sea, a basic element of life and a source of riches for today and tomorrow. NAUSICAA's large aquariums give a sense of underwater exploration, and its state-of-the art technology, displayed in a "theratrical" way are designed to appeal to the imagination.	<b>NAUSICAA was recognized as the first Centre of Excellence in 1999 by the Inter-governmental Oceanographic Commission (IOC) of UNESCO.</b>
2.	<u>Maritime</u> <u>Museum</u> of <u>Crete:</u> (CHANEA)	Crete	At the entrance of the port of Chanea is situated the Fortress "FIRKA", which was constructed by the Venetian (1204-1669), in order to establish the local guard and at the same time to control the entrance of the port with their cannons. Today, the Maritime Museum of Crete is located at this Fortress. The mission of the Museum is to shelter and preserve our maritime traditions -- and specially the ones of Crete -- that have been a source of national survival, progress and greatness of the Country.	<b>The exhibition articles include ship models, various instruments and equipment, paintings, heirlooms, objects which were pulled up from the sea bottom, potsherd (shells), pictures, etc. These exhibits are presented in classified unites, which revive our nautical tradition.</b>
3	<u>National Maritime</u> <u>Museum:</u> (ANTWERP)	Belgium	In 1927 when the Stedelijk Scheepvaartmuseum (Urban Maritime Museum) was set up in a wing of the Rijkshandelshogeschool (State Commercial College). In 1937 the collection was transferred to the Stedelijke Nijverheidsschool (Urban Technical School). When the Antwerp museums were reorganized in 1948, the Stedelijk Scheepvaartmuseum merged with the Oudheidkundige Musea (Museums of Antiquities) and the two maritime collections were	



			combined. All this has helped make the Nationaal Scheepvaartmuseum a great tourist attraction and one of the most popular museums in Belgium.	
4	<u>Centre for Maritime &amp; Regional History:</u>  <u>Fisheries and Seafaring Museum</u>	Denmark  ESBJER G	<p>The Centre for Maritime and Regional History provides facilities for studies of the North European seascape as a maritime macro region.</p> <p>The Fisheries and Maritime Museum, Esbjerg, Denmark (Museum for the Danish Fisheries)</p>	<b>Including North Sea maritime history and North Sea oil and gas exploration).</b>
5	<u>The Estonian State Maritime Museum (Meremuuseum):</u> (TALLINNE)	Estonia	<p>Since 1978, the museum is active in underwater archaeology, presently using their own research ship Mare, a modern side scan sonar and a remote operated vehicle to search for sunken ships. The Baltic sea is unique because it is a brackish sea where a sunken ship will be preserved for centuries. The Estonian coast is special, since during the previous Soviet time, very little wreck diving took place. Presently the museum's archaeologists are locating so many wrecks that it will take many years to investigate them. This website provides a glimpse into the work of the Museum.</p>	<b>Exhibits the general history of shipping and fishing in Estonia.</b>
6	<u>Åland Maritime Museum:</u>	Finland		<p>The Museum recalls the great days of the sailing-ships where all have their own stories about shipwrecks, storms, or an ignominious end at the ship-breakers. And stories about them mingle with pictures from life at sea in the grain trade</p>

	<u>The Maritime Museum of Finland:</u> (FINLAND)		The Maritime Museum presents the history of shipbuilding, life on board a ship, merchant shipping, steam technology, winter navigation and the history of diving.	from Australia round Cape Horn. <b>The displays include material raised from the sea. Fishing and pleasure boats are exhibited in the boat hall, and at the quay outside the museum the newly restored lightship Kemi, built in 1901.</b>
7	<u>The Navy Museum of Brest:</u> (Palais de Chaillot).	France	The Navy Museum of Brest is one of the decentralized establishments of the Paris Navy museum. It was at Brest that the armed fleet of "Grace", which defeated the British fleet at Chesapeake Bay in America on 30 August 1781, allowing the victory of Yorktown the 19 October and the independence of the USA.	
8	<u>Aegean Maritime Museum:</u> (Mykonos)  <u>Hellenic Maritime Museum:</u> (GREECE)	Greece	The Aegean (Sea) has played a decisive role in Greek Maritime History, and principally for this reason it was decided to establish the Aegean Maritime Museum on Mykonos, in 1983, in the centre of the town of Mykonos. Delos is a close neighbour.  In 1867, Captain G. Zohios, founder of the Sea Men's Pension Fund (Region of the Navy's Veterans) suggested a project of collecting and maintaining all objects which related to the Greek naval history and the establishment of a Naval Museum. 80 years passed and, in 1949, the first Naval Museum of Greece had its beginning. Finally, on 27 June 1955, the inauguration of the first "Hellenic Maritime Museum" took place. It was provisionally housed in a old and small, two-story building on Akti Moutsopoulou of Zea, Pireaus and in 1964 the National Tourist Organization (EOT) leased at a symbolic rate the plot of land	



			where the museum is now located.	
9	<p><u>German Maritime Museum:</u> (Bremerhaven)</p> <p><u>Hamburg Museum</u> (HAMBURG), The Museum exhibits and displays items related to Seafaring and Trade, Shipbuilding and Harbour, Port Industry and Traffic, and the Steamer Werner</p> <p><u>National Museum - Germany:</u> (MUNICH)</p>	Germany	<p>In early times Germany was no uniform entity, not to mention a state. It consisted of numerous small states with their own history, although there was a series of overlapping events, which connected them, e.g. the reformation or the fall of the Hanseatic League, which in former days had a big power, or also the Thirty Years' War. Located in Bremerhaven, the museum was founded in 1893.</p> <p>Research may be conducted in the archives, library, and wet wood laboratory.</p> <p>Throughout history, ships have forged trading links between continents and thus between the cultures of their inhabitants. Well into the 20th century, ships were the only means of importing goods and obtaining information from overseas. At the same time, a ship at sea is an isolated environment, a world of its own.</p>	<p>The German Maritime Museum historically chronicles the seafaring history of Germany. Also included in the Museum's collections is information on fishing and whaling, tidal research and forecasting, oceanography and polar research, Pilotage and navigation, and sailing and boating.</p> <p>Displays exhibits pertaining to Medieval Shipping, Shipping in the early modern period, Shipping in the industrial age, Open-air museum,</p> <p>The Marine Navigation Exhibit at The National Museum of Germany, in Munich, exhibits the fishing vessel "Maria," A rescue cruiser of the "Theodor Heuss" class (1960). Also displayed is the development of sailing ships, passenger ships and ferries, freighters and boats, Life on board, propulsion and shipbuilding theory, and general shipbuilding.</p>





10	<p><u>Batavia Yard in Lelystad:</u></p> <p><u>Dutch Naval Museum Den Helder:</u></p> <p><u>Dutch Submarines:</u></p> <p><u>Maritiem Museum Prins Hendrik Rotterdam:</u></p> <p><u>Maritime Museum (Scheepvaart museum):</u></p> <p><u>Royal Dutch Maritime</u></p>	Netherlands	<p>The Batavia Yard in Lelystad, the Netherlands, is foremost a center for traditional shipbuilding. In the course of 1998 an archaeological presentation on inland shipping on the former Zuyderzee will be added to the yard.</p> <p>To know more about the fascinating history of the Royal Netherlands Navy the Naval Museum is just the place to follow the development of the naval vessel, be introduced to various naval heroes and come face to face with the weapons they used in battle, or enter the submarine 'Tonijn' and the minesweepers 'Abraham Crijnsen' and breathe the atmosphere inside a warship.</p> <p>The submarines of the Royal Netherlands Navy 1906 - 1998 website is full of interesting information on Dutch submarines including an excellent narrative on the first Dutch submarine.</p> <p>The Maritime Museum 'Prins Hendrik' is situated right in the heart of Rotterdam, five minutes' walk from the Coolingsingel and the Erasmus Bridge. Moored alongside, in all its glory, is the museum ship 'Buffel'.</p> <p>Find out about the Dutch trading ventures and voyages of discovery, about Amsterdam in the golden age, the Dutch East India Company (VOC), distant countries, unusual cultures, the mercantile spirit and the colonies. At this museum Holland's seafaring past really comes to life.</p> <p>Shipbuilding in the Netherlands is a main thrust of the STAD AMSTERDAM website where</p>	<p><b>offering a fascinating view of Dutch shipbuilding of the 17th century.</b></p>
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	Museum: <u>STAD</u> <u>AMSTERDAM:</u>		after 1813, a independent again nation under the new king, William I, Holland started on a new tack. Measures were implemented to inject new life into the shipbuilding industry. After all, the prospect of trade with the Dutch East Indies beckoned, and a well-equipped fleet sailed the world's oceans.	
11	<u>Compasses Carved in Stone:</u>	Norway	All along the southern Norwegian coast we can find compasses carved in rock. These compasses can also be found in Sweden, Finland and on the Faeroe Islands. There is only one known compass like this outside of these four countries, that is on the top of Mont Orgueil Castle on the east coast of Jersey. Research by Johan A. Wikander, the outmost expert on this type of rockcarving in Norway, has established that most of these compasses has been carved by pilots on high points, at their lookouts. These were to be used when they saw a ship signaling for pilot. If the weather turned bad or snow- or rainshower came in, he would still have the bearing for the ship. These compasses are around a foot wide (smallest 17 cm, biggest 68 cm) with different layouts and use of symbols for north an east.	
12	<u>Polish Shiplovers' Club:</u>	Poland	The Polish Shiplovers' Club for for enthusiasts of merchant vessels and naval ship of Poland. In addition, the maritime museum is in Gdafsk and another one in Szczecin, with several further branches, They also have a Naval Museum in Gdynia with its museum-ship 2nd WW, British built Polish Navy destroyer Blyskawica.	<b>includes such items as lighthouses and museum-ships, the tall-ship Dar Pomorza, and collier Soldek.</b>
13	<u>Central Naval Museum Submarine:</u>	Russia	The Central Naval Museum in St. Petersburg, Russia, is the home of the Submarine D-2. It is one of the first submarines built in Soviet era. It was put into service in 1931. It is a historical memorial	



	<p><u>Russian Naval History - The History of Russian Navy:</u></p>		<p>of Russian navy and submarine building</p> <p>The Crimean War persuaded all maritime powers that sailing ships must be converted to steam power for a nation to secure its waters. By the end of the war Russia found itself almost defenceless at sea. The Black Sea Fleet had been destroyed; in 1856, the Baltic area was guarded by a single screw-propellered ship of the line, the Vyborg. The English had 30 ships with screw propellers and the French, eighteen. The Russian fleet required new ships with technological advancements in nautical design, new commanders, and newer, better methods for attracting and training promising officers. This led to The Ironclads. Visit this site and learn much more about Russian seafaring.</p>	
14	<p><u>Goteborgs Maritima Centrum: Gothenburg</u></p> <p><u>Kalmar Maritime Museum: (Kalmar Sound)</u></p>	Sweden	<p>Gothenburg inner harbour was once a major center of trade, is still fine harbour where traditions of the city still live on. No where is this more apparent than at Gothenburg's Maritime Center</p> <p>Formed in November 28th, 1942. the Museum is today one of the Sweden's more interesting smaller maritime museums formed with the aim of collecting objects and memorabilia connected to the shipping in Kalmar Sound.</p> <p>The Maritime Museum in Sweden, was openend 28th June 1997 by His Majesty King Carl XVI Gustaf. The Museum is in the town of Karlskrona. The Museum has a long tradition stretching back to 1752, when Adolf Fredrik, the then King of Sweden decreed, that a Ship's Model Room be established in Karlskrona, and ever since the</p>	<p>where a quantity of "antique" ships are located today at one of the largest maritime museum in the world.</p>



			historical ship as regards line, hull, and rigging. Those who are familiar with Latin can easily translate the name into "New Earth," which is a suitable name, as this part of Eriksberg, where the slipway is situated on refilled land. There is much to learn through interesting pictures and exciting reading.	
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### *3. Definition Note*

#### **Definition Note - Maritime Resource Centre** – Prepared by CERE (16<sup>th</sup> April 2004)

The Maritime Resource Centre is envisaged as a dynamic Centre of Learning and Discovery focussed on the maritime world where visitors, both children and adults, will participate in a journey that explores, and helps them understand, the maritime world.

The Centre will be a broad-spectrum Resource Centre accommodating many components and players within the maritime world on a level platform. These include: the Navy and Coast Guard, exploration agencies, the shipping, shipbuilding and port industry, the fishing industry, research institutions and universities, non-governmental organisations protecting the marine ecology and human resources including seafarers and fisher folk, who will all come together to present varied experiences and aspects of the marine world.

The entire maritime world can be explored through a series of interactive displays, audio-visual aids and tactile exhibits that would take a visitor on a journey that has been conceptualised with the following components:

- Maritime history of the world and India
- History of shipping and modern shipping, including Commerce and Trade
- Ports, Docklands and Mumbai as a port city
- The role of the Navy and Coast Guard
- Marine Ecology
- Explorations and Research
- Man's Relationship with the Sea
- Environmental Issues and Pollution

The various partners will contribute with expertise and resources as appropriate within this holistic view of the maritime world.

Broadly, the main physical components of the Resource Centre include:

- Exhibition Halls and Galleries.
- Information Centre – a large database that contains within it a career cell, legal cell and business information dissemination cell.
- Research Centre - conducts independently funded research projects related to the maritime world.
- Awareness and Outreach Centre - conducts lectures, workshops, as well as develops resource kits for school children.
- Audio-visual Room or Mini Auditorium - for lectures, screenings, workshops.
- Service Centre – small Café and Souvenir shop.

The Centre will be:

- Vibrant, interactive and evolving, with changing exhibits and new events so as to keep it relevant.
- Planned in a phase-wise manner so that it grows from a Centre for Awareness and Outreach to a comprehensive Maritime Resource Centre for the city.
- Made self-sustainable with income-generating cells to balance the overall administrative cost structure of the Centre.

### Role of the Vasant J. Sheth Memorial Foundation

The present role of the Vasant J. Sheth Memorial Foundation has been to

- (i) take a pioneering initiative to commission a feasibility study on establishing a Maritime Resource Centre in Mumbai, and
- (ii) help formulate and define the scope of such a Centre.

By endorsing and being the catalyst for a Maritime Resource Centre, VJSMF has emphasized its commitment to raising awareness of the maritime world. The Vasant J. Sheth Memorial Foundation will be given due credit for having initiated the process and also representation in the Maritime Resource Centre.

At this initial stage of the project, the estimated capital outlay for establishing the Maritime Resource Centre is approximately Rs. 7.5 Crores. Efforts will be made to raise the required funds from both public and private sectors. Some of the agencies identified for fundraising include concerned players such as the Mumbai Metropolitan Regional Development Authority (MMRDA), ONGC, Shipping and Shipbuilding Companies, local Trusts and Foundations at a national level and the European Union and International Maritime Museums at the international level.

Moreover, in order to make the Maritime Resource Centre self-sustaining, components such as the Information Centre and Research Centre will make valuable contributions to the shipping industry and maritime world, and thus be able to generate an income that could support basic administrative costs of the Centre.

The future role of the Vasant J. Sheth Memorial Foundation after the feasibility study has been completed is hoped to be as follows:

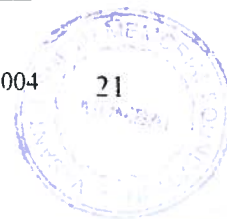
- (i) Provide guidance, experience and direction at each phase while formulating strategies to develop the MRC, for example by identifying possible donor agencies through professional associations.
- (ii) Grant financial support of approximately Rs. 5 lakhs to CERE towards Phase I of the Execution Phase. A detailed project proposal of the same will be submitted in August 2004 prior to completion of the ongoing feasibility study in October 2004.
- (iii) Partner with CERE on executing and establishing the MRC over the next 3 years to the extent VJSMF deems appropriate, for example, being party to an Memorandum of Understanding (MoU) with collaborating partners such as MbPT or electing a Foundation Trustee to be on the board of a new Governing Body or Council when the MRC becomes an independent establishment.
- (iv) Donate in-house exhibits or resources, if possible, to the MRC upon establishment.



4. List of resource persons

**List of Resource Persons Contacted**

No	Name	Designation, Organisation	Contact Address	Details
1	Anirudh Paul	Architect	Acting Director, Kamla Raheja Institute of Architecture, Juhu, Mumbai	Conducted research on the redevelopment of the port and dock lands of Mumbai
2	Aparna Mane	Senior Curatorial Assistant	Prince of Wales Museum, Mumbai	Involved with the Museum's collection
3	Arvind Adarkar	Architect and Activist	Academy of Architecture, Mumbai	Involved in the redevelopment of the mill lands of Mumbai
4	Bandana Singh	Curator, Marine Museum, Nhava	T.S.Rahaman, Nhava Sheva	Curator of the Marine Museum; coordinates visits and programmes for school children
5	Barbara Panvel	Environmentalism Centre for Holistic Studies (India) UK Network	5 Pear Tree Grove Shirley, Solihull West Midlands B90 1LL	Extensive contacts and network with environmental agencies worldwide
6	Bittu Sehgal	Environmentalism	Sanctuary Asia, Mumbai	Actively involved in several environmental conservation initiatives, incl Kids for Tigers
7	Brig. Adhikari	Member Secretary	T.S.Rahaman, Nhava Sheva	Actively involved in training of mariners
8	Captain Rajan Vir	President, Indian Maritime Foundation	1/402, Gera Gardens, Koregaon Road Pune	President of the IMF, an NGO spreading awareness on all maritime issues
9	Cdr L.K.Sharma	Member, Governing Council	Sir Mohammed Yusuf Seamen Welfare Foundation, Jahaz Mahal, Worli	Actively involved in training of mariners.





