

Central Cultural Fund, Ministry of Cultural Affairs
Democratic Socialist Republic of Sri Lanka

Basic Design Study Report

on

The Project for the Improvement of Display Equipment of the Sigiriya Museum

in

The Democratic Socialist Republic of Sri Lanka

August 2007

JAPAN INTERNATIONAL COOPERATION AGENCY

Zen-Noh Architects & Engineers Inc.

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PREFACE

In response to a request from the Government of the Democratic Socialist Republic of Sri Lanka, the Government of Japan decided to conduct a basic design study on the Project for the Improvement of Display Equipment of the Sigiriya Museum and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Sri Lanka a study team from January 11 to February 15, 2007.

The team held discussions with the officials concerned of the Government of Sri Lanka, and conducted a field study at the study area. After the team returned to Japan, further studies were made. Then, a mission was sent to Sri Lanka in order to discuss a draft basic design, and as this result, the present report was finalized.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the Democratic Socialist Republic of Sri Lanka for their close cooperation extended to the teams.

August 2007

Masafumi Kuroki
Vice-President
Japan International Cooperation Agency

August 2007

Letter of Transmittal

We are pleased to submit to you the basic design study report on the Project for the Improvement of Display Equipment of the Sigiriya Museum in the Democratic Socialist Republic of Sri Lanka.

This study was conducted by Zen-Noh Architects & Engineers Inc., under a contract to JICA, during the period from December 2006 to August 2007. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of Sri Lanka and formulated the most appropriate basic design for the project under Japan's Grant Aid scheme.

In closing, we hope that this report will contribute to further promotion of the project.

Very truly yours,

Tsuneki Narahara
Project Manager,
Basic Design Study Team on the Project for the Improvement of
Display Equipment of the Sigiriya Museum
Zen-Noh Architects & Engineers Inc.

Summary

Background

Sigiriya is a UNESCO World Cultural Heritage Site and a major attraction for both domestic and foreign tourists. The government of the Democratic Socialist Republic of Sri Lanka (hereinafter Sri Lanka) considers the development of its cultural and tourism sectors as major objectives in its national planning; for example, the Urban Development and Human Settlement Ten Year Plan is headed by the Greater Dambulla Development Plan, which emphasizes tourism and prioritizes the protection of archaeological sites in the area, including Sigiriya, and the Culture section of the same document lists the renovation and development of important museums, including the Sigiriya Museum, among its first objectives. In this setting exists the government of Sri Lanka's project for the overall development of the new Sigiriya Museum. Its activities can be sorted into four major areas: 1) the construction of the building itself, 2) the establishment of the main Museum display, 3) operation and management, and 4) the improvement of surrounding infrastructure.

The new Sigiriya Museum development project is already progressing on its various fronts, towards the target Museum opening date of March 2009. For 1) *the construction of the building*, the government of Sri Lanka applied for Japan's Cultural Grant Aid in 2004. A Preliminary Survey conducted in response to that request concluded, however, that the magnitude of the request did not fit the Cultural Grant Aid scheme, and the Grant Aid process was suspended. Not giving up, the Sri Lankan government utilized their Aid for Increased Food Production (2nd Kennedy Round) counterpart-fund and started construction of the new Sigiriya Museum building in July 2006; the construction is expected to be finished in March 2008. For 3) *operation and management*, a request for a Technical Cooperation Project has been submitted and a project under consideration for the fiscal year 2008, following favorable findings by the Project Formation Study in September 2006. For 4) *the improvement of surrounding infrastructure*, preliminary studies and design for the improvement of access roads and Site infrastructure (for example, the staircase to the Rock Summit) has already begun as part of the Tourism Resources Improvement Project under the Japan Bank for International Cooperation Yen Loan. These infrastructure improvement schemes are also slated to be completed by March 2009.

This Grant Aid Project applies to 2) *the establishment of the main Museum display*. A Grant Aid request for the improvement of display functions within the new Sigiriya Museum, including the production of audiovisual content and procurement of equipment to show such audiovisual material, had been submitted by the Sri Lankan government in October 2005. As the concept of the museum was not well articulated at this stage, the overall museum display concept and display and equipment procurement plans were discussed and sorted out in the abovementioned Project Formation Study. In November 2006, the Sri Lankan government submitted a revised Grant Aid equipment list which generally followed the display and equipment procurement plans discussed in September 2006.