10	Chandra Iyengar	Secretary, Dept. of Technical & Higher Ed, and Tourism, GoM	Manatrlaya Annexe Bldg, 5 <sup>th</sup> Floor, Mumbai	
11	Comd. A.P.S.Talwar	Manager, Human Resource Planning/ Development	Naval Dockyard, Shahid Bhagat Singh Road, Mumbai 400001	Coordinates the Naval Heritage Walk and the archives in the "Motivation Hall"
12	Comd. Sonak	Indian Coast Guard, Western Region	Prabhadevi Post, Worli, Mumbai 400025	In-charge, Search-and rescue operations, awareness and community programmes of the Coast Guard
13	Commander Narayan	Curator, Maritime History Society	INS Kunjali, Navy Nagar Mumbai 400001	Curator of the MHS, a Society that supports research and spreads awareness on maritime heritage
14	Commodore S.Pradeep	Indian Coast Guard, Western Region	Prabhadevi Post, Worli, Mumbai 400025	Actively engaged in protecting the country's marine environment
15	Deepak Apte	Conservation Officer, Course Coordinator, BNHS	Hornbill House, Shahid Bhagat Singh Rd, Mumbai 400001	Marine biologist, Expertise in marine ecology; has written a "Book of Indian Shells"
16	Dr.Balyan	Director, H.R. ONGC	ONGC Bldg, Ali Yavar Jung Marg Bandra East, Mumbai 400051	Actively engaged in off-shore explorations; supporting the Vikrant Naval Museum
17	Dr.Govindan	Deputy Director, Regional Centre of the National Institute of Oceanography	Versova Mumbai	Actively engaged in research and consultancy projects in the marine environment
18	Dr.Rautela	Director, Nehru Science Centre	Nehru Science Centre, Worli, Mumbai	In charge of Regional Science Museums - expertise in

				establishing interactive museums
19	Erach Bharucha	Director, Institute of Environmental Education and Research	Bhartiya Vidyapeeth, Pune	Has developed post-graduate courses in marine ecology and environment
20	Fleur D'Souza	Professor of History	St.Xavier's College, Mahapalika Marg, Mumbai 400001	History professor with particular interest in maritime history
21	George Ooman	Indo-German Shipping	Sapt Building, Ballard Estate, Mumbai	Several decades of experience and contacts in the maritime world
22	Gordon Rankine	Beckett Rankine Partnership	London, UK	Head of large Consulting group, with historic links to Mumbai Port
23	Harshad Bhatia	Architect and Urban Designer	Fort, Mumbai	Actively involved in conservation projects; working on the proposed Arts and Crafts Centre at Love Grove Complex, Worli
24	Heta Pandit	Conservation activist and author	Goa Heritage and Action Group, Goa	Heritage activist and author; helped set up the Marine Museum at T.S Rahaman
25	Jacqueline Tellis	Education Coordinator, Reef Watch Marine Conservation	14-C, Boran Rd, Off Hill Road, Bandra West, Mumbai 400050	Engaged in training and awareness on marine conservation issues
26	John C. Alexander	Vice President - Business Development, J.M.Baxi and Co.	Sapt Building, 2 <sup>nd</sup> Floor, 18, J,N.Heredia Marg, Ballard Estate, Mumbai	Experience and insight into the shipping industry, its structure and functioning
27	Kedar Gore	Project Coordinator, Vasant J.Sheth Memorial Foundation	Energy House, Dr.D.N.Road, Mumbai 400001	Coordinates the Foundation's programmes, that are focussed on the maritime world: health, education, awareness and



				marine ecology
28	Kerban Anklesaria	Advocate	Mumbai	Legal advice for MoU's and Trust Deed
29	Mr. A.K.Bal Mr. S.M.Patil Mr. R.T.Kadam Mr. Patwardhan	Deputy Chairman Estate Manager Chief Engineer Deputy Ch. Engineer	Mumbai Port Trust	
30	Mr. A.P.Mago	Commissioner, Mumbai Metropolitan Regional Development Authority	Mumbai Metropolitan Regional Development Authority Bldg, Bandra Kurla Complex, Bandra East, Mumbai 400051	Active support for development, redevelopment, restoration, in the city. Funding for projects.
31	Mr. Bakshi, IAS	Chief Executive Officer, Maharashtra Maritime Board	Indian Mercantile Chambers, 3 <sup>rd</sup> Flr, 14, R.Kamani Marg, Ballard estate, Mumbai	Managing small ports in Maharashtra
32	Mr. Bundeale	Assistant Fisheries Development Officer	Taraporewala Aquarium, Marine Drive	One of the few sites in India with live marine and aquatic exhibits
33	Mr. Gorakhmogh, IAS	Commissioner of Fisheries, Maharashtra State	2nd Floor, Admin Bldg, Opp Chetna College, Bandra East, Mumbai 400051	Undertaking redevelopment of Taraporewala Aquarium
34	Mr. Khenand	Curator, Nehru Science Centre	Nehru Science Centre, Worli, Mumbai	Curator of one of the most dynamic and interactive museums in Bombay
35	Mr. Menon	India- Representative of Beckett Rankine	Prabhadevi, Mumbai	Several years of experinec in Indian shipping sector
36	Mr. P. Basu	Public Relations Officer	Nehru Science Centre, Dr.E.Moses Road, Worli,	Actively involved in NSC's programmes and projects

			Mumbai	
37	Mrs. Kakotkar	Principal and teacher	J.S.Municipal School, Nana Chowk Mumbai	
38	Nina Sabnani	Vice Chairperson, Communication Design, NID	National Institute of Design, Paldi, Ahmedabad	Consultancy for exhibition design
39	Noshir Pardiwala	Former representative, International Maritime Organisation, and ILO (Geneva)	7A, Jiwan, L.D.Ruparel Marg Malabar Hill, Mumbai 400006	Actively engaged in improving maritime personnel and training standards, raising awareness regarding maritime issues
40	Pankaj Joshi	Conservation architect	Mumbai	Conducted research on the redevelopment of the port and dock lands of Mumbai
41	Persis Jamas	Teacher	Alexandra Girls English Insitution	Interested in environmental education
42	Rajiv Mishra	Architect and Planner	Sir J.J.College of Architecture, Mumbai	Involved in several studies on Mumbai city and its redevelopment
43	Rajiv Pilo	Administrator	Prince of Wales Museum, Mumbai	Formerly with the Navy
44	Rambhau Patil	Chairperson	Macchimar Association	Leader of fish workers union; environmental activist
45	Ranabir Charvarty	Reader, JNU University	JNU, New Delhi	History professor with particular interest in maritime history
46	Rani Jadhav, IAS	Chairperson, Mumbai Port Trust	Port House Ballard Estate, Mumbai 400001	Interested in setting up a Maritime Museum
47	Rashid and Elizabeth Yusuf	Chairman, Sir Mohammed Yusuf Seamen Welfare Foundation	Sir Mohammed Yusuf Seamen Welfare Foundation. Jahaz Mahal, Worli	Have set up a Marine Museum at Nhava; conduct training for mariners at T.S.Rahaman. Nhava
48	Revati Hardikar	Supt. Engineer.	Mumbai Port	Heads the Technical



		Design	Trust	archives at MbPT
49	Rohini Ooman	Educationist	Mumbai	Actively involved with several schools and teachers
50	Ruby Maloni	Reader, History Department	University of Mumbai, Kalina	History professor with particular interest in maritime history
51	Sachin Gupta	Group General Counsel, IL&FS	The IL&FS Financial Centre, Bandra-Kurla Complex, Bandra (E), Mumbai 400051	Involved in large infrastructure projects, incl shipping and ports
52	Sudarshan Rodrigues	Reef Watch Marine Conservation	14-C, Boran Rd, Off Hill Road, Bandra West, Mumbai 400050	Projects in-charge - coordinates and conducts marine conservation initiatives
53	Vikas Dilawari	Conservation Architect	273/3, Jawahar Nagar, Goregaon West, Mumbai	Actively involved in restoration projects across India
54	Prashant Mahajan	Director, BNHS Conservation Education Centre	Film, City, Goregaon East	Set up the CEC, and the Nature Information Centre, Borivali. Expertise in setting up learning Centres
55	Shubhalaxmi	BNHS Conservation Education Centre	Film, City, Goregaon East	Manages activities and programmes of the CEC, Goregaon.
56	Laxmikant (Amar) Deshpande	Education Officer, Godrej Marine Ecology Park	Vikhroli	Manages the conservation and education
57	Mr.Purohit	Addl. Chief Engineer, Mumbai Port Trust	Port House, Ballard Estate	Acting Chief Engineer, MPT
58	Sanjay Ubale	Secretary, Special Projects, Government of Maharashtra	Mantralaya, Mumbai	In charge of projects for redevelopment of Mumbai
59	Pradeep Kumar	Director, Ministry of Shipping	Sansad Marg, New Delhi	
60	Col.Sudheer	Convenor,	Kalina, Mumbai	Expertise in

	Savant	Mumbai Festival		organizing festivals such as the Mumbai Festival, Ambo Festival, Sindhudurg Festival, etc
<b>Persons Approached for Project Patrons</b>				
1	D.T.Jospeh	Secretary, Ministry of Shipping	Sansad Marg, New Delhi	Has been with MPT, and closely associated with Mumbai, as well as marine environment issues
2	President A.P.J.Kalam	President of India	Rashtrapati Bhavan, New Delhi	As a scientist and champion of children, the President would be an ideal Patron for this project.
3	Ratan Tata	Chairman, Tata Group of Companies	Bombay House, Mumbai	The Tat's have an established philanthropic tradition, especially in the city of Mumbai
<p>Apart from these persons, the Chairperson of the VJS Foundation, as well as a key representative from the side of one of the partners, such as the MPT Chairperson, Mrs. Rani Jadhav, would also be Patrons of the MRC project.</p>				



5. . Letter of Intent from MPT

मुंबई पोर्ट ट्रस्ट  
**Bombay Port Trust**

No.CE.CF.226(DEV.) 284

The Civil Engineering Department,  
3<sup>rd</sup> floor, Port Bhavan,  
S.V.Road, Ballard Estate,  
Mumbai - 400 001.

11 3 APR 2004

To,

Miss Tanya Mahajan,  
Centre for Environmental Research and Education,  
Jaganath Shankar Seth Chowk Municipal School,  
3<sup>rd</sup> floor, Room No.78, Nana Chowk,  
Mumbai - 400 007.

Dear Madam,

Sub : Setting up of a Maritime Resource Centre  
in Carnac Bunder Pumping Station Building

Ref : Your letter dated 6.3.2004.

I am hereby directed to convey "in principle" approval for setting up of maritime resource centre in the existing building of Carnac Bunder pumping station at Carnac Bunder P.D'Mello road. You are requested to submit your detailed project report covering the related aspects of establishing the centre at this site.

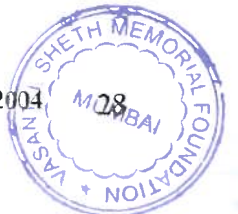
Your faithfully,



(M.V. Patwardhan)  
Dy. Chief Engineer (G)

c.c. to The Sr. Ex. Engineer, GWSD

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7-Apr-04



**BRIEF NOTE ON HYRDAULIC ENGINE HOUSE**  
**at SHAHID BHAGAT SINGH MARG, YELLOW GATE**

1. **Introduction** : I inspected the premises on the 19<sup>th</sup> of March 2004, located on Shahid Bhagat Marg at the request of Miss Tanya Mahajan from CERÉ. The purpose of the visit was to see the condition of the structure and assess its reuse potentials.

The property belongs to the MPT (Mumbai Port Trust) and is presently a redundant building that was slated for demolition to give way to a police station.

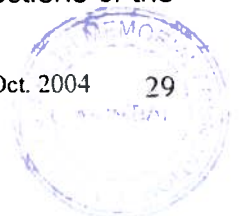
2. **Cultural Significance** : This building though not listed as per the Heritage Regulations of Greater Mumbai, 1995, certainly merits listing for its industrial architecture & archaeological value, scientific achievements and technological skills and scale. Such buildings are like the living pages of history and it is essential that they do not perish. The age of this building would approximately be slightly more than a century old i.e., it was built roughly around the 1890's.

3. **Location** : The building is located near the Yellow Gate and faces the docks. The building is setback from the road and has a deep foreground of open space. The building is hidden from the main road and not prominently visible from here. However, from the docks behind it has a majestic look. It is an ideal location for a maritime resource centre, very close to the heart of the city, in a historic building and overlooking the port.

4. **Description** : The building consists of three large hall-like spaces namely, the engine room (54' x 54'), boiler room (57' x 55'.7"), which are both predominantly ground storey structures with corrugated GI sheet resting on slender steel trusses in a hip profile. The third room is the coal room (55'.7" x 33') on the south side which has a high, flat ceiling. This hall has two floors above which perhaps would have been the residential accommodation of the custodian or the caretaker. The floors above have verandahs on two sides namely the west and south for protection against the sun and rain and on the east it had a dog-legged staircase which has been demolished. A broken spiral cast-iron staircase is the only link with the floors above.

The building becomes a landmark because of its tall accumulator tower measuring 13' 4" x 11' 10" and roughly as tall as a seven storied building. It has water stored in it. This ashlar masonry tower has a fine circular bas-relief with interesting motifs. The structure used to have a tall chimney on its east façade, which has been demolished.

5. **Construction**: The building is constructed of local basalt stone or trap stone walls in lime mortar with a battlement type of parapet. The structure has steel beams resting on circular hollow cast-iron columns and externally on 2' to 2'.6" wide load bearing walls. The boiler room on its West facade has a series of arches, where as the internal ashlar walls are predominantly plastered. The east façade on its ground floor has segmental windows, which have been sealed. The coal room has steel beams with steel joist having lime concrete slab above. Some of these sections of the





slab are in poor or distressed condition. The floors above the coal room are in teakwood sections, with lime concrete above. Some of these local members have decayed and need replacement.

The engine room space is comparatively the most decorative due its carved/pierced stone work in its window parapet with its corbel cornice which supported a cast-iron water tank which has been demolished. The roof work is corrugated GI sheets resting on very cleverly designed and detailed slender steel trusses with built in cast iron gutters.

Originally the verandah on the 1<sup>st</sup> floor on the south and west had teakwood struts and boarding which have been repaired by reconstructing with steel beams and joists with ladi coba finish.

**6. Past interventions:** The compound has a few ground storey structures, an underground water tank, etc that have been added in its front open space. The rear open space seems to have been probably reduced to make a wide road for the port and hence a new tall compound wall very close and even touching the structure is evident.

The staircase perhaps was demolished for the widening of the road or as a result of neglect and decay.

The NW corner has a large shed like extension with a tall height space, which mars the original ambience and grandness of this building. On the northern external side of this building is a modern RCC extension flanking the external wall. Ideally this accretion should be removed too.

The teakwood struts of the verandah on the 1<sup>st</sup> floor on the south and west have been reconstructed with steel beams and joists with ladi coba finish. The corner cantilevered members had originally a diagonal strut but this has been now replaced by an additional vertical support which mars the ambience of the building.

Some of the hall spaces have been partitioned with brick walls subdividing the hall insensitively in two parts.

The cast-iron tank from engine room has been removed.

There is a likelihood that new slabs resting on steel beams have been added in the basement area of the engine room as the steel is of a different variety here.

The chimney that existed on the central part of the East façade is demolished. The verandahs are reconstructed too in steel and concrete. Many of the windows are sealed permanently.

The building is not in use for the past few years and is a redundant building slated for demolition.



**7. Present Condition:** The structure, prima facie, as per the visual survey seems fair. No distress signs or cracks of any kind were noticed on any of the walls. There are localized defect areas, which can be easily be repaired. Such localized defects do not make the entire building unsafe, requiring demolition, as was under consideration. The building suffers from lack of maintenance, neglect and in-sensitive repairs and additions.

The steel trusses and cast-iron gutter look fair. There are however, localized areas that are under distress like: in the coal room, there is a pocket of joists and concrete above that require urgent repairs or reconstruction in that local area. The same stands true for the wooden joists and boarding/flooring on the 1<sup>st</sup> and 2<sup>nd</sup> floors.

It is only the east façade verandah that is very dilapidated and needs to be urgently dismantled and reconstructed.

The internal walls require lime mortar re-plastering and the loose pointing work needs to be redone in lime mortar. The wooden stairs and the tall slit window shutters in the accumulator tower need urgent repairs. The flat terrace above is not surveyed as yet.

The engine room has a lot of debris, which should be removed and carted away.

The internal exposed ashlar walls are painted yellow in the engine room.

The teakwood windows and doors are badly damaged more on account of neglect and perhaps vandalism.

The top two floors and flat areas were not surveyed and hence cannot be commented on in detail, however prima facie they look easily repairable.

A lot of vegetation growth was seen on the building façade which is not a good sign and can result in further damage to the fabric, unless treated immediately.

## **8. Recommendations**

The following are the general recommendations:

- Remove temporary awnings, vegetation growth and the trees growing very close to the building
- clear the debris and clean the site
- demolish the sealed portions of the opening and allow cross ventilation
- clean the wells and cordon them
- paint all steel works with anticorrosive paints
- remove all partitions
- remove the paint from stone walls
- clean the building with mist cleaning, re-plastering the walls in lime mortar, re-pointing the joints in lime mortar
- carpentry repairs to teakwood doors, windows, boarding, struts etc.
- Reconstruction of East verandah, the dog leg staircase.



- Repairs to the cast iron staircase balustrades
- plinth protection
- modification of the high stone wall or making it like a picture window,
- new appropriate flooring within
- cobbled paved areas outside with green patches

**9. Adaptive reuse:** This is an excellent building in terms of its potential for reuse, as presently it is lying vacant. The large volume of its spaces gives it a monumental scale and offers flexibility that is essential for display. It is a very good location for a maritime resource centre, so close to the port and the centre of the city with good parking and open-spaces, which have the potential to house a cafeteria and landscaped forecourt and garden. The engineering skills and technical achievements of the building itself warrant display.

**10. Probable Costing for repairs:** Based on the visual survey and seeing the potential of the museum, a tentative block costing is as follows:

a) Civil works (specialized and non specialized)	: Rs 10 lakhs
b) Completely external tubular steel scaffold for few months	: Rs 7.5 lakhs
c) Balcony repairs	: Rs 10 lakhs
d) Complete roof repair	: Rs 15 lakhs
e) Fabrication work	: Rs 10 lakhs
f) Plinth protection	: Rs 5 lakhs
g) Carpentry	: Rs 17.5 lakhs
h) New staircase	: Rs 3.5 lakhs
i) Plumbing & toilets	: Rs 5 lakhs
j) Landscaping	: Rs 7.5 lakhs
k) Painting Polishing and cleaning of the façade	: Rs 10 lakhs
l) New appropriate flooring	: Rs 5 lakhs
m) Electrical	: Rs 25 lakhs
n) Fixtures	: Rs 10 lakhs
o) Part Air Conditioning	: Rs 15 lakhs
p) Miscellaneous	: Rs 15 lakh
<b>Total</b>	<b>: Rs 171 lakhs</b>
Add Consultants fees @10%	: Rs 17 lakhs
Add Contingencies @ 15%	: Rs 25 lakhs
<b>Grand Total:</b>	<b>: Rs. 213 lakhs or</b>
	<b>: Rs 2.13 crores</b>

Note : office interiors, display cases, exhibition cost are not included

## 11. Conclusion:

It is hoped that this redundant, non-listed building will be given a new lease of life and that it can set a trend for other such heritage buildings to be adapted for reuse.

Signed.

Vikas Dilawari



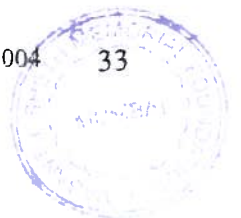
7. Proposal for exhibition design prepared by Mr. Samir Parker

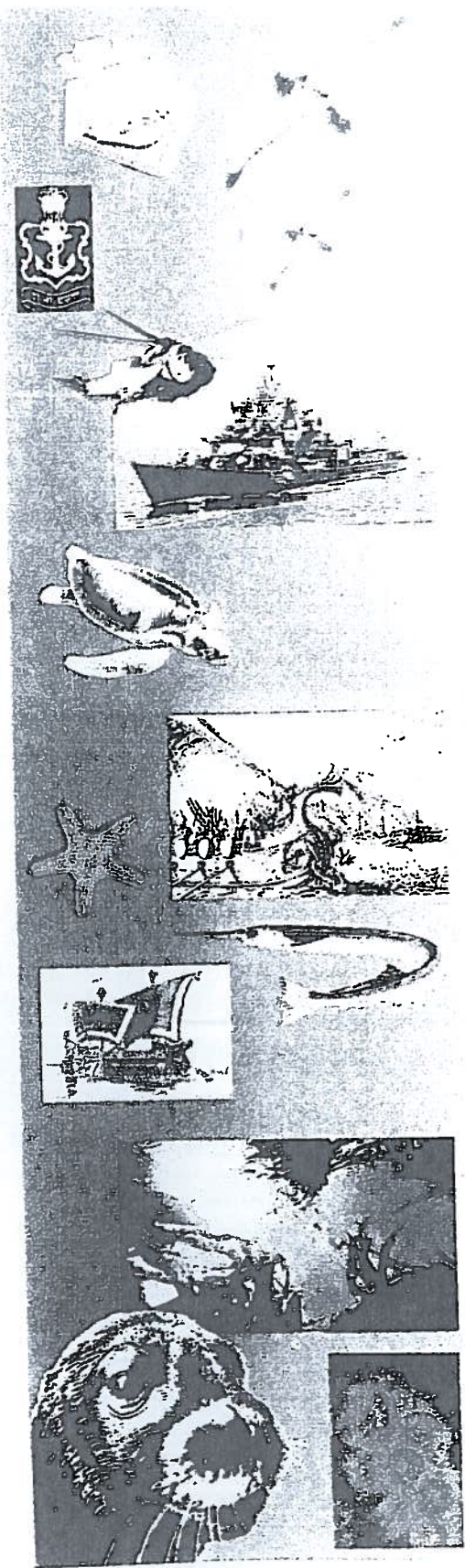


# MARITIME MUSEUM

Mumbai Port Trust  
Carnac Bandar

PRELIMINARY PROPOSAL  
& COST ESTIMATE





## PROPOSED SPACE USAGE

### ENGINE ROOM

- Marine environment
- Overview of oceans, marine life, flora, mammals local and other
- Coastal environments, Fishing, Conservation
- Scenographed through-  
Graphic panels, Interactive Touch Screens, Models
- Themed Aquarium

### BOILER ROOM

- Sea-faring
- History, Trade, Sea battles
- Indian Navy- history and present
- Scenographed through-  
Graphic panels, Models, Prototypes,
- Scale replica of a sail boat/ ship. Complete rigging etc.
- Could be mechanized.

### COAL ROOM

- Audio Visual
- 5-10 Computers with multimedia
- Resource of VCD's DVD's. Marine, naval etc.
- Can be individually accessed or shown as screenings.

### FIRST FLOOR ROOM

- Archives, Reading room, Souvenirs
- Storage for drawings, maps, publications

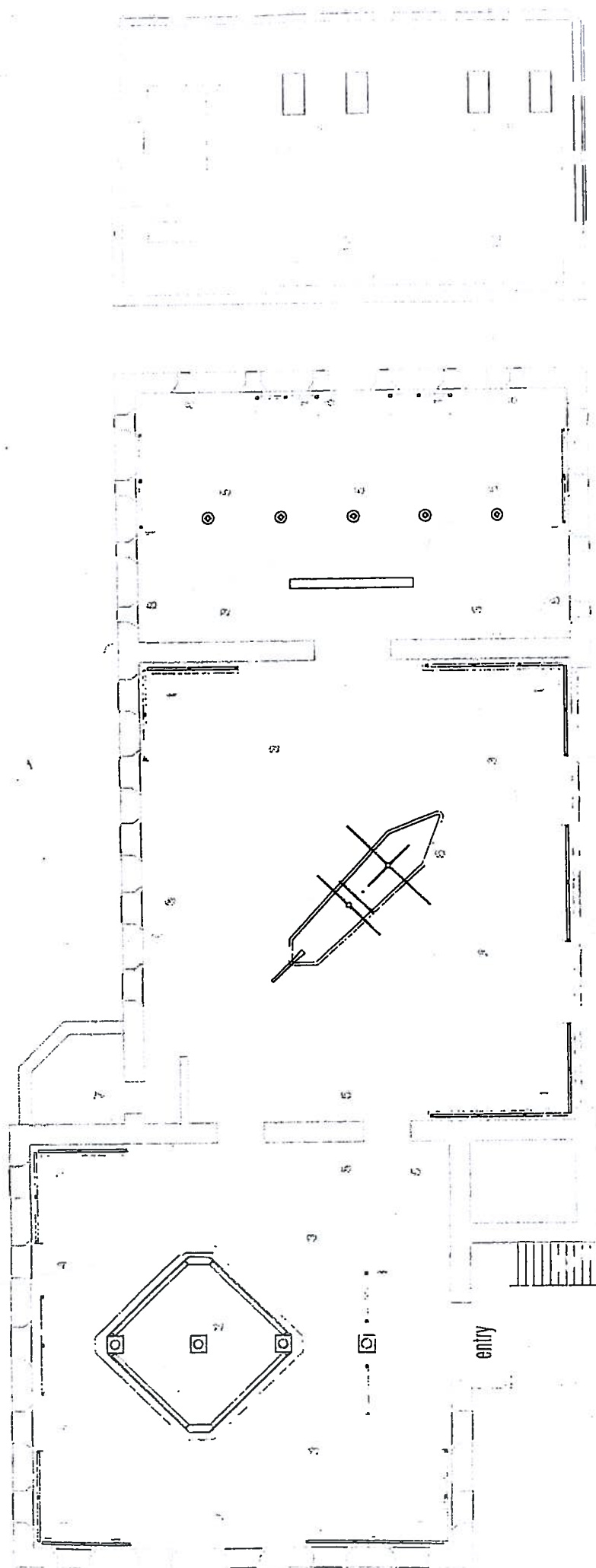
### BASEMENT

- Storage, Aquarium equipment

PRELIMINARY COST ESTIMATE - Maritime Museum, Carnac Bandar					
S.No.	ITEM	QUANTITY	UNIT	RATE	AMOUNT
<b>1</b>	<b>INTERIOR WORKS</b>				
01	Interior Civil Work- Including openings between main spaces, stair widening etc.			LS	400,000.00
02	Fenestration Repairs Including refinishing of woodwork, fixing glass/blinds etc.			LS	250,000.00
03	Lighting & Electricals Including wiring, switching & JB's. Not including main DB Ambient light fixtures: halogens, CFL's & tubes Task light fixtures: Dichroic type, par lamps, specialised type Ceiling, wall mounted & exhaust fans	10000	sq.ft	250	2,500,000.00
		75	nos	1000	75,000.00
04	Toilets	150	sq.ft	1500	225,000.00
05	Pest Control	14000	sq.ft	20	280,000.00
<b>2</b>	<b>MUSEUM PRODUCTION</b>				
01	Content Development Note: This will include hiring/appointing people			LS	400,000.00
02	Graphics & Signage Development Including cost of photography, processing, computers & 2 full time graphic designers for 3 months			LS	600,000.00
<b>3</b>	<b>SPACE WISE ANALYSIS</b>				
01	<b>ENGINE ROOM</b>				
a	Printed graphic displays Includes cost of paper, printing, lamination, backing & structure	750	sq.ft	300.00	225,000.00
b	Central Aquarium Includes cost of glass structure, pumps, filters, tanks etc.			LS	2,500,000.00
c	Interactive Displays	2		250,000.00	500,000.00
d	Models, Display stands, Seating			LS	250,000.00
02	<b>BOILER ROOM</b>				
a	Printed graphic displays	750	sq.ft	300.00	225,000.00
b	Central Interactive Working Prototype			LS	500,000.00
c	Models, Display stands, Seating			LS	400,000.00

S.No.	ITEM	QUANTITY	UNIT	RATE	AMOUNT
03	COAL ROOM				
a	Printed graphic displays	300	sq.ft	300.00	90,000.00
b	AV units	5		100,000.00	500,000.00
c	Seating & Storage				75,000.00
04	FIRST FLOOR ROOM				
a	Printed graphic displays	300	sq.ft	300.00	90,000.00
b	Display/Storage	250	sq.ft	1,000.00	250,000.00
c	Seating & Tables				40,000.00
d	Souvenir Display & counter				30,000.00
05	BASEMENT				
a	Partitions & Storage	400	sq.ft	750.00	300,000.00
	Sub Total				10,705,000.00
	15% Contingency				1,605,750.00
	<b>TOTAL</b>				<b>12,310,750.00</b>
NB	This amount does not include surface finishes. Flooring + Wall finish will be 18-22 lakhs.				
	This analysis includes a human resource cost for content and graphic development,				
	It does not include the human resource, and training cost of the managerial staff.				
	This amount does not include a design consultants fee.				





GROUND FLOOR PLAN

FIRST FLOOR ROOM

- 7. Graphic Panels
- 8. Seating
- 9. Souvenir Counter
- 10. Storage

COAL ROOM

- 1. Graphic Panels
- 3. Display Case
- 5. Seating
- 8. AV Unit

BOILER ROOM

- 1. Graphic Panels
- 3. Display Case
- 5. Seating
- 6. Scaled Prototype of Sailboat
- 7. Toilets

ENGINE ROOM

- 1. Graphic Panels
- 2. Central Aquarium
- 3. Display Case
- 4. Interactive Kiosk
- 5. Seating



MARITIME MUSEUM  
SCHEMATIC DRAWING



8. Projected Annual Administration and running costs for the MRC

1 Salary Structure

S.No	Component	Post	Salary p.m	No.	5% increase p a on base year				
					1st yr	2nd Year	3rd year	4th Year	5th year
A	MRC Director	Overall Coordination	25000	1	300000	315000	330000	345000	360000
B	Research cell	principal researcher	18000	1	216000	226800	237600	248400	259200
		asst researchers	12500	2	300000	315000	330000	345000	360000
		office assistant	4000	1	48000	50400	52800	55200	57600
C	Centre Admin	Principal Administrator	18000	1	216000	226800	237600	248400	259200
		Asst. Administrator	12500	1	150000	157500	165000	172500	180000
		Accounts assistant	7500	1	90000	94500	99000	103500	108000
		office assistant	4000	1	48000	50400	52800	55200	57600
D	Library	Principal librarian	12000	1	144000	151200	158400	165600	172800
		asst libraraian	8000	1	96000	100800	105600	110400	115200
E	Outreach Cell	principal coordinator	18000	1	216000	226800	237600	248400	259200
		asst coordinator	12500	1	150000	157500	165000	172500	180000
		office assistant	4000	1	48000	50400	52800	55200	57600
		<b>totals</b>		<b>14</b>	<b>2022000</b>	<b>2123100</b>	<b>2224200</b>	<b>2325300</b>	<b>2426400</b>

First year total say 2500000



Maintenance Costs:

2	Running Costs		5% increase p.a on base year				
		Details	1st yr	2nd Year	3rd year	4th Year	5th year
A	MRC Director	tel, stationery, etc	50000	52500	55000	57500	60000
B	Research Cell	tel, stationery, etc	50000	52500	55000	57500	60000
C	Centre Administration	tel, stationery, etc	50000	52500	55000	57500	60000
D	Library	tel, stationery, etc	50000	52500	55000	57500	60000
		workshops, lectures	50000	52500	55000	57500	60000
		publicity material	50000	52500	55000	57500	60000
E	Outreach Cell	tel, stationery, etc	50000	52500	55000	57500	60000
	Property tax	@Rs 2/sq.ft per month	480000	504000	528000	552000	576000
	Electricity	approx Rs.20000 per month	240000	252000	264000	276000	288000
	Water	approx. Rs 10000 per month	120000	126000	132000	138000	144000
	Upkeep and Cleaning	approx. Rs. 10000 per month	120000	126000	132000	138000	144000
	Annual repairs	approx Rs. 50000 p.a	50000	52500	55000	57500	60000
	Security	contract through agency (4 guards @ Rs. 4000 p.m)	192000	201600	211200	220800	230400
	Pest Control Service	@Rs.40000 p.a	40000	42000	44000	46000	48000
	Security Alarm Maintainance Service	@ RS. 12000 p.a	12000	12600	13200	13800	14400
	Fire Fighting Maint.	@Rs. 18000 p.a	18000	18900	19800	20700	21600
	Generator Maintainance	@Rs. 18000 p.a	18000	18900	19800	20700	21600
	Lift Maintainance	@Rs. 18000 p.a	18000	18900	19800	20700	21600
	Garden Maintainance	@Rs. 75000 p.a	75000	78750	82500	86250	90000
	Accounts & Audit Fees	@ Rs.50000 p.a	50000	52500	55000	57500	60000
	Legal Fees	@Rs 10000 p.a	10000	10500	11000	11500	12000
	Insurance of Bldg and Amenities	@60p/per month per Rs. 1000 insured value approx rs 30000 per month	360000	378000	396000	414000	432000
	AirConditioning Sevice and Maintainance	approx Rs. 10000 per month	10000	10500	11000	11500	12000
		<b>totals</b>	<b>2163000</b>	<b>2271150</b>	<b>2379300</b>	<b>2487450</b>	<b>2595600</b>
		first year total say	<b>2500000</b>				



## Capital Costs

### 3. Capital Costs

No	Component	equipment					
			1st yr	2nd Year	3rd year	4th Year	5th year
A	Research Cell	1 Computer system	50000	50000		50000	
		2 Office furniture	150000	20000	20000	20000	20000
B	Centre Admin	1 Computer system	50000	50000		50000	
		2 Office furniture	150000	20000	20000	20000	20000
C	Library	1 Computer system	50000	50000		50000	
		2 Office furniture	150000	20000	20000	20000	20000
		3 Books	100000	50000	50000	50000	50000
D	Outreach Cell	1 Computer system	50000	50000		50000	
		2 Office furniture	150000	20000	20000	20000	20000
E	Others	1 electronic security system	100000				
		2 Fire Fighting system	100000				
		3 Intercom system	100000				
		4 Generator	500000				
		5 Lift	750000				
		<b>Totals</b>	<b>2450000</b>	<b>330000</b>	<b>130000</b>	<b>330000</b>	<b>130000</b>
		first year total say	<b>2500000</b>				



9. Time frame for the establishment of the MRC

Time frame for the establishment of the Maritime Resource Centre (MRC)

No	Activity	Year 1				Year 2				Year 3				
		1 <sup>st</sup> Qtr	2 <sup>nd</sup> Qtr	3 <sup>rd</sup> Qtr	4 <sup>th</sup> Qtr	1 <sup>st</sup> Qtr	2 <sup>nd</sup> Qtr	3 <sup>rd</sup> Qtr	4 <sup>th</sup> Qtr	1 <sup>st</sup> Qtr	2 <sup>nd</sup> Qtr	3 <sup>rd</sup> Qtr	4 <sup>th</sup> Qtr	
1	Formation of structure for the MRC: MoU, trust documents, Management Structure, funding, etc	•	•											
2	Restoration of the building		•	•	•									
3	Development of content, story-line, display and exhibition components		•	•	•									
4	Establishment of the Library, Research Cell, Information Cell			•	•	•								
5	Building up of long term partnerships, artifacts collection and corpus funds			•	•	•								
6	Opening up of Gallery and Exhibition Spaces						•	•	•					
7	Outreach and Awareness Cell - lectures, workshops, seminars								•	•				
8	Self-sufficiency of research cell, library, information cell											•	•	•



## 10. Single page funding proposal for MRC

### Establishment of a Maritime Resource Centre in Mumbai



India has a coastline of 7,500 kilometers dotted with numerous maritime cities, a rich and exciting maritime history, and a vibrant and dynamic presence in the international shipping arena. If we are to awaken an interest in our maritime heritage and create awareness about the marine environment on a national scale, there exists a need to establish a *Centre of Learning and Discovery, focused on the maritime world.*

The *Centre for Environmental Research and Education, (CERE)* proposes the establishment of a Maritime Resource Centre in Mumbai. This Centre will be a broad-spectrum Resource Centre accommodating many components and players within the maritime world on a level platform. These include: the Navy and Coast Guard, the shipping, shipbuilding and port industry, agencies involved in energy and oil exploration activities, the fishing industry, research institutions and universities, non-governmental organisations protecting the marine ecology and human resources including seafarers and fisher folk. The partners will contribute to bring in their expertise and resources and together create a holistic representation of the maritime world.

The Centre will include the following components:

- Maritime history of the world and India
- Commerce and Trade, the history of shipping

- Ports, Docklands and Mumbai as a port city
- The Navy and Coast Guard
- Marine Ecology
- Explorations and Research
- Man's Relationship with the Sea
- Environmental Threats and Pollution

Within the historic fabric of Mumbai, India's premier port city, a building has been identified from amongst the properties of the *Mumbai Port Trust*. It is an old *hydraulic engine house, built in the year 1904 at Carnac Bunder*, and is ideally suited for the adaptive re-use to a Maritime Resource Centre.