Summary of Findings

In response to the government of Sri Lanka's request, the government of Japan sent a Study Team to Sri Lanka from January 11 to February 15, 2007. The Team held many meetings and discussions with the relevant parties in Sri Lanka, re-confirmed the contents of the request, and conducted various surveys on site. After drafting a Basic Design Report in Japan, the Team returned to Sri Lanka from May 10 to 20, 2007, in order to explain the draft Report to the parties concerned.

Sigiriya receives over 600,000 visitors per year, and is one of the most attractive World Heritage sites in Sri Lanka, yet its existing museum does not completely satisfy the needs of both international and domestic visitors; the existing museum in Sigiriya is clearly less satisfactory compared to other museums in Sri Lanka in terms of the size of its building, the number and content of its exhibits, its display format, and level of service. The existing museum in particular lacks in explanatory texts and panels, as well as educational facilities. Additionally, there was the problem of Sigiriya Site being a physically challenging place to visit, with its major attractions, such as the Fresco Pocket and Summit Palace, only accessible through hard climbs and staircases.

The government of Sri Lanka's project for the overall development of the new Sigiriya Museum aims to overcome such problems by the construction of a new museum. The new Sigiriya Museum is aimed to establish a deeper understanding of the cultural/historical value of Sigiriya (for both domestic and international visitors) by providing information and at the same time promote tourism. This Grant Aid Project contributes to the completion of the overall project by the procurement of display-related equipment.

The Basic Design of this Grant Aid Project was formulated following much discussion with parties concerned and after a careful survey in Sri Lanka. The design policy is that the display plan and equipment plan has to be made with the importance of Sigiriya Site in mind, particularly its status as a World Heritage site and the expected influx of international visitors. The goal is to make this museum display one of the best in the region, if not in the world. To achieve such a display, the new Museum has to be designed with a concern for the visitors' point of view and with adherence to an overall design plan – principles which have been insufficiently followed in existing museum displays in Sri Lanka. Japanese museum design and display techniques will be utilized to guide the visitor through various exhibits, to balance the amount of explanatory text, artifacts, and equipment within the display space, to maximize the visitors' enjoyment and understanding by maintaining their interest and excitement during their museum visit.

The policy regarding the grade of equipment is that Project-supplied equipment will not greatly exceed or lack in grade compared to existing equipment in Sri Lankan museums, and will not include exceedingly fancy, exceedingly experimental and new, exceedingly hard-to-maintain, or exceedingly expensive equipment. The main concern will be to achieve a grade suitable for Sigiriya's stature as a world-class

site in the eyes of international visitors, and to supply equipment that will allow for the conservation of artifacts while at the same time displaying them.

The equipment to be supplied by the Grant Aid Project is as follows:

Equipment	Description	Qty
Display case	Display case for artifacts	19
Display stand	Display stand/shelf for artifacts	5
Artifact display kit	Individual supports for artifacts	66
Museum information board	Panel showing museum information	1
Area sign	Signage in lobby areas	2
Gallery sign	Signage in galleries	7
Graphic panel	Panels to display text, graphics, and photos	56*
Graphic panel (illuminated map)	Gallery 1 archaeological setting display	1
Graphic panel (backlit)	Gallery 1 geological display	1
Landscape model	Large model of Sigiriya area under floor	1 set
Ibbankatuwa Megalithic tomb replica	Tomb and environment at discovery	1 set
Potana Man excavation environment replica	Excavation environment of skeleton	1 set
Alakolawewa iron smelting furnace replica	Recreation and reconstruction of furnace	1 set
Fresco pocket replica	Rock wall replica and paintings	1 set
Audiovisual system	Presentation of films and information	1 set
Audio system	Presentation of poem readings	1 set
Projector system for Gallery 3	Presentation of visual material	1 set
Projector system for Mini Auditorium	Presentation of films and information	1 set
Display lighting	Spotlights etc. for display objects	205

* Includes 3 printed surfaces to be attached directly to the interior wall, without panels

Project Schedule and Initial Cost Estimation

If this Project is implemented as a Japan's Grant Aid Project, the Detailed Design phase is estimated to take 1.5 months, the tender phase 2.0 months, procurement phase 14.5 months; a total of 18.0 months.