It is proposed to establish the Maritime Resource Centre *in phases over a period of three years*, starting with the restoration of the building, while also developing the content of the display and exhibition, and setting up the various cells such as the Library, Research Centre, Information Centre, etc, that will function autonomously within the main Centre, and contribute to its income.

The estimated budget for the establishment of the Maritime Resource Centre is *Rs. 4.75 crores*. This includes the restoration of the building, content development and design, and capital and running costs for the first year.

*Centre for Environmental Research and Education (CERE)*

April 2004



*11. Detailed funding proposal for MRC*



*Establishment of a  
Maritime Resource Centre  
in Mumbai*

*Centre for Environmental Research and Education (CERE)*

*April 2004*



### Executive Summary

- Title of Project: Establishment of a Maritime Resource Centre in Mumbai
- Aims and Objectives: - To establish a Maritime Resource Centre in Mumbai  
- To establish partnerships with organisations, institutions and individuals who will contribute expertise, resources and funds towards the Project.
- Duration of Project: 3 years
- Date of Preparation: April 2004
- Prepared by: Centre for Environmental Research and Education (CERE)  
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Jagannath Shankar Seth Municipal School,  
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- Project Team: Ms. Tanya Mahajan  
Dr. Rashneh Pardiwala  
Ms. Kitayun Rustom

*Centre for Environmental Research and Education (CERE)*

*April 2004*



### Introduction

It is from the ocean that life on earth began.

It is the ocean that covers two thirds of the earth.

It is the ocean that decrees our weather.

It is the ocean that holds the largest store of our bio-diversity, and it is through the oceans that the bulk of our goods are transported.

***Yet, it is the ocean that we humans least understand.***

India has a coastline of 7,500 kilometers dotted with numerous maritime cities and yet the country does not have a single comprehensive, modern National Maritime Museum or Maritime Heritage Park or a Maritime Resource Centre.



*Under the surface*

If we are to awaken an interest in our maritime heritage and create awareness about the rich, local marine environment on a national scale, there exists a need to establish a Centre of Learning and Discovery, focused on the maritime world. Such a Centre must go beyond the conventional concept of a "maritime museum" and must be a vibrant and dynamic hub of activities, knowledge and persons, connected with the field.

### Centres of Learning

A Centre of Learning is an institution where a visitor experiences:

- **Rich and varied sensations:** Learning experiences that engage the senses of touch, sound, smell, taste, and sight with opportunities to discover changes and variety for each sense (as compared to passive viewing of exhibits)
- **Abundant choices:** Varied activities that foster the development of different intelligences. These range from active to passive, organized to individual, physical challenges or risks as well as mastered activities and display of skills.
- **Opportunities to Change:** Children need to create and change their environments. This process of constructing or de-constructing gives empowering experiences, be it in a garden, pond, fort, or dirt mound. Opportunities to interact and experiment with objects and materials are essential to enriched learning.

It is within such a framework and need that the Centre for Environmental Research and Education, (CERE) proposes the establishment of a Maritime Resource Centre in Mumbai. A feasibility study was first undertaken to determine the true need, scope and span of a Maritime Resource Centre in Mumbai and to identify physical space, resource persons and funds needed to establish the Maritime Resource Centre.

### Scope of the Maritime Resource Centre

The Centre will be a broad-spectrum Resource Centre accommodating many components and players within the maritime world on a level platform. These include: the Navy and Coast Guard, the shipping, shipbuilding and port industry, agencies involved in energy and oil exploration activities, the fishing industry, research institutions and universities, non-governmental organisations protecting the marine ecology and human resources including seafarers and fisher folk.

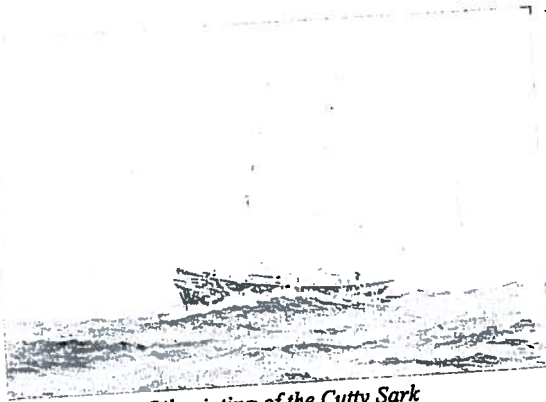
The various partners will contribute to bring in their expertise and resources and together create a holistic representation of the maritime world.

*Centre for Environmental Research and Education (CERE)*

*April 2004*







*Oil painting of the Cutty Sark*

Broadly, the main physical components of the Resource Centre include:

- Exhibition Halls and Galleries
- Information Centre - a large database that contains within it a career cell, legal cell and business information dissemination cell.
- Research Centre - that will conduct independently funded research projects related to the maritime world.
- Library, Awareness and Outreach Centre - that will conduct lectures,

- workshops, as well as develop resource kits for school children.
- Audio-visual Room or Mini Auditorium - for lectures, screenings, workshops.
- Service Centre small Café and Souvenir shop.

The Centre will be:

- Vibrant, interactive and evolving, with changing exhibits and new events to keep it relevant.
- Planned in a phases, so that it grows from a Centre for Awareness and Outreach to a comprehensive Maritime Resource Centre for the city.
- Made self-sustainable with income-generating cells balancing out the overall administrative cost structure of the Centre.

#### Content

The experiences within the Maritime Resource Centre have been planned as a series of interactive displays, audio-visual aids and tactile exhibits that would take a visitor on a journey that has been conceptualized with the following components:

- Maritime history of the world and India
- Commerce and Trade, the history of shipping and the development of modern shipping
- Ports, Docklands and Mumbai as a port city
- The role of the Navy and Coast Guard
- Marine Ecology
- Explorations and Research
- Man's Relationship with the Sea
- Environmental Threats and Pollution

CERE is presently in the process of structuring these components within the building that has been identified, and partnering with experts in each field who will come together to form a team that will develop the content in close consultation with the team of architects and exhibition designers.

*Centre for Environmental Research and Education (CERE)*

*April 2004*



### Location of the Maritime Resource Centre

The Maritime Resource Centre will be located in the city of Mumbai, the country's commercial capital and the largest port city of India.

### "Bombay is the gift of her harbour"

The city of Mumbai has always had a special relationship with the sea, dating back to almost 2000 years ago when the *kolis*, the local fisher-folk of the region, are said to have first inhabited this land, and even much later around the 1600's, when the East India Company, astutely recognised and exploited the city's tremendous potential as a port, and set up its operations here.

Bombay's fine natural harbour made it an ideal trading centre and it flourished. Warehouses, counting houses and wharves were built and the city's lifeline was the trade in raw cotton, opium, silk and ivory. The ship-building industry at Bombay took root in this trade boom, as skilled master builders crafted sturdy vessels of Malabar teak.

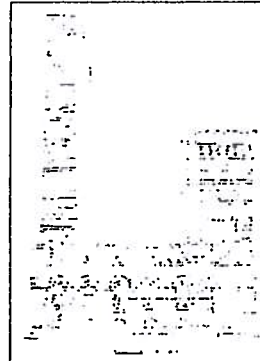
The Bombay Port Trust was established in 1873 during the Governorship of Sir Bartle Frere, a year after the Bombay Municipal Corporation was reconstituted, during a period when the urban form of Mumbai underwent significant transformations as a result of rapid industrialisation coupled with massive reclamation.

Mumbai today is the economic powerhouse of India; not only is it the financial capital, but together with its hinterland, it is a manufacturing centre for everything from cloth to petrochemicals and its docks process half of the country's foreign trade. One of the fastest growing cities in India, the population of Greater Mumbai is close to 15 million today.

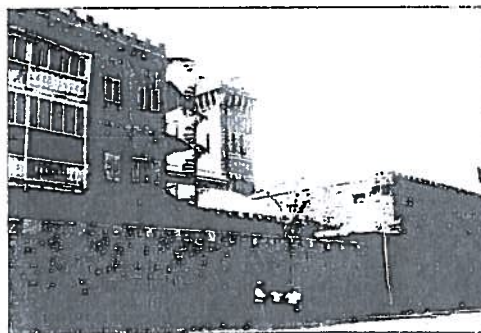
### The site and building

After extensive research and survey for an appropriate location for the Maritime Resource Centre, a site was finally identified.

Within the historic fabric of Mumbai city and the vast properties of the Mumbai Port Trust (formerly the Bombay Port Trust) that stretch from Sassoon Dock in the southern tip of Mumbai to the Sewri mudflats, lies an old hydraulic engine house, built in the year 1904. The building is situated on P.D'Mello Road, next to the Yellow Gate.



*Original drawing from 1904 of MPT building*



*View of Hydraulic Engine building from the Docks*

*Centre for Environmental Research and Education (CERE)*

*April 2004*

3



The building is found to be ideal for the setting up of a Maritime Resource Centre and has a tremendous potential for the activities of the Centre to grow and be absorbed, as envisaged. The salient features that make this site favourable are:

- it has large internal volumes that can be well adapted for use of display and exhibition
- is in close proximity to the docks and has a view of the docks
- it is an actual example of the city's maritime history
- it is an excellent example of industrial architecture in the city
- it has a small forecourt and site that can be well adapted for visitors and small groups, including parking facilities
- it is presently lying unused and was slated for demolition, and so by infusing a new use into the building, we will also be preserving a valuable part of the city's heritage



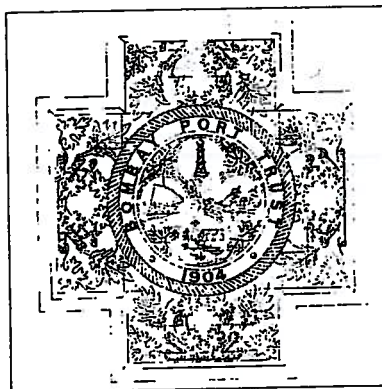
*Inside the Hydraulic Engine building*

**Principal Project Partners**

The *Centre for Environmental Research and Education (CERE)* formulated a proposal for the setting up of a Maritime Resource Centre in Mumbai. CERE, while working actively in the field of environmental education and raising awareness on environmental issues, recognised that there is an extreme lack of awareness about the environmental and maritime world, be it in the school curricula or in the general public arena. Hence establishing a Maritime Resource Centre in Mumbai would fulfil the very urgent need in this area.

The *Vasant J. Sheth Memorial Foundation* is one of the pioneering organizations in the country that has been actively engaged for over 10 years, in the development and promotion of maritime education, welfare and conservation of maritime heritage. In this endeavour, the Foundation has initiated research and training programmes and instituted scholarships and awards. The Foundation commissioned CERE to conduct a feasibility report on the establishment of a Maritime Resource Centre in Mumbai, to identify the various parameters required to set up such a Centre.

The *Mumbai Port Trust* manages the port of Mumbai and during its long chequered history of over 130 years, has been called upon to handle all types of cargo - today handling up to approximately one sixth of the total sea-borne trade of the country. The Mumbai Port Trust will partner with CERE in the establishment of the Maritime Resource Centre, and has agreed, in principle to the adaptive re-use of its building that has been identified for the establishment of the Maritime Resource Centre.



*1904 drawing of circular bas relief carved on the tower*

*Centre for Environmental Research and Education (CERE)*

*April 2004*

4



**Time Frame**

The first step of identifying and partnering with resource persons, institutions and organizations is already underway through the course of the feasibility study undertaken. We will now bring together the various partners and collaborators within a broad framework that identifies and details the type and extent of contribution of each partner.

It is proposed to establish the Maritime Resource Centre in phases, over a period of 3 years, starting with the restoration of the building identified, while working simultaneously on the development of the content of the Centre and working to establish the various cells and sub-centres such as the Research Centre, library, etc.

**Estimated Budget**

The estimates for the establishment of the Maritime Resource Centre have been worked out under four main categories:

- o Restoration of the building : Rs. 2.5 crores
- o Content design and display : Rs. 1.5 crores
- o Infrastructure and Capital Costs : Rs. 0.25 crore  
(per annum)
- o Running Costs incl. Staff salaries : Rs. 0.5 crores  
(per annum)

**Total** : **Rs. 4.75 crores**

CERE is currently raising the funds required for the implementation of the project, as specified in the estimates drawn up. It is hoped that a large part of the funds will come from the maritime community itself, with some support from the Government. CERE is also working towards establishing and developing links with national and international organizations, such as cultural centres, maritime museums, research institutions, etc that are engaged in similar endeavours.



*External South view of building showing balconies*

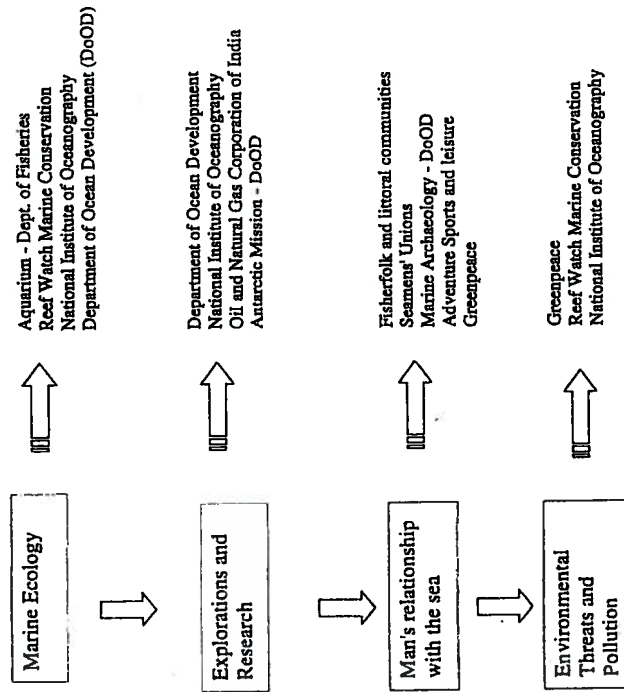
*Centre for Environmental Research and Education (CERE)*

*April 2004*

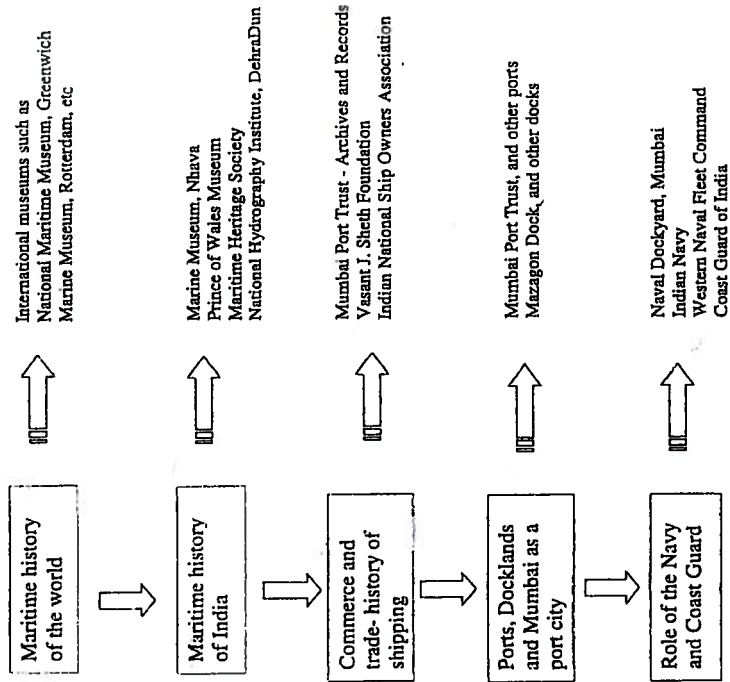


# PARTNERSHIP CHART

## SECTION 1: THE MARINE ENVIRONMENT

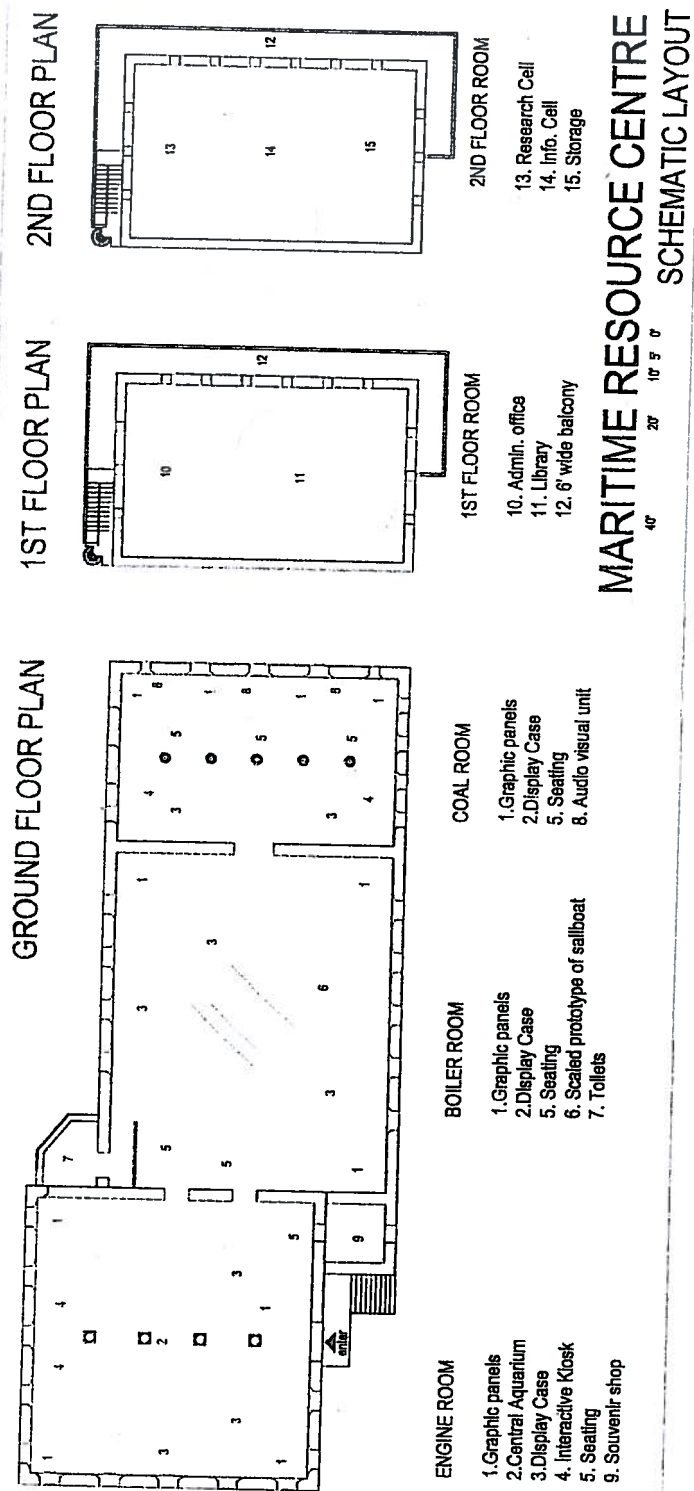


## SECTION 2: MAN AND THE OCEAN



Time frame for the establishment of the Maritime Resource Centre (MRC)