The total cost for the Sri Lankan side is approximately 37,937,000 Sri Lanka Rupees (LKR).

Relevance of the Project

The existing museum in Sigiriya is clearly less satisfactory compared to other museums in Sri Lanka in terms of the size of the building, the number and content of its exhibited artifacts, its display format, and level of service. The government of Sri Lanka considers the increase of foreign exchange earnings through the development of its cultural and tourism sectors as one of its major planning objectives, and has already started the building construction and infrastructure improvement of and around the new Sigiriya Museum.

This Grant Aid Project aims to supply the display equipment for the new Sigiriya Museum, and its expected direct effects are the following:

- 1) Establish a deeper understanding of the cultural/historical value of Sigiriya (for both domestic and international visitors) through new and improved display items that are not seen in the existing museum, specifically 19 cased exhibits of rare or valuable artifacts, 5 models or replicas, 55 explanatory panels, and 5 audiovisual exhibits.
- 2) Increase the attractiveness of Sigiriya as an educational destination for school groups, especially for History Curriculum school trips, by providing educational exhibits and facilities.
- 3) Provide elderly and physically challenged visitors a virtual experience of hard-to-access heritage through audiovisual and replica exhibits.

The expected indirect effects are the following:

- 1) Increase the proportion of visitors that visits the Museum (among visitors to Sigiriya Site).
- 2) Encourage the appreciation of the historical and cultural value of Sigiriya, increasing the number of visitors to the Site, and thus contributing to the promotion of tourism in the immediate area.
- 3) Tourism promotion results in the economic revitalization of the local area and the improvement of the standard of living for local residents.

This Project contributes to an overall project aimed to increase appreciation of the Cultural Heritage of Sigiriya by the world, and is thus relevant and suitable for Japan's Grant Aid assistance. The implementing organization's operation and management abilities, as well as their human resources, technology, and funding is sufficient and sustainable.

It should be noted that the undertakings by the Sri Lankan side that affect the schedule of this Project, such as building construction and preparation of display content information including text, graphics, and photographs, needs to be conducted in a timely manner for the smooth and effective running of this Project.

This Project's effect will be further increased if (or when) the new Sigiriya Museum, after its completion, actively encourages innovative measures in its management, education, outreach and publicity activities; spearheads the coordination and close collaboration between museums, sites, and related institutions in Sri Lanka; and promotes heritage tourism together with the local community. The new Sigiriya Museum already holds high potential to become such a forerunner institution, especially in light of the assistance offered through the planned Technical Assistance project and the Tourism Resources Improvement Project.

Contents

- Preface
- Letter of Transmittal
- Summary
- Contents
- Location Map
- List of Figures and Tables
- Abbreviations

- 1 Background of the Project 1
 - 1-1 Background of the Project 1
 - 1-2 Natural Conditions of the Project Site 3
 - 1-3 Concern for Environmental and Social Conditions 4

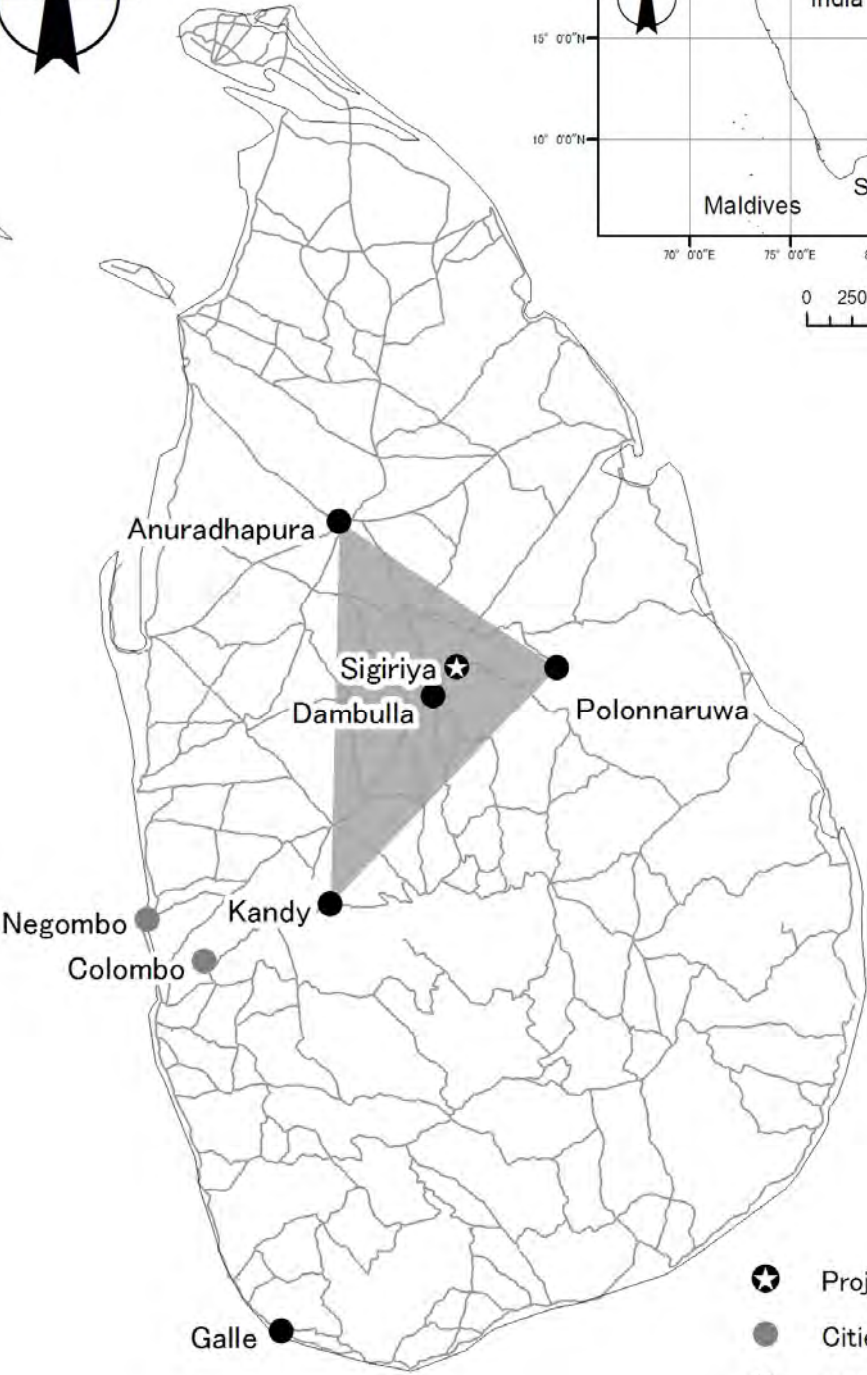
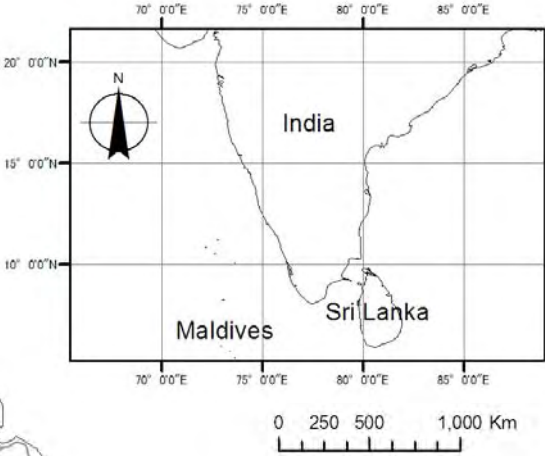
- 2 Basic Concept of the Project..... 5
 - 2-1 Basic Concept of the Project..... 5
 - 2-2 Basic Design of the Requested Japanese Assistance 7
 - 2-2-1 Design Policy 7
 - 2-2-2 Basic Plan (Exhibition/Equipment Plan)..... 10
 - 2-2-2-1 Overall/Exhibition Plan..... 10
 - 2-2-2-2 Equipment Plan..... 19
 - 2-2-3 Basic Design Drawings 25
 - 2-2-4 Implementation Plan..... 32
 - 2-2-4-1 Implementation Policy 32
 - 2-2-4-2 Implementation Conditions..... 33
 - 2-2-4-3 Scope of Works 34
 - 2-2-4-4 Consultant Supervision 34
 - 2-2-4-5 Quality Control Plan 37
 - 2-2-4-6 Procurement Plan 38
 - 2-2-4-7 Training for Initial Operation and Utilization 39
 - 2-2-4-8 Soft Component (Technical Cooperation) Plan 39
 - 2-2-4-9 Implementation Schedule..... 40
 - 2-3 Obligations of the Recipient Country 42
 - 2-4 Project Operation Plan..... 44
 - 2-5 Project Cost Estimation 46
 - 2-5-1 Initial Cost Estimation..... 46
 - 2-5-2 Operation and Maintenance Cost 46
 - 2-6 Other Relevant Issues 48