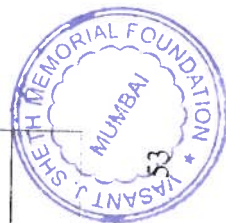
No	Activity	Year 1				Year 2				Year 3			
		1 <sup>st</sup> Qtr	2 <sup>nd</sup> Qtr	3 <sup>rd</sup> Qtr	4 <sup>th</sup> Qtr	1 <sup>st</sup> Qtr	2 <sup>nd</sup> Qtr	3 <sup>rd</sup> Qtr	4 <sup>th</sup> Qtr	1 <sup>st</sup> Qtr	2 <sup>nd</sup> Qtr	3 <sup>rd</sup> Qtr	4 <sup>th</sup> Qtr
1	Formation of structure for the MRC; MoJ, trust documents, Management Structure, funding, etc	•	•										
2	Restoration of the building		•	•	•								
3	Development of content, story-line, display and exhibition components		•	•	•								
4	Establishment of the Library, Research Cell, Information Cell			•	•	•							
5	Building up of long term partnerships, artifacts collection and corpus funds			•	•	•				•			
6	Opening up of Gallery and Exhibition Spaces						•	•	•				
7	Outreach and Awareness Cell - lectures, workshops, seminars								•	•	•		
8	Self-sufficiency of research cell, library, information cell											•	•



12. List of funding Agencies and their responses

FUNDING APPLICATIONS STATUS CHART – April 2005

Category	No	Name of contact person	Details / Organisation	Location	Status of application	Remarks
A PERSONAL CONTACTS	1	Vikas Dilawari	Conservation architect	Mumbai	N.A.	will pass on proposal to potential funders
	2	Aloo Tata		Mumbai	N.A.	"
	3	John Alexander	J.M.Baxi and Co.	Mumbai	N.A.	"
	4	George Ooman	Indo-german Shipping	Mumbai	N.A.	"
	5	Mr.Menon	Consultant	Mumbai	N.A.	"
	6	Sachin Gupta	IL&FS	Mumbai	N.A.	"
	7	Barbara Panvel	Centre for Holistic Studies	U.K.	N.A.	"
	8	Vinay Somani	Karmayog, Somani Trust	Mumbai	N.A.	"
B FUNDING AGENCIES & ORGANISATIONS	1	T.Balchander	Ford Foundation	New Delhi	negative	outside program priorities
	2	Paul Smith, Manjula Rao	British Council	Mumbai	in progress	
	3	Mary Petrites	Mc.Arthur Foundation	U.S.A.	negative	outside program priorities
	4	Martine Kelleet	New Englands Bio Labs	U.S.A.	negative	do not work in India
	5	Director	Rockefeller Bros. Fund	U.S.A.	negative	do not work in India
	6	Tara Sabavala	Sir Dorabji Tata Trust	Mumbai	in progress	scrutiny of proposal by committee
	7	John M. Fahey Jr	National Geographic Society	U.S.A.	in progress	





	8	Judith A. McHale	Discovery Communications	U.S.A.	in progress	
	9	James D. Wolfensohn	The World Bank	U.S.A.	in progress	
	10	Director	The Altria Group	U.S.A.	in progress	
	11	Azim Premji	Azim Premji Foundation	Bangalore	in progress	
	12	Shubha Murthy	Infosys Foundation	Bangalore	negative	outside program priorities
	13	Harsha Parekh	The Bombay Charitable Public Trust	Bombay	in progress	
	14	Nandini	Sir Ratan Tata S.G. Trust	Mumbai	in progress	
	15	Mr. Efthimos Mitropolous	International Maritime Organisation	London	in progress	
	16	Director	The Phoenix Trust	London	in progress	
	17	Col. Sudhir Savant	Convener, Mumbai Festival	Mumbai	In progress	Organised the Mumbai Festival
	18	Amrita Sadarangini	Science and technology Advisor, the British Trade Office	Bangalore	In progress	
	19	Venkat Krishnan.N.	GIVE Foundation	Mumbai	In progress	
	20	Archana Mahale	Bombay Chamber of Commerce and Industry	Mumbai	In progress	
	21	Manuel CIRA	Head of Cultural Services, NAUSICAA	France	In progress	
	22	Prasanthia Dias Abeygunawardena	Coordinator, South Asian Seas Programme	Sri Lanaka	In progress	
C	1	Subir Raha	ONGC	Dehra Dun	in progress	
	2	Director	National Culture Fund	New Delhi	in progress	
	3	Deputy Secretary	Dept. of Ocean Development	New Delhi	in progress	
	4	Cdr. L.S Sachdev	Mazagaon Dockyard Ltd	Mumbai	in progress	
	5	Chandra Iyengar	Dept. of Tourism, GoM	Mumbai	in progress	



		6	Owe Andersson	Govt. of Sweden	New Delhi	in progress	outside program priorities
		7	Mr. Josef Imfield	Govt. of Switzerland	New Delhi	negative	
		8	Yuan Nansheng	Govt. of China	New Delhi	in progress	
		8	Consul General	Govt. of Japan	New Delhi	in progress	
		10	Consul General	Govt. of Norway	New Delhi	negative	change in policy
		11	Consul General	Govt. of Holland	New Delhi	in progress	
		12	Consul General	Govt. of Denmark	New Delhi	negative	outside program priorities
		13	Consulate General	Govt. of Bahrain	Mumbai	in progress	
		14	Consul General	Govt. of Oman	New Delhi	in progress	
D	CORPORATES	1	Gordon Rankine	Beckett Rankine Consultants	London	in progress	Has built terminal at Butcher Island
		2	Anu Aga	Thermax	Pune	negative	Outside Company's priorities
		3	Ratan Tata	Tata Group of Companies	Mumbai	In progress	Has been approached as Project Patron
		4	Gunit Chadha	CEO, Deutsche Bank	Mumbai	In progress	
		5	Malani Thadani	HSBC Bank	Mumbai	negative	
		6	Rajiv Anand	Standard Chartered Bank	Mumbai	negative	
		7	Ramesh Sobti	EVP, ABN Amro Bank	Mumbai	In progress	



13. Break-up of Funds required into components

Table for Break-up of Funds required into components:

No	Component	Approx. Area	Amount	Remarks
1	Restoration of building to habitable condition	16000sq.ft	1.75 crores	This component has to be completed before any of the other components can be taken up.
2	Exhibition Gallery 1	3500 sq.ft	0.65 crores	This is flexible and could become 3 galleries of 0.3 crores each or 4 spaces of 0.25 crores each, etc
3	Exhibition Gallery 2	3500 sq.ft	0.65 crores	
4	Auditorium	2000 sq.ft	0.6 crores	Includes some display components also
5	Library and Research Cell	2000 sq.ft	0.35 crores	
6	Outreach and Awareness Cell	1500 sq.ft	0.27 crores	
7	Supporting services	3500 sq.ft	0.45 crores	Administration, souvenir shop, café. etc
	<b>Total</b>		<b>4.75 crores</b>	

#### *1.4: Details of Components of the MRC*

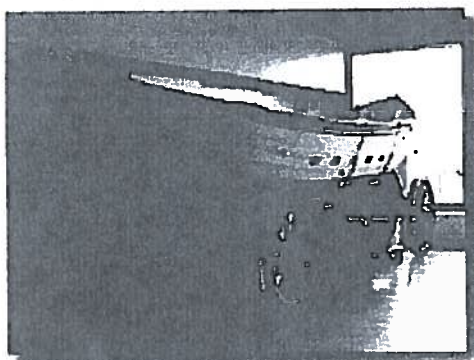
In this section, the main components of the MRC, as mentioned in the Definition Note, namely, the exhibition galleries, Visitor Information Centre, Library and Research Centre, Auditorium/AV room, Outreach and Awareness Centre, and Café and Souvenir Stall, have been looked at in greater detail.

##### 1. Exhibition Halls and Galleries:

These will form a major part of the MRC, and will be the main visitor attraction of the Centre, and must hence be informative as well as entertaining, and cater to a wide range of visitors, from students, to casual tourists.

Approximately 40 – 50 % of the MRC will comprise of the exhibition halls and galleries, which will 'tell the story' of the marine and maritime world.

Various display and exhibition techniques will be used, from passive, to interactive, and employing all the senses of sight, hearing, touch, taste and smell, to engage, excite and inform the viewers about the marine world.



Exhibits would include: a small aquarium with 'live' examples of marine life, a small boat or sailing ship, models of large ships, working models of docks and oil rigs, etc.

It is envisaged that the display will change evolve regularly, so as to sustain the levels of interest and bring people back to the MRC again.

##### 2. Library and Research Centre:

A multi-media library and documentation Centre is another key component of the MRC. This library will assist students, teachers, and researchers on any queries related to the maritime world.



The library will contain books, periodicals, journals, magazines, VCD's, DVD's, educational materials, etc. and become a valuable documentation centre for maritime related data.

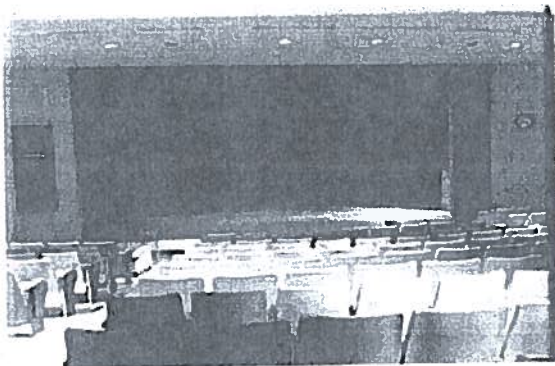
The Research centre that is attached to the library will conduct independent research programmes, network between organizations

and government to raise awareness, initiate action, etc as required.

The Library and research centre will occupy approximately 10-15% of the MRC, and its collection of material will be built up in phases gradually.

### 3. Audio-visual Room or Mini Auditorium

As a part of the visitor experience at the MRC, several audio-visuals/films will be screened as this is an effective method of learning. The auditorium will be used for



lectures, screenings, workshops, etc that will be conducted periodically, as well as for regular daily/weekly screenings linked to the exhibitions.

The Auditorium can also be a means of revenue for the MRC, as it can be hired out when not in use by the Centre.

The Auditorium would occupy approx. 15-20% of the total MRC, and would require a considerable sum for establishment as it is envisaged as a state-of-the-art media centre.

### 4. Visitor Information Centre

In order to ensure that there is a meaningful experience had at the MRC, and to ensure the maximum take-home value for the visitor, the Visitor Information Centre is a crucial component of the MRC.



The VIC interacts with the visitors to the Centre and based on their response and feedback, the exhibitions, activities, etc of the MRC are designed and evolved.

The VIC can also provide career guidance for careers related to the maritime, and become a nodal link for marine and maritime educational and training opportunities.

### 5. Awareness and Outreach Centre

It is crucial that the MRC once established, does not remain static, and continues to engage its visitors. An Outreach and Awareness Centre ensures that the message of the MRC is spread in the right manner, and far beyond the confines of the Centre itself, reaching out to schools, colleges and centres across the country.

Recognising the role of the Awareness and Outreach Centre, and its necessity, a detailed study and project report has been prepared for the establishment of an Outreach and Awareness Centre on the Oceans. (Refer *A proposal for the Establishment of an Awareness and Outreach Centre on the oceans in Mumbai – April 2005*)



6. Service Centre – small Café and Souvenir shop:

Continuing the overall experience of the MRC as a place for learning as well as fun, a garden café will complete the experience. This café will serve coffee and snacks on a day-to-day basis, as well as specialty sea-food, and other theme related cuisine, as part of a special festival or promotion.



A partnership with one of the established coffee house chains such as Barista, or Café Coffee Day, can be initiated, whereby the MRC is able to earn revenue from the rent as well as the proceeds of the coffee shop.

In a similar manner, a souvenir shop selling theme related articles, as well as educational material, will be part of the MRC, thereby adding to the revenue of the MRC. In this case also, a partnership with established organizations such as National Geographic or Discovery, can prove beneficial to the MRC.

*15. Draft Memorandums of Understanding*

*Document A*

**Proposed Terms of Reference and Memorandum of Understanding  
between CERE and Owner / MbPT for the  
Establishment of a Maritime Resource Centre in Mumbai**

This Agreement is made and entered into at Mumbai this      day of      , Two Thousand Four between the Mumbai Port Trust (MbPT) and the Centre for Environmental Research and Education (CERE) for the purpose of Establishing a Maritime Resource Centre in Mumbai.

**1.0 Background and Objectives**

- A. The Mumbai Port Trust (MbPT) manages the port of Mumbai and during its long chequered history of over 130 years, has been called upon to handle all types of cargo - today handling up to approximately one sixth of the total sea-borne trade of the country.
- B. The Centre for Environmental Research and Education (CERE) is a Public Charitable Trust registered under the Bombay Public Trusts Act of 1950 (Regd. No.: E 20674) and recognised by the Government of India. CERE works towards bringing together the research and teaching fraternities so as to widen the scope and effectiveness of environmental education in India through various means such as designing and undertaking innovative research projects, developing teaching aids and modules, conducting teacher training workshops and establishing Centres of Learning.
- C. The objective of the establishment of a Maritime Resource Centre in Mumbai is to create a dynamic Centre of Learning and Discovery, focussed on the maritime world where visitors, both children and adults, will participate in a journey that explores, and helps them understand various aspects of the maritime world.
- D. CERE has estimated that a minimum sum of Rs. 4.75 crores (Rupees Four Crores Seventy Five Lakhs Only) is needed to commence the initial phase of the project, and has proposed raising this amount through grants and non-profit fundraising means.
- E. The benefits to be derived from this Agreement are consistent with the intent of the Mumbai Port Trust which is to present a comprehensive maritime history of the region, including the history of Mumbai Port and its development, and to preserve the artifacts, photographs and landscapes that help to tell the story of the maritime world. Accordingly, MbPT acknowledges the need for a Maritime Resource Centre that would act as a visitor's facility and supports the proposed 'public-private partnership' as a unique approach to the interpretive needs of the maritime world.
- F. The objective of this agreement is to establish the policies, procedures and other terms under which this project will be carried out.



## 2.0 Location/Building/Physical Space

- G. MbPT agrees to permit CERE, exclusive use of the Hydraulic Engine House Building plot situated at Yellow Gate, P. D'Mello Road, Mumbai – 400 001, with covered floor area admeasuring approximately \_\_\_\_\_ sq.ft, and open space within the site, admeasuring approximately \_\_\_\_\_ sq.ft, for the purpose of establishment of the Maritime Resource Centre.
- H. MbPT allows CERE to restore the building and the surrounding plot as deemed fit and appropriate in consultation with experienced architects and engineers for the purpose of establishing a Maritime Resource Centre.
- I. MbPT and CERE shall jointly agree to the exact area and delineation of the building and site being considered, and once agreed upon, MbPT shall commit not to alter, add, repair, renovate, or change in any way this property, without consulting CERE, keeping in mind the scale of the Maritime Resource Centre that is envisaged as a valuable educational and cultural Centre of the city.
- J. MbPT shall also consider, while executing its port operations, that any future development or activity within the port, does not damage or diminish the Hydraulic Engine Pumping Station building and ambience and immediate environment of the site, that would adversely affect the running, functioning and image of the Maritime Resource Centre.
- K. As CERE is a Public Charitable Trust promoting the Maritime Resource Centre as a Centre of Discovery and Learning for educational purposes and the benefit of all, the MbPT to consider use of the said floor space and site by CERE gratuitously without any charges for the permitted duration of the Agreement.
- L. MPT will continue to be the owner of the said property, and will entrust CERE the use of the property for the purpose of the establishment of a Maritime Resource Centre
- M. The duration of this Agreement is be long term, for a period of 25 years from the date of understanding, so as to justify and amortize the expenses that will be required to be incurred to achieve the objective. MbPT may extend the duration of this Agreement if the project has been successfully executed as per the terms and conditions mentioned herein.
- N. Once established, an independent Trust will be formed for the management of the Maritime Resource Centre, called the Maritime Resource Centre Trust This governing body will manage the day-to-day running and maintenance of the MRC, generation and utilization of funds, plan for its growth, development and sustainability. This Trust will contain representatives from both CERE and MbPT and major funding agencies as well as experts and renowned individuals from the maritime world, who will effectively take the MRC forward.
- O. The entire Maritime Resource Centre will be conceptualized, commissioned and executed solely by CERE but will ensure that MbPT gets regular updates of the same.





- P. The Maritime Resource Centre will contain the following components and sub-cells within it, so as to effectively organise and manage its various activities:
- a) Exhibition Spaces and Galleries
  - b) Library and Research Cell
  - c) Outreach and Awareness Cell
  - d) Souvenir shop and Café
  - e) Auditorium and Screening area,
- as well as any other components that are needed to be added at a future date to fulfill the objectives of the Maritime Resource Centre.
- Q. MbPT to consider extending necessary infrastructural support to the MRC in the areas of
- a) Water supply
  - b) Electricity
  - c) Security and protection of building and property
  - d) Obtaining municipal and other governmental permissions
- R. The management, maintenance and upkeep of the MRC, once established, will be undertaken by the Maritime Resource Centre Trust, formed for this purpose.
- S. The MRC will be open to visitors at a nominal charge with special rates for members, students, senior citizens and disabled visitors.
- T. CERE will abide by the stipulated rules and regulations of the MbPT, especially those concerning the security of the adjoining docks, keeping in mind the sensitivity of the area. Photography will be restricted and public entrance will be only from P D'Mello Road. All other entry/exit points shall be closed.