3	Project Evaluation and Recommendations	49
3-1	Project Effect	49
3-2	Recommendations.....	53
3-2-1	Recommendations	53
3-2-2	Collaboration with Other Schemes.....	55

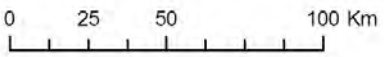
Appendices

1. Member List of the Study Team
2. Study Schedule
3. List of Parties Concerned in the Recipient Country
4. Minutes of Discussions (M/D)
5. Other Relevant Data
6. References

Location Map



-  Project Site
-  Cities
-  World Heritage Cities
-  Cultural Triangle
-  Major Roads



List of Figures and Tables

Chapter 1

Table 1-1 Monthly average temperature (°C) of Sigiriya Area (Lat 8.12° Lon 80.47°), 2002-2006

Table 1-2 Monthly average humidity (%) of Sigiriya Area (Lat 8.12° Lon 80.47°), 2002-2006

Table 1-3 Monthly rainfall (millimeters) of Sigiriya Area (Lat 7.85° Lon 80.64°), 2002-2006

Chapter 2

Figure 2-1 Summary of the Project

Figure 2-2 Floor Plan of Areas (Related to requested Japanese Assistance)

Figure 2-3 Plan of Lobby and Visitor Orientation Lobby

Figure 2-4 Plan of Mini Auditorium

Figure 2-5 Plan of Galleries 1 to 5

Figure 2-6 Plan of Fresco Gallery

Figure 2-7 Sketched impressions of wall displays

Figure 2-8 Relationship of actors in the Project

Figure 2-9 Project Implementation Schedule

Table 2-1 List of Equipment to be supplied by the Japanese side

Table 2-2 List of Equipment to be supplied by the Japanese side, by location

Table 2-3 List of Equipment to be supplied by the Sri Lankan side

Table 2-4 Undertakings of the Project Work

Table 2-5 Proposed Consultant Dispatch

Table 2-6 Equipment procurement list

Table 2-7 Planned staff allocation for the new Sigiriya Museum

Table 2-8 Estimation of costs borne by the Sri Lankan side

Table 2-9 Operation and maintenance costs

Chapter 3

Figure 3-1 Current access route for most foreign visitors

Figure 3-2 Proposed future access route for all visitors (= current domestic visitor route)

Table 3-1 Project effects

Table 3-2 Directions of Technical Assistance identified in the Project Formation Study

Abbreviations

3D	Three Dimensional
A/P	Authorization to Pay
ASEAN	Association of South-East Asian Nations
AV	Audiovisual
B/A	Banking Arrangement
CCF	Central Cultural Fund
CEA	Central Environmental Authority
DWNR	Department of Wildlife and Natural Resources
E/N	Exchange of Notes
FRP	Fiber Reinforced Plastics
IEA	Initial Environment Assessment
IT	Information Technology
JBIC	Japan Bank for International Cooperation
JOCV	Japan Overseas Cooperation Volunteers
LED	Light Emitting Diode
LTTE	Liberation Tigers of Tamil Eelam
M/D	Minutes of Discussions
NORAD	Norwegian Agency for Development Cooperation
RDA	Road Development Authority
T/N	Technical Notes
TRIP	Tourism Resources Improvement Project
UCSC	University of Colombo School of Computing
UNESCO	United Nations Educational, Scientific and Cultural Organization

Chapter 1 Background of the Project

1 Background of the Project

1-1 Background of the Project

Sigiriya is a UNESCO World Cultural Heritage Site and a major attraction for both domestic and foreign tourists. The government of the Democratic Socialist Republic of Sri Lanka (hereinafter Sri Lanka) considers the development of its cultural and tourism sectors as major objectives in its national planning; for example, the Urban Development and Human Settlement Ten Year Plan is headed by the Greater Dambulla Development Plan, which emphasizes tourism and prioritizes the protection of archaeological sites in the area, including Sigiriya, and the Culture section of the same document lists the renovation and development of important museums, including the Sigiriya Museum, among its first objectives. In this setting exists the government of Sri Lanka's project for the overall development of the new Sigiriya Museum. Its activities can be sorted into four major areas: 1) the construction of the building itself, 2) the establishment of the main Museum display, 3) operation and management, and 4) the improvement of surrounding infrastructure.

The new Sigiriya Museum development project is already progressing on its various fronts, towards the target Museum opening date of March 2009. For 1) *the construction of the building*, the government of Sri Lanka applied for Japan's Cultural Grant Aid in 2004. A Preliminary Survey conducted in response to that request concluded, however, that the magnitude of the request did not fit the Cultural Grant Aid scheme, and the Grant Aid process was suspended. Not giving up, the Sri Lankan government utilized their Aid for Increased Food Production (2nd Kennedy Round) counterpart-fund and started construction of the new Sigiriya Museum building in July 2006; the construction is expected to be finished in March 2008. For 3) *operation and management*, a request for a Technical Cooperation Project has been submitted and a project under consideration for the fiscal year 2008, following favorable findings by the Project Formation Study in September 2006. For 4) *the improvement of surrounding infrastructure*, preliminary studies and design for the improvement of access roads and Site infrastructure (for example, the staircase to the Rock Summit) has already begun as part of the Tourism Resources Improvement Project under the Japan Bank for International Cooperation Yen Loan. These infrastructure improvement schemes are also slated to be completed by March 2009.

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procurement plans were discussed and sorted out in the abovementioned Project Formation Study. In November 2006, the Sri Lankan government submitted a revised Grant Aid equipment list which generally followed the display and equipment procurement plans discussed in September 2006. Due to such a history, this Grant Aid Project is particularly focused on the procurement and installation of display-related equipment.

The excavation and research of Sigiriya Site has been energetically conducted by a division of the implementing organization for this Project, i.e. the Central Cultural Fund (hereinafter CCF)'s Sigiriya Project Office, especially since collaboration with the United Nations Educational, Scientific, and Cultural Organization (hereinafter UNESCO) began in the 1980s. The 308 staff members of CCF Sigiriya Project Office are engaged in excavation, research, and conservation activities.

When the new Sigiriya Museum is completed, the artifacts and display items of the existing museum (managed by the Department of Archaeology) will be moved into the new Museum, and the old museum building is to be demolished. The CCF Sigiriya Project Office will move its headquarters into the new Museum building, and take over the research and conservation functions of the new Museum.

The organizations concerned, the items requested by the Sri Lankan government, and the overall museum concept of the new Sigiriya Museum are as follows:

(1) Organizations concerned

- Responsible organization: Ministry of Cultural Affairs
- Implementing organization: Central Cultural Fund (CCF)

(2) Content of the request

The content of the request is the procurement and installation of the following equipment:

- Display equipment: Display cases, display stands, artifact display kits, graphic panels.
- Display signage: Museum information board, area/gallery signs, caption boards.
- Models and replicas: Sigiriya Landscape model, Water Garden hydrological model, Megalithic tomb replica, Prehistoric skeleton replica, Iron Smelting Furnace replica, Mirror Wall replica, Fresco Pocket replica.
- Audiovisual/technical equipment: Flat panel monitors, audio systems, projector systems, computers and computer network, touch panel information systems, display lighting.
- Other equipment: Ticket collection/counting unit, ticket sales counter, security monitoring facilities.

(3) Exhibit design concept

The new Sigiriya Museum is planned as a facility which functions as both museum and visitor (tourist) information center. Education and outreach activities will be as important as exhibition activities, and the focus of the facility shall be to impart knowledge and information to tourists that visit Sigiriya Site. The two overall exhibit design concepts of the New Sigiriya Museum discussed in the Project Formation Study were *to clearly separate the museum area and visitor information area through layout, and to appeal to a wide audience through an immersive museum experience.* The display and equipment plans in this Basic Design Study have been formulated in accordance to these overall exhibit design concepts.