### **3.0 Copyrights and Privacy**

- U. CERE will retain copyright and ownership of all materials generated for the establishment of the MRC, and this copyright will then be transferred to the Trust upon establishment.
- V. CERE and MbPT agree to a privacy code so as to keep the details of the project strictly confidential, unless such times as it is mutually agreed upon in writing to release specific information to press or public.

### **4.0 Statement of Work**

V. MbPT agrees to:

1. Recognize CERE as the primary and sole organization to lead the establishment of the Maritime Resource Centre at their Hydraulic Engine House Building plot situated at Yellow Gate, P. D'Mello Road, Mumbai – 400 001.
2. Provide CERE with all necessary information concerning its rules and regulations that may affect the conceptualization, implementation and management of the project.
3. Provide appropriate acknowledgement and endorsement of CERE's activities for the establishment of the MRC, if and when required.



4. Give CERE project execution team full and unrestricted access to the building site during establishment of the MRC with prior permission of MbPT.
5. Allow CERE to arrange visits and inspections for individuals and groups during the establishment phase with prior permission of MbPT.
6. Identify an individual within MbPT to serve as liaison officer with CERE on all matters covered by this agreement and to facilitate a one-window system to expedite all decisions, so as to enable the project to proceed smoothly to its final fruition and establishment.
7. Provide information, technical assistance, and access to archival materials, photographs, drawings and other such materials as may be needed to develop educational, promotional and other materials required for the purpose.
8. Help in obtaining necessary permissions as and when required and work towards promoting the establishment of the MRC in the best possible manner.
9. Continue to fulfill its financial responsibility as the owner for the site and structure during the course of the project, for all statutory taxes, dues, etc that may be applicable, and transfer these responsibilities to the MRC Trust, on establishment of the MRC, with no outstanding dues and liabilities.

**W. CERE agrees to:**

1. Be fully qualified under the law to engage in fundraising and receive philanthropic contributions for the purpose of establishing the MRC.
2. Conduct a fundraising campaign to raise the requisite funds for the establishment of the MRC.
3. Develop a fundraising plan that addresses roles and responsibilities, including: goals; timetable; scope; potential donors; fundraising strategies and techniques to be used; promotional or marketing strategies; donor recognition guidelines, etc
4. Develop a financial management plan identifying administrative and support structures; administrative and project costs, and repayment of costs incurred; guidelines for controlling administrative expenses; management strategies and use of donated funds.
5. Accept donations of in-kind contributions, including the use of collections, interpretive materials and media, equipment, materials, as appropriately required for the MRC.
6. Obtain prior approval from the statutory bodies and any necessary permits, for any ceremonies or other events to be held on the said property, including the execution of the project.
7. Restore the hydraulic engine house building to a habitable state, develop and design the content for the exhibition and gallery spaces, and set-up and initiate the activities of the sub-cells within the MRC, namely the Library and Research Cell. Outreach and Awareness cell, and other similar cells.
8. Collaborate with recognized institutions /trusts /organizations to expedite the establishment of the MRC.



**W. MbPT and CERE jointly agree to**

1. Meet on a regular basis to keep each other informed of progress in implementing this Agreement.
2. Cooperate in all respects to ensure the smooth establishment of the MRC.

**5.0 Other Clauses**

**X. Termination –**

**a) Before commencement of work:**

From the date of signing of this agreement, CERE will take a maximum period of 3 years to raise the funds and resources required for the establishment of the MRC, and during this period, MPT, being the owner of the said property that has been ear-marked for use the establishment of the MRC, will be the custodian of the said property, and take all such measures to ensure that the property is preserved and protected, including providing the necessary security services, etc. If CERE is unable to raise the resources required in the stipulated time, the Agreement is to be considered terminated at the end of this period.

**b) After commencement of work:**

Once the requisite funds have been raised, and work on the building is commenced, the duration of this Agreement is for a period of 25 years from the date of signing of the Agreement.

**Y) Public Laws -** No activity undertaken under this project shall be deemed to be inconsistent with or contrary to the purpose of or intent of any law of the Republic of India.

**Z) Proposed Project Execution Time Table -** CERE estimates that the MRC will be established in a period of not more than 3 years, after the requisite funds have been raised.

**AA) Accounting Records -** CERE shall:

- a. Maintain accounting books and records in accord with recognized accounting principles and shall make those records available for audit.
- b. Annually furnish a financial report of CERE activities under this Agreement. The report shall be prepared by an independent, licensed and certified chartered accountant firm.

SIGNED, SEALED AND DELIVERED by the  
authorized signatory on behalf of the Mumbai  
Port Trust (MbPT),

AND

Dr. Rashneh N. Pardiwala, authorized signatory  
on behalf of the Centre for Environmental  
Research and Education (CERE).

Date:

Place:



*Document B*

**Proposed Terms of Reference  
between CERE and \_\_\_\_\_ (Donor) \_\_\_\_\_ for the  
Establishment of a Maritime Resource Centre in Mumbai**

This Agreement is made and entered into between the Centre for Environmental Research and Education (CERE) and the \_\_\_\_\_ for the purpose of Establishing a Maritime Resource Centre in Mumbai.

**1. Background and Objectives**

W. (description of donor)

X. The Centre for Environmental Research and Education (CERE) is a public charitable Trust registered under the Bombay Public Trusts Act of 1950 (Regd. No.: E 20674) and recognised by the Government of India. CERE works towards bringing together the research and teaching fraternities so as to widen the scope and effectiveness of environmental education in India through various means such as innovative projects, teaching aids, modules, teacher training workshops and establishing Centres of Learning.

Y. The objective of the establishment of a Maritime Resource Centre in Mumbai is to create a dynamic Centre of Learning and Discovery, focussed on the maritime world where visitors, both children and adults, will participate in a journey that explores, and helps them understand, the maritime world.

Z. CERE has estimated that a minimum sum of Rs. 4.75 crores (Rupees Four Crores and Seventy Five Lakhs) is needed to complete the project, and has proposed raising this sum through grants and non-profit fundraising means.

AA. The benefits to be derived from this Agreement are consistent with the intent of the \_\_\_\_\_ which is to present a comprehensive maritime history of the region, including the history of Mumbai Port and its development, and to preserve the artifacts, photographs and landscapes that help to tell the story of the maritime world. Accordingly, \_\_\_\_\_ acknowledges the need for a Maritime Resource Centre that would act as a visitors facility and supports the proposed public-private partnership as a unique approach to the interpretive needs of the maritime world.

BB. The objective of this agreement is to establish the policies, procedures and other terms under which this project will be carried out.

**2. Authority**

CC. CERE is authorised to enter into this agreement, being a Public Charitable Trust registered under the Bombay Public Trusts Act of 1950 (Regd. No.: E 20674) and recognised by the Government of India, and can accept donations for the purposes encompassed by this agreement.



DD. CERE has signed an MoU with the Mumbai Port Trust for the establishment of a Maritime Resource Centre in the Hydraulic Engine House building at Carnac Bunder, and the same is attached as Annexure 1 to this document.

### **3. Statement of Work**

#### **I. CERE agrees to:**

10. Recognize \_\_\_\_\_ as the principal donor/one of the principal donors for the establishment of the Maritime Resource Centre
11. Be fully qualified under the law to receive philanthropic contributions for the purposes identified herein.
12. Develop, no later than 120 days after the date this Agreement becomes effective, and with assistance as needed from the Donor, a financial management plan identifying administrative and support structures; administrative and project costs, and how those costs will be paid; guidelines for controlling administrative expenses;
13. Provide appropriate acknowledgement and endorsement of the Donor's fundraising activities. (details as agreed upon)
14. Arrange and conduct tours, interpretive events, and inspections for individuals and groups at the request of the Donor and to the extent deemed practicable by the CERE and MPT.
15. Accept the donation of in-kind contributions, including the use of collections storage, museum, visitor center and administrative space, interpretive materials and media, equipment, materials, services
16. CERE will ensure that any materials prepared for public consumption related to the project, such as press releases, brochures, or other forms of publicity, will be submitted to the Donor for comment prior to release.

#### **J. The Donor Agrees to:**

1. Contribute a sum of Rs. \_\_\_\_\_ to CERE for the establishment of the Maritime Resource Centre.
2. Donate to CERE in-kind contributions, including the use of collections storage, museum, visitor center and administrative space, interpretive materials and media, equipment, materials, services.
3. In the unlikely event that the funds raised are insufficient to complete the project described, any funds raised that are not required by the donors of such funds to be returned to them (less fundraising expenses) shall be retained by the CERE and deposited in the Maritime Resource Centre Trust Fund.

#### **K. CERE and the Donor Jointly Agree to:**

1. Meet on a regular basis to keep each other informed of progress in implementing this Agreement.
2. Cooperate to develop promotional materials and events.

### **4.0 Privacy and Copyright**

- L. CERE will retain copyright and ownership of all materials generated for the establishment of the MRC, and this copyright will then be transferred to the Trust that will be formed.



M. CERE and the Donor agree to keep the details of the project restricted to themselves, unless such times as it is mutually agreed to release information to press or public.

#### **5.0 Other Clauses**

N. **Termination** - If either party defaults or fails to observe any of the terms and conditions of this Agreement, the other party may give the defaulting party notice in writing to rectify such default. The Agreement can be terminated with the mutual consent of both parties but each party shall give the other a minimum notice period of 60 days in writing in advance to terminate the Agreement.

O. **Public Laws** - No activity undertaken under this project shall be deemed to be inconsistent with or contrary to the purpose of or intent of any law of the Republic of India.

P. **Proposed Project Execution Time Table** - CERE estimates that the MRC will be established in a period of not more than 3 years, after the requisite funds have been raised.

Q. **Accounting Records** - CERE shall:

a. Maintain accounting books and records in accord with recognized accounting principles and shall make those records available for audit.

b. Annually furnish a financial report of CERE activities under this Agreement. The report shall be prepared by an independent, licensed and certified chartered accountant firm.

SIGNED, SEALED AND DELIVERED by the  
authorized signatory on behalf of the Mumbai  
Port Trust (MbPT),

AND

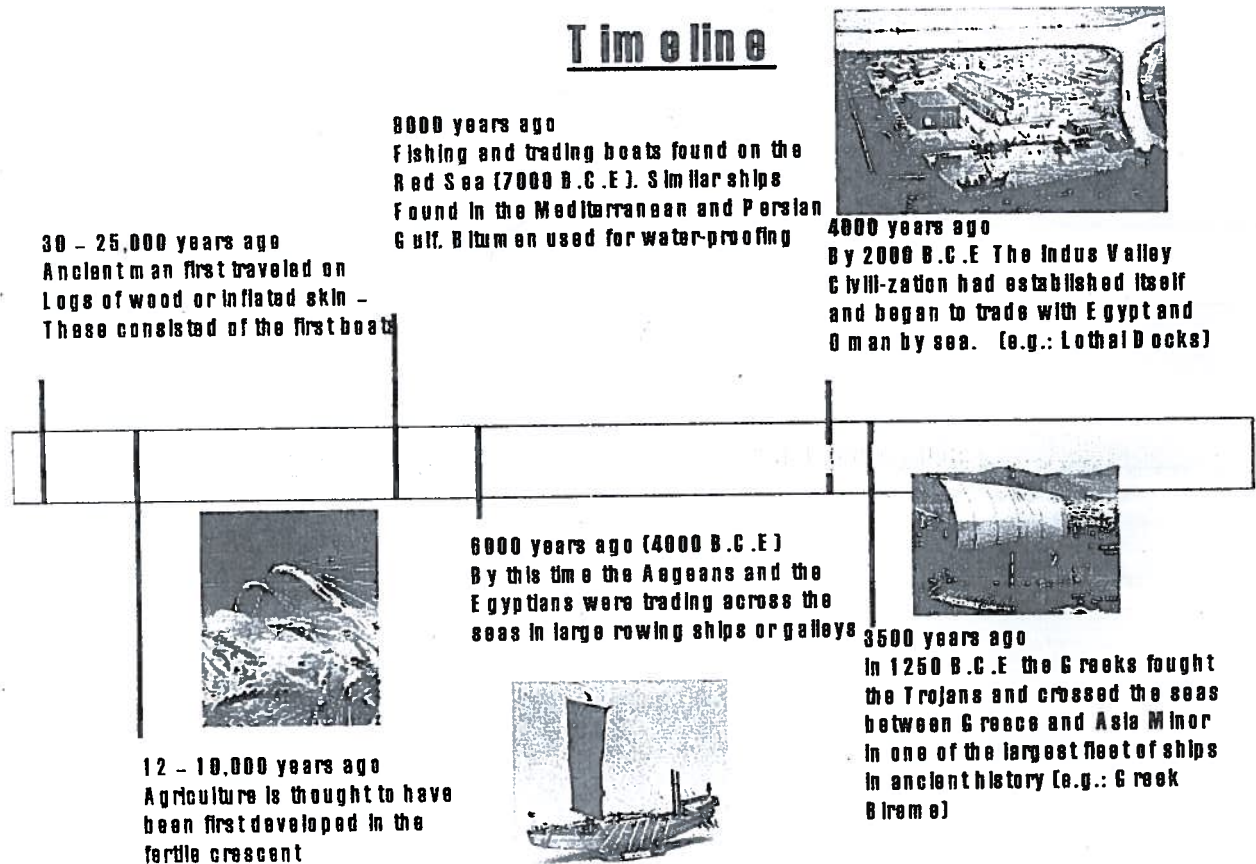
Dr. Rashneh N. Pardiwala, authorized signatory  
on behalf of the Centre for Environmental  
Research and Education (CERE).

Date:

Place:



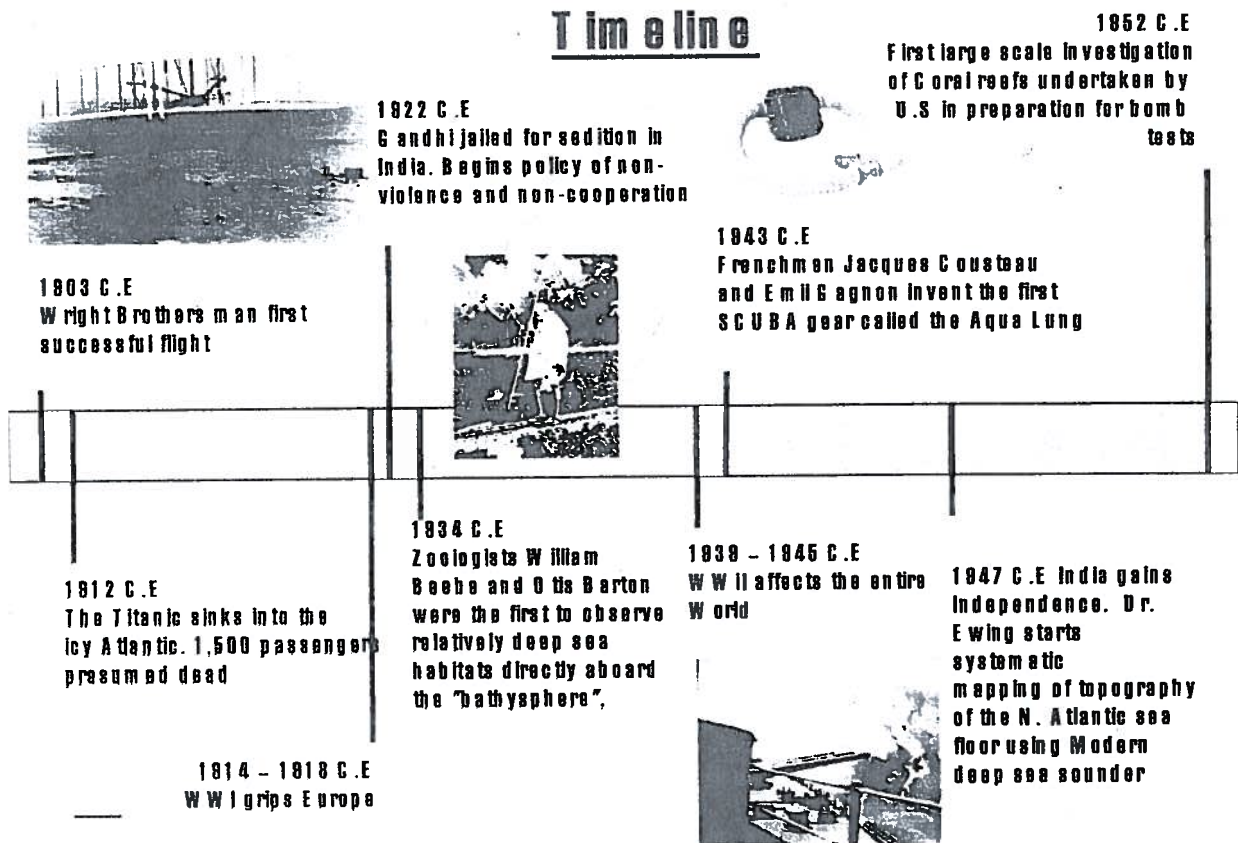
17. Conceptual Content for the MRC display areas using the timeline



Sample sheet of timeline covering the Stone and Copper age, showing important events related to the maritime and marine world, as well as specific events for the Indian context.



## Timeline



Sample sheet of timeline covering the first part of the 20th Century , showing important events related to the maritime and marine world, as well as specific events for the Indian context.





18. Sample list of archival photographs available with MPT

**Sample List of the Extensive Photographic Archives available with the  
Mumbai Port Trust's Technical Archives**

The following material is available:

- 1) Almost 20,000 original drawings of the port buildings and docks
- 2) Approx. 500-750 photographs of the construction, use, etc of the Port Trust properties and operations
- 3) Microfilms of some drawings and photographs
- 4) Scanned images of some photographs (Process is underway)

Details of photographs: B/W Prints, mounted and labeled; size: 9" X 11"  
(Some photographs were not labeled and are hence not listed here)


S.No	Description	Date (if available)	Remarks
1	North end of Lock wall of entrance in progress	6-10-1910	
2	Entrance lock – erecting west leaf of inner gates		
3	Construction of Hughes Dry Dock	13-12-09	
4	a) excavations on site of main dock b) construction of west and south walls	8-04-09 8-04-09	
5	View from east wall showing dry dock Caisson in the course of erection		
6	Caisson for Hughes dry dock in course of erection	3-12	
7	East wall of mole – looking south from Dam A	26-05-1910	
8	Strom gates – view looking towards north	20-10-1912	
9	Wall of Hughes dry dock – work in progress	6-10-1910	
10	Inner gates of dock and dry dock caisson in course of erection. View looking north		
11	One leaf of inner lock gate area		
12	De-watering from coffer dams for Alexandra Docks		
13	Main dock from SE corner looking towards NW		
14	A corner of the cotton depot, showing go-downs and open jethas		
15	Aerial view of Bombay docks showing Alexandra, Victoria and Prince's Docks and bunders in plan	1926	
16	Modi Bay Estate	1920	
17	Erection of west leaf of Strom gates. View looking north	28-11-1911	
18	Jetty walls in progress	8-10-1910	
19	Aerial view of Prince's and Victoria docks with Carnac Bunder in foreground	June 1938	Pumping Station visible
20	Near completion of Hughes Dry Dock		
21	Construction of Lock Gate		



22	Imperial Train at Ballard Pier		
23	View of Foundation Stone – Alexandra Dock	3-11-1908	
24	Stand being erected for foundation stone ceremony – Alexandra Dock	3-11-1905	
25	Alexandra Dock entrance and the Hughes Dry Dock aerial view		
26	Aerial view of Ballard Pier Passenger Terminal	Jan 1934	
27	His Excellency the Hon'ble Lord Hardinge at the opening ceremony of Alexandra Dock in 1914. The Viceroy of India reading the address.	1914	
28	Prince's Dock – construction of entrance channel	1876	
29	Construction of Hughes Dry Dock	1913	
30	De-watering from Cofferdam for Alexandra Docks	9-1-1911	
31	De-watering pumps – Alexandra Docks		
32	Group Prince's dock	April 1877	
33	Eastern Bay of Dock looking south	18-6-1878	

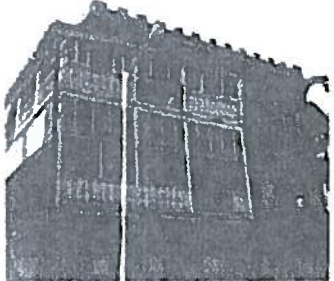


## 19. Proposed interior space planning for the MRC

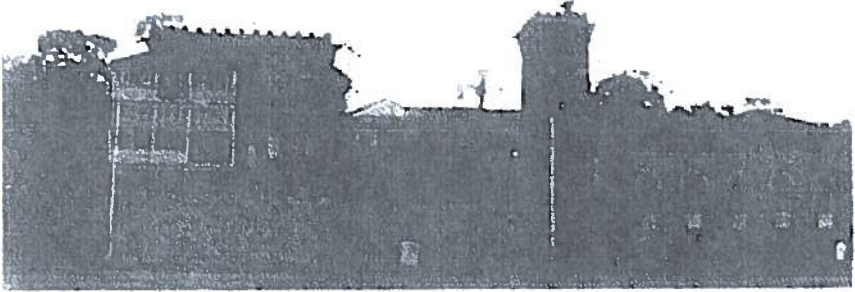
MARITIME RESOURCE CENTRE 

SEMESTER 9 VAISHNAVI 3400


### the building



Within the historic fabric of Mumbai city and the vast properties of the *Mumbai Port Trust* (formerly The Bombay Port Trust), that stretch from the Sassoon Docks in the southern tip of Mumbai to the Sewri mudflats, lies an old **Hydraulic Engine House**, built in the year 1904 A.D. The building is located on P. D'Mello Road, next to the Yellow Gate at Indira Docks. It is an actual example of the maritime history of the city.



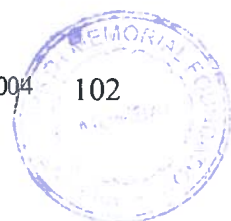
### the owner

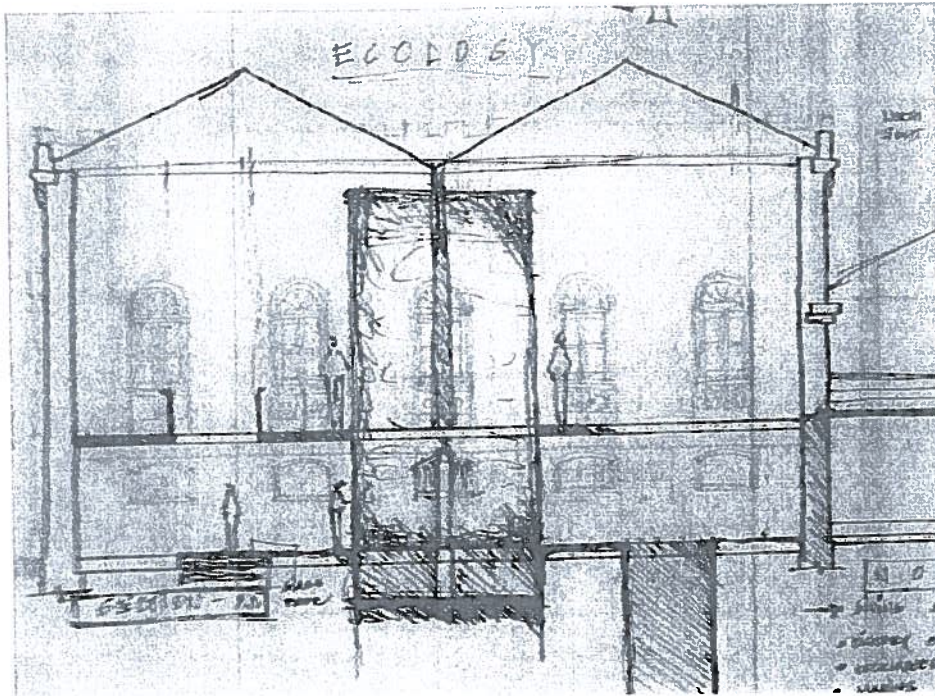


The Mumbai Port Trust (MPT) was created in 1873 A.D., during the governorship of Sir Bartle Frere, a year after the Bombay Municipal Constitution was reconstituted, during a period when the urban form of Mumbai underwent significant transformations as a result of rapid industrialization coupled with massive reclamation. It created 1880 acres of land, making MPT the single largest holder of property in the Mumbai Metropolitan Region. Today it handles upto one-sixth of the total sea borne trade of the country.

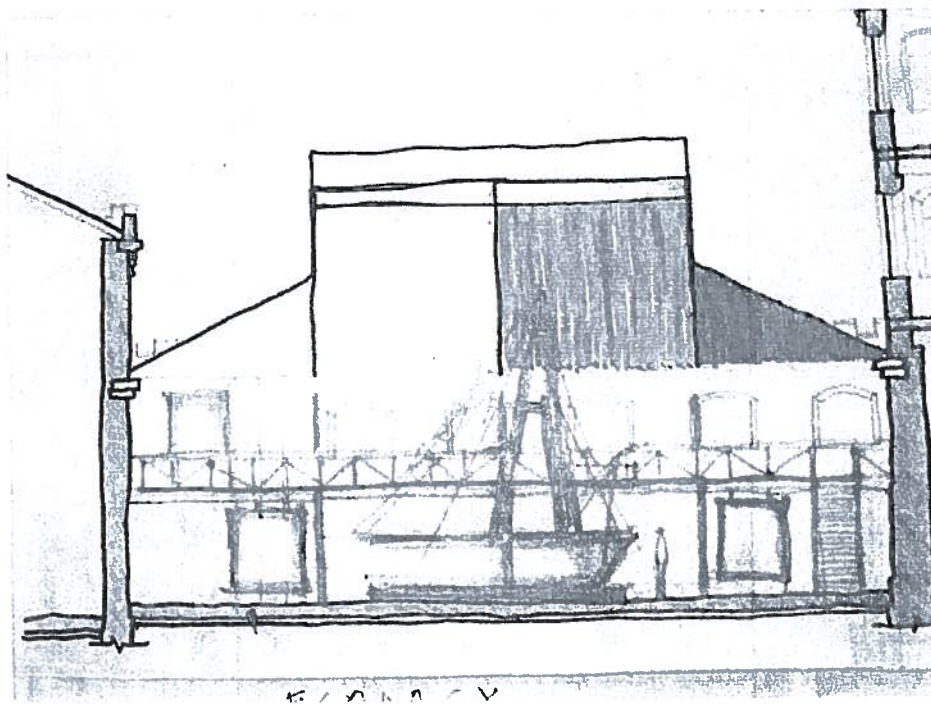
*Crest of the Bombay Port Trust on the hydraulic engine house*

Sample of project sheet giving details of site and building





Conceptual sketches of use of interior spaces of the MPT building



Conceptual sketches of use of interior spaces of the MPT building

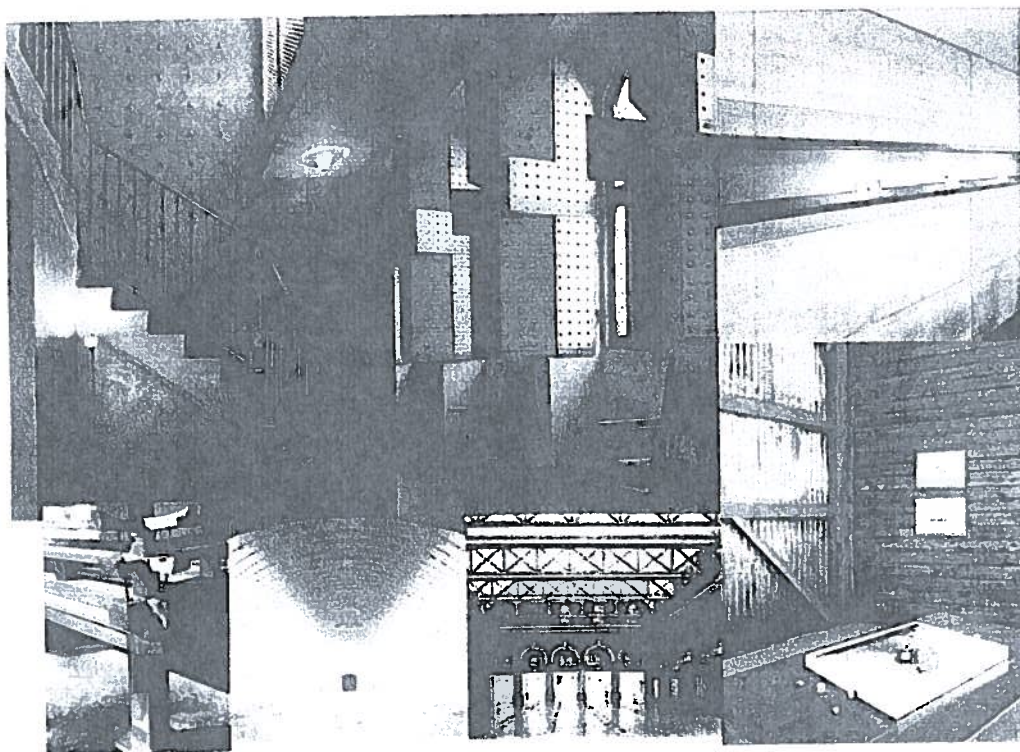


Image board to show possible finishes and detailing of interiors of the MRC



Image board to show possible finishes and detailing of interiors of the MRC

## 20. Strategies for Sustainability for the MRC

### STRATEGIES FOR SUSTAINABILITY

As per the estimated figures, salary and running costs is Rs. 50 lakhs per annum

S.No	Description	Details	Quantity	Rate	Amount	Remarks
1	Entry Ticket	no. of visitors	30000	15	450,000	
2	Café	sales			150,000	fixed amount per annum
3	Souvenir shop	sales			150,000	fixed amount per annum
4	Library and Research Cell				100,000	Fees and service charges
5	Outreach and awareness Cell				100,000	Fees and service charges
6	Auditorium	days/year	20	15000	300,000	renting charges per day for 8 hrs
7	Interest from a 1 crore corpus	8%			800,000	Corpus funds to be raised
8	Annual Grant from Govt.				1,000,000	ministry of culture, shipping, tourism
9	Annual Grant from INSA/private shipping co.				1,000,000	
10	Annual Grant from international museums, org				1,000,000	like the IMO, etc
<b>Total</b>					<b>5,050,000</b>	

21. Analysis of Survey of Learning Centres

Sample of Survey 1: A Study of existing learning centres:

Respondent profile: Name:

Designation:

1. Name of Centre:

2. Location:

3. Ownership/Management: whether:      Public/private trust:  
   Government owned:  
   Any other (pl.specify):

4. Date of Establishment:

5. Principal components:      (Please tick as appropriate)  
a) Exhibition galleries: (how many)  
b) Library and research Centre:  
c) Auditorium/screening room:  
d) Souvenir shop/Publications division:  
e) Outreach and awareness Cell:  
f) Others - please list:

6. Principal Content/Focus of Centre:

7. Target Audience: (to understand who the Centre is targeted at)

children:  
Students: \_\_\_\_\_  
General public: \_\_\_\_\_  
Tourists: \_\_\_\_\_  
Local community: \_\_\_\_\_  
Researchers: \_\_\_\_\_

8. How the Centre reaches its audience:

networking with schools: \_\_\_\_\_  
publicity through media: \_\_\_\_\_  
special exhibitions and events: \_\_\_\_\_  
any other means: \_\_\_\_\_

9. Main visitor profile: (to understand who is attracted to the Centre)

children: \_\_\_\_\_  
Students: \_\_\_\_\_  
General public: \_\_\_\_\_  
Tourists: \_\_\_\_\_



Local community: \_\_\_\_\_

Researchers: \_\_\_\_\_

10. **Details of visitors:** (please give whatever figures are available to give us a broad idea

Numbers per day: \_\_\_\_\_

/week/: \_\_\_\_\_

month/: \_\_\_\_\_

annual: \_\_\_\_\_

11. **Peak periods:** (please give whatever data is available so as to get an overview)

through the week: \_\_\_\_\_

month: \_\_\_\_\_

year: \_\_\_\_\_

12. **Funding mechanisms:** (tick as appropriate)

Ticket sales: \_\_\_\_\_

Sale of souvenirs/publications: \_\_\_\_\_

Renting out of premises: \_\_\_\_\_

Govt.grants: \_\_\_\_\_

Private and public donations: \_\_\_\_\_

Corporate support: \_\_\_\_\_

13. **Self-sustainability:** (to determine whether the Centre is able to sustain itself)

Is the Centre self-sustaining?

If yes, what is the strategy by which this has been achieved?

---

If No, the what steps is the Centre taking to ensure its continuity?

14. **Growth pattern of Centre:**

(to understand what has been the pattern of growth of the Centre from its start to the present day)

(write either increase, decrease or same)

a) physical space: \_\_\_\_\_

b) Content: \_\_\_\_\_

c) Staff: \_\_\_\_\_

d) visitors : \_\_\_\_\_





## Sample of Survey 2: Need and profile of a Learning Centre

### Respondent Profile

- 1) Name : \_\_\_\_\_  
2) Profession : \_\_\_\_\_  
3) Organisation you represent : \_\_\_\_\_  
\_\_\_\_\_

4) Are you familiar the concept of a Learning Centre: Yes/No

If (No), then the Introductory Note will give you a brief understanding about the concept of a Learning Centre.

5) Could you list at least 3 Learning Centres that you have visited/heard about, in Mumbai, India or abroad.

No	Name	Location	Visited/heard about	General Comment
1				
2				
3				
4				
5				

6) The proposed Maritime Resource Centre includes the following components: Please rate in ascending order (with 1 for the most favoured) the components that you feel are the most meaningful:

- a) Exhibits - models, posters, charts, artifacts : \_\_\_\_\_  
b) Interactive media- touch-screens, audio-visual stations : \_\_\_\_\_  
c) Activity, hobby and skill up-gradation centre : \_\_\_\_\_  
d) Screening, discussion and seminar centre : \_\_\_\_\_  
e) Archives, library and research centre : \_\_\_\_\_  
f) Souvenir shop and café : \_\_\_\_\_

7) How much would you be willing to pay as entry to the Maritime Resource Centre

- a) Rs.25 per day : \_\_\_\_\_  
b) Rs. 15 per day : \_\_\_\_\_  
c) Rs. 5 per day : \_\_\_\_\_  
d) Rs. 250 annual membership : \_\_\_\_\_

8) What would you be looking for from a learning centre such as the Maritime Resource Centre? (Tick where appropriate)



- a) Guided tour by qualified experts : \_\_\_\_\_
- b) Direct link with school curricula : \_\_\_\_\_
- c) Interactive sessions and activity based learning : \_\_\_\_\_
- d) Film screenings : \_\_\_\_\_

9) After the first visit to the Maritime Resource Centre, what are the factors that would bring you back again / encourage you to send children again for a repeat visit?