1-2 Natural Conditions of the Project Site

According to climate data from 2002-2006, the maximum temperature of Sigiriya was 35.1 degrees Celsius, the minimum was 20.3 degrees Celsius, and monthly averages fell between 24.6 and 29.6 degrees Celsius. The monthly average humidity ranged from 57.8 to 82.9%, averaging at 70%. The average monthly wind speed ranged from 0.22 to 3.84 meters/second. The area had no recorded major natural disasters in the above period. In summary, the area has mild natural conditions, with climate that is hot but not particularly humid.

Table 1-1 Monthly average temperature(°C) of Sigiriya Area (Lat 8.12° Lon 80.47°),
2002-2006

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature	25.4	26.3	28.4	28.7	28.8	28.8	28.7	29.2	29.1	27.7	26.3	25.5

Table 1-2 Monthly average humidity(%) of Sigiriya Area (Lat 8.12° Lon 80.47°),
2002-2006

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Humidity	76.7	67.7	61.3	69.7	71.5	69.0	66.2	62.2	61.2	72.9	81.3	78.7

Rainfall varies greatly by year and month, but generally the months of May to September are dry while October to April experiences more rain. The maximum recorded rainfall in the period of 2002-2006 was 492.3mm in the month of April 2002.

Table 1-3 Monthly rainfall(millimeters) of Sigiriya Area (Lat 7.85° Lon 80.64°),
2002-2006

Year/Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2002	151.5	127.0	68.2	492.3	111.1	0.0	0.0	9.6	5.1	350.0	330.7	385.8
2003	202.2	180.1	62.2	173.9	20.3	14.2	97.7	3.4	61.9	38.7	236.5	10.9
2004	7.4	5.1	---	29.6	----	8.5	2.3	0.0	153.2	216.6	243.0	322.6
2005	8.0	26.3	13.5	28.3	27.5	0.0	25.5	---	0.0	45.8	129.7	20.7
2006	48.9	5.0	22.7	15.9	6.5	3.7	0.0	0.0	7.4	44.7	46.6	37.7

1-3 Concern for Environmental and Social Conditions

This Project does not directly affect the surrounding area, environmentally or socially, as it is limited to the supply of equipment. It should be noted, however, that the project site is situated within Sigiriya Site, and Sigiriya Site is situated within a protected archaeological, wildlife, and nature reserve. The construction of the new Sigiriya Museum has been preceded by the following preliminary assessments and has proceeded after obtaining permission from the following relevant authorities.

- Department of Archaeology: Preliminary site investigation report submitted and site cleared for construction.
- Department of Wildlife and Natural Resources (DWNR) and Central Environmental Authority (CEA): site cleared for construction after the following process:
 - Preliminary site approval was given by DWNR with Initial Environmental Assessment (IEA) as a condition; applied to CEA for IEA, who appointed a scoping agency who in turn provided the Terms of Reference for the IEA; IEA duly completed and submitted to CEA for approval, CEA approval relayed to DWNR for approval; approval obtained.
- Plan approval by the Urban Development Authority.
- Plan approval by the Dambulla Pradesya Sabha, the local authority.
- Plan approval by the Mahaveli Development Authority, as site will straddle a Mahaveli irrigation channel

Chapter 2 Contents of the Project

2 Basic Concept of the Project

2-1 Basic Concept of the Project

Sigiriya has been a UNESCO World Heritage Site since 1982. The CCF, which has been established by an Act in 1980, has since been carrying out cultural heritage conservation of this archaeological site, together with UNESCO. Sigiriya is a major attraction for both domestic and foreign tourists, welcoming approximately 600,000 visitors per year including approximately 100,000 foreigners and domestic students on school trips.

Sri Lanka has seven World Heritage Sites (including six Cultural Heritage sites) in addition to a plethora of archaeological sites and cultural monuments. Many of these sites are concentrated within the Cultural Triangle – formed by joining three major historical capitals of Anuradhapura, Polonnaruwa, and Kandy – and located in the center of the country. Sigiriya is located in the middle of the Cultural Triangle and is one of the most important archaeological sites in the region. Administratively, Sigiriya is part of Matale District, Central Province.

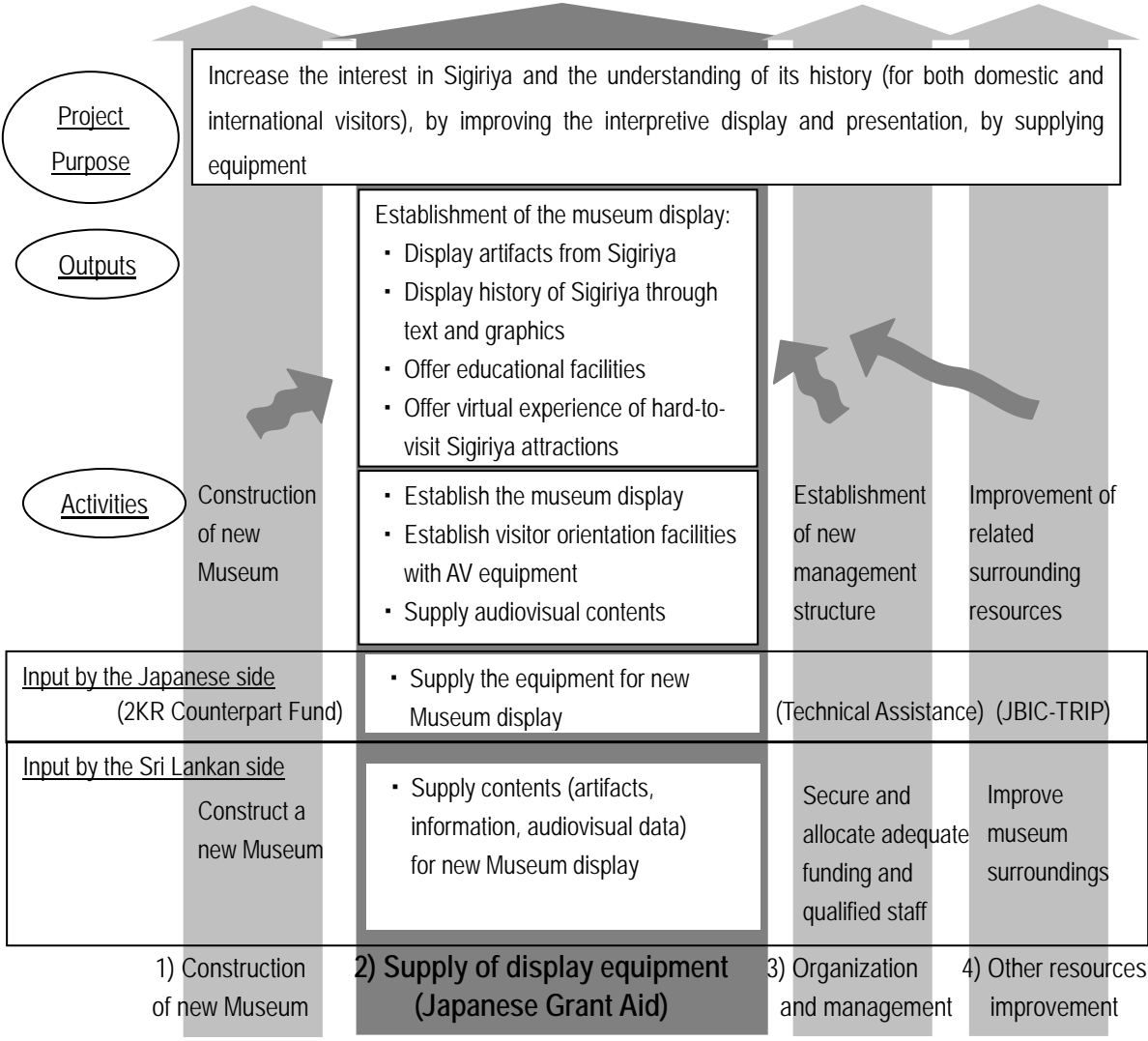
The government of Sri Lanka considers the development of its cultural and tourism sectors as major objectives in its planning. The Urban Development and Human Settlement Ten Year Plan in *Mahinda Chintana: Vision for a new Sri Lanka: A Ten Year Horizon Development Framework 2006-2016 Discussion Paper* is headed by the Greater