- a) Changing activity and hobby programmes
- b) Theme based exhibits, that keep changing
- c) Link to curricula, hence visit to MRC is part of lesson
- d) MRC encourages research and exploratory learning



1. Summary of Survey of different types of Learning Centres in Mumbai:

No	Name of Learning Centre	Type of learning Centre	Ownership	No. of visitors per annum	Ticket cost per head	Remarks
1	Prince of Wales Museum of Western India	Museum	Public trust	800000	Rs.15	Has supplementary income options such as auditorium, etc
2	Nehru Science Centre	Science museum	Government owned	600000	Rs.15	Has sponsored exhibitions and extensive programmes & projects
3	Marine Museum at T.S Rahaman	Maritime museum	Public trust	3000	Rs.15	No other source of income, but supported within T.S.Rahaman complex
4	Taraporevala Aquarium	aquarium	Government owned	300000	Rs.5	No other source of income

2. Summary of responses from educationists to Learning Centres:

No	Name	Organisation	No.of visits/year to learning centres	Cost per trip	Requirements from a Learning Centre (compiled from responses of respondents)
1	Ms. Rohini Ooman	i) Bombay International School ii) J.B.Petit High School for Girls	As and when required – depends on the initiative of the teachers	Flexible – Rs.100 and above	i) link to curriculum ii) qualified guide or expert to conduct/organize the trip for the class
2	Ms.Persis Jamas	Alexandra Girls English Institution	3-4 trips a year maximum	Rs.25-Rs.100	iii) follow-up sessions with students in class
3	Ms.Kakotkar	J.S.Municipal School	2-3 depending on resources	Upto Rs.25	iv)use of new media to make the experience different from the classroom v) training for teachers



22. List of Books referred to

Book list

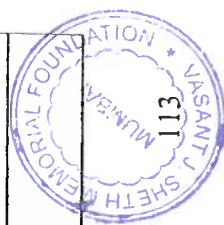
No	Name	Author	Publisher and Year	Other Details	Cost	Remarks
1	Fighting Ships of the Far East: China and Southeast Asia 202 BC-AD 1419 Vol 1 New Vanguard Series	Stephen Turnbull, Wayne Reynolds (Illustrator)	Osprey 2002	Available on Amazon	£7.19	Referred to by student intern
2	Fighting Ships of the Far East: Japan and Korea AD 612-1639 Vol. 2 New Vanguard Series	Stephen Turnbull, Wayne Reynolds (Illustrator)	Osprey 2002	Available on Amazon	£7.19	Referred to by student intern
3	Maritime Sector, Institutions, and Sea Power of Premodern China (Contributions in Economics & Economic History S.)	Gang Deng	Greenwood Press 1999	Available on Amazon	£56.99	Referred to by student intern
4	Royal Navy Strategy in the Far East, 1919-1939: Planning for a War Against Japan (Naval Policy & History S.)	~Andrew Field	Frank Cass Publishers 2004	Available on Amazon	£65.00	
5	The World of the Indian Ocean Merchant, 1500-1800: Collected Essays	~Ashin Das Gupta	OUP India 2001	Available on Amazon	£30.99	
6	Lords of the East: East India Company and Its Ships: Anniversary Edition	Jean Sutton	Conway Maritime 2000	Available on Amazon	£24.47	
7	The Opening of Japan, 1853-55: A Comparative Study of the American, British and Russian Campaigns to Force	~William McOmie	Global Oriental Ltd, 2004	Available on Amazon	£45.00	



	the Tokugawa Shogunate to Conclude Treaties and Open Ports to Their Ships	~Robert D. Ballard	National Geographic Books 2001	Available on Amazon	£22.05	
8	Graveyards of the Pacific: From Pearl Harbour to Bikini Island	~Angela Ki Che Leung (Editor), Shi-yeoung Tang (Editor)	Brill 1999	Available on Amazon		
9	Chinese Maritime History (Sinica Leidensia S.)	Herbert A. Werner	Cassell Military Paperbacks S.	Available on Amazon	£3.99	
10	Iron Coffins: A U-boat Commander's War, 1939-45	K.S.Mathew		Available on Amazon	INR 550.00	This book deals with the maritime history of regions and its influence on trade, politics and society.
11	Indo-Portuguese Trade and the Fuggers of Germany	Indu Banga		Available at Gandhiana.org	INR 350.00	The book studies ports and port complexes and their hinterlands in India over a period of four centuries, spanning the Mughal, Maratha and British rule.
12	Ports and Their Hinterlands in India 1700-1950	Edited by Om Prakash Denys Lombard		Available at Gandhiana.org	INR 700.00	This book tends to explore the long history of intensive contacts of commerce, politics, culture and religion between India and South-East Asia via the Bay of Bengal
13	Commerce and Culture in the Bay of Bengal 1500-1800.	Edited by Michael Stratton				Referred to while preparing feasibility report
14	Industrial buildings – Conservation and Regeneration	Judith Strong	Arts Council of			
15	The Arts Council Guide to					Referred to while preparing



	Building for the Arts		Great Britain	Available with	feasibility report
16	Tramping to Success – Story of the Great Eastern Shipping Company Limited	S.N.Sanklecha	Popular Prakashan	Available with CERE	INR 350
17	Sea and Hill Forts of Western India: Aerial Views and historical perspectives	M.S.Naravane	Maritime History Society, 1998	Available with CERE	Rs.750
18	Essays in Maritime Studies – Vol II	Edited by Prof. B.Arunachalam	Maritime History Society, 2002	Available with CERE	Rs.350
19	Heritage of Indian Sea Navigation	Prof. B.Arunachalam	Maritime History Society, 2002	Available with CERE	Rs.500
20	The heritage Sites of Maritime Maharashtra	M.S.Naravane	Maritime History Society, 2001	Available with CERE	Rs.650
21	Politics and trade in the Indian Ocean. Essays in honour of Ashin Dasgupta	Edited by Rudrangshu Mukherjee and Lakshmi Subramaniam	Oxford University Press 2003	Available with CERE	Rs.295
22	India and the Indian Ocean – 1500-1800	Edited by Ashin Dasgupta and M.N.Pearson	Oxford University Press 1999	Available with CERE	Rs. 295
23	Ocean Omnibus – Exploring the excitement of the seas		A CEE Publication for VJSMF, 1996	Available with CERE	
24	Marine Mammals of India	Kumaran Santhasivam	WWF India and Universities Press (India) Ltd. 2004	Available with CERE	Rs.250
25	'From the Iranian Plateau to the Shores of Gujerat'	Professor Kamerkar written with Soonu Dhunjisha	Allied Publishers		About the Parsi boat-builders of India – recommended by Barbara Panvel
26	Light and life in the Sea	Peter J.Herring		British Council Library	





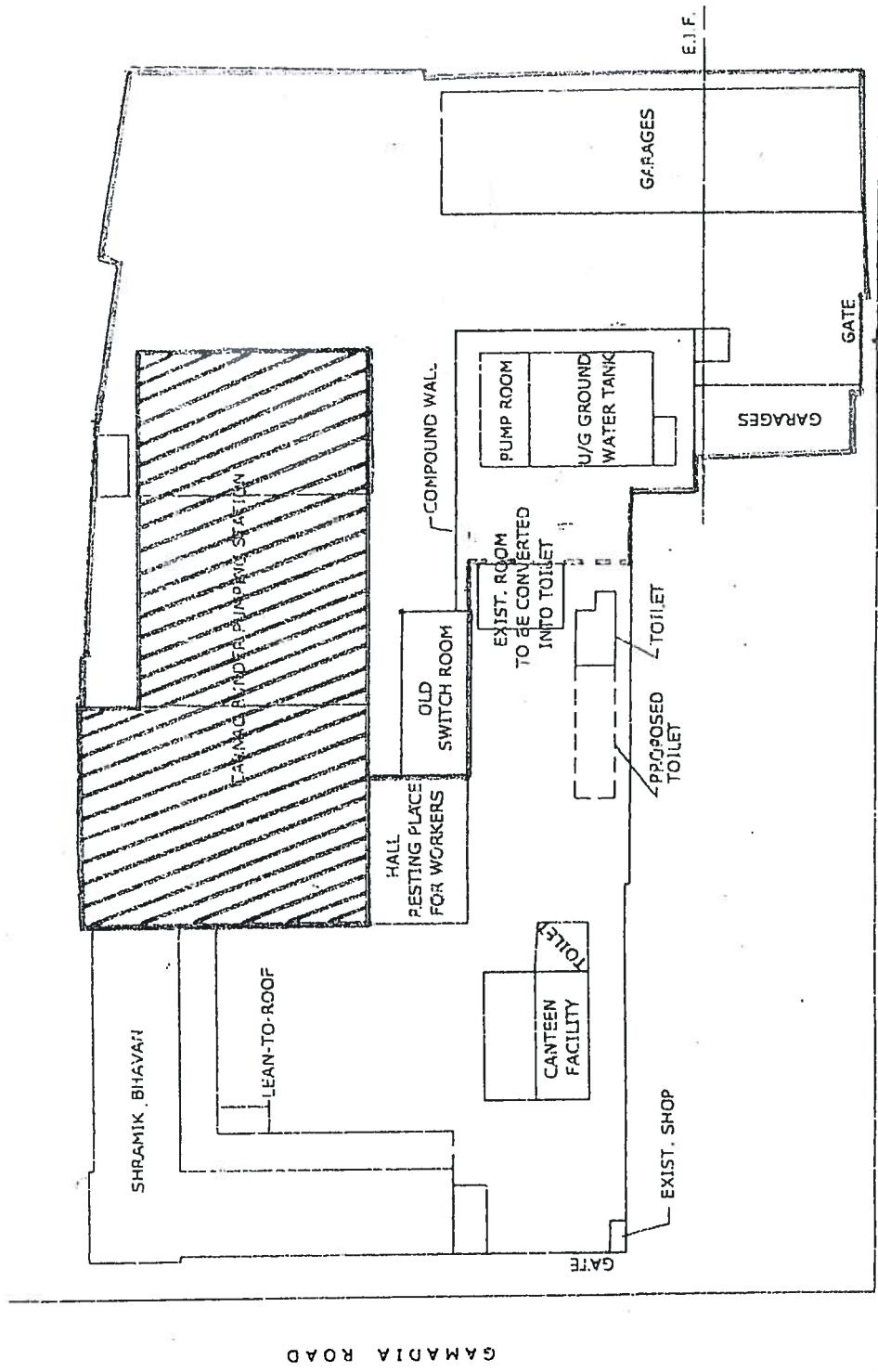
41	Great Eastern Trade – Other times, Other places	Romila Thapar	VJSMF, 2002	seminar of the MHS - 2003	Available with CERE			
42	Story of the Oceans	K.V.Subarao and R.Shankar	Geological Society of India, 2004					



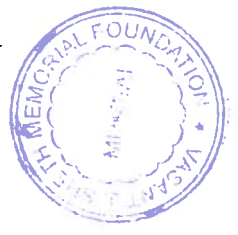


# 23. Site Plan of MPT Building

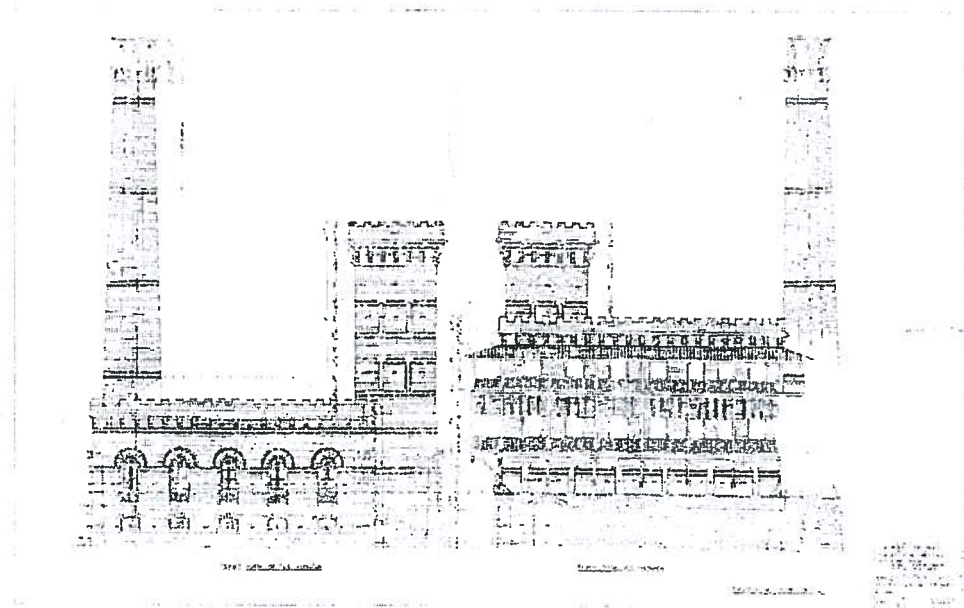
D O C K S



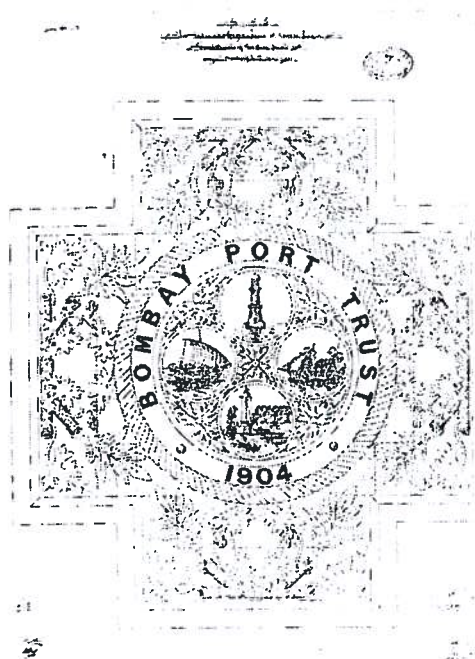
ENTRY  
P.D. MELLO ROAD



24. Archival drawings of the MPT building



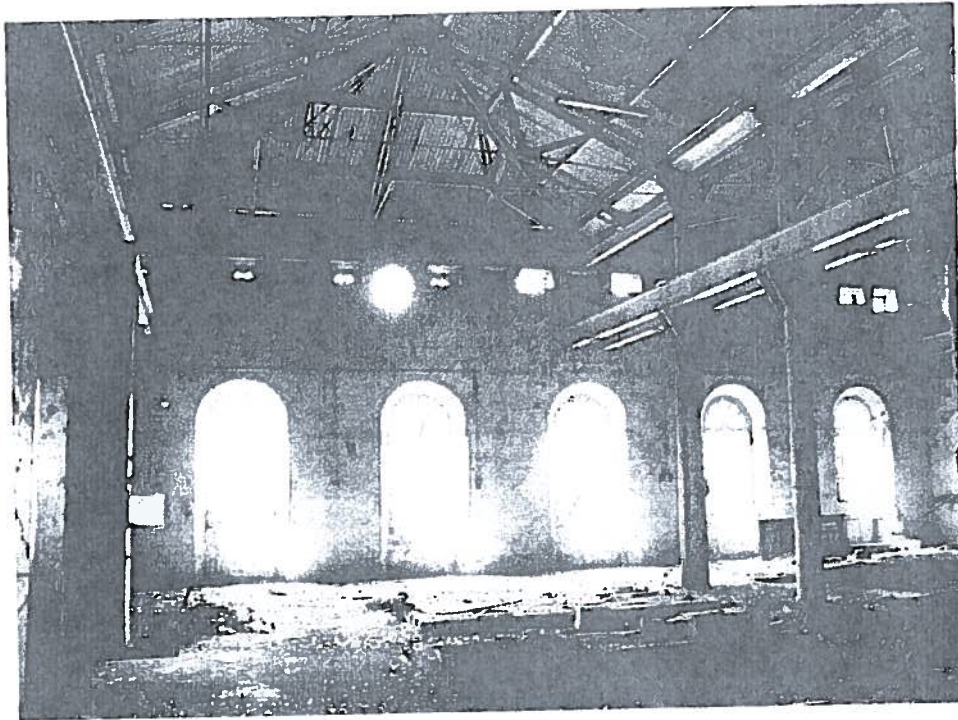
Elevation of the Hydraulic engine Building at Carnac Bunder



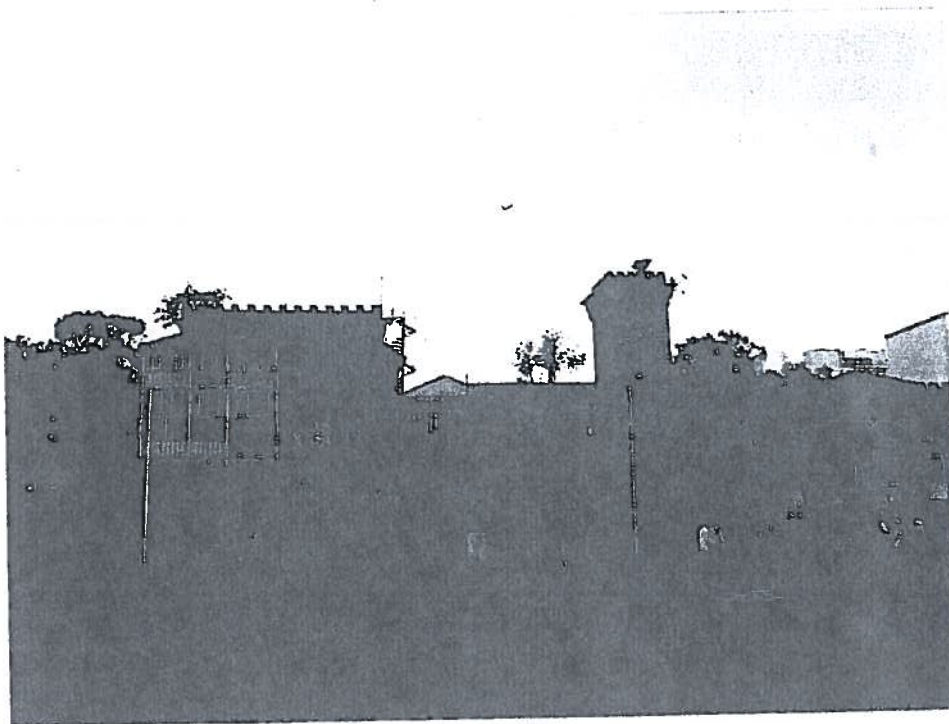
Drawing of crest of the Mumbai Port Trust that is carved on the tower of the building



25. Photographs of the MPT building



Internal view of Engine Room of the Hydraulic Engine House

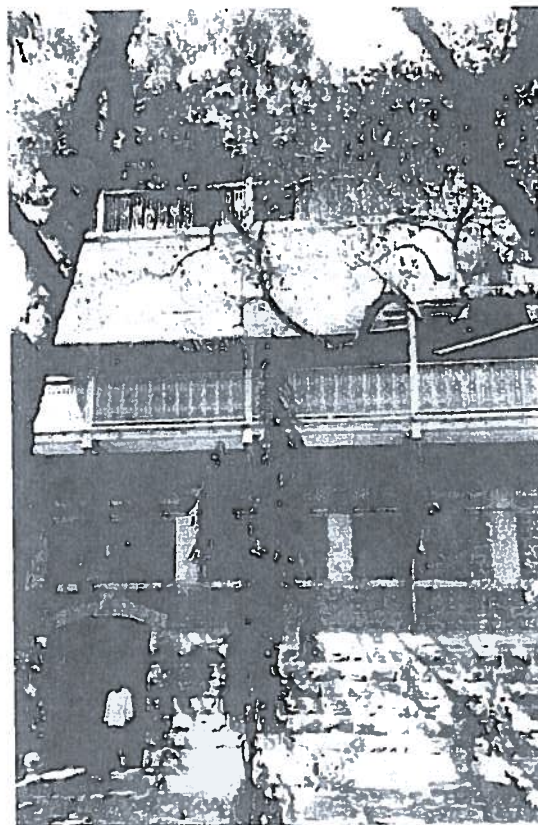


External east view of Hydraulic Engine House building





View of Tower of Hydraulic Engine Building showing MbPT crest



External view of hydraulic engine house

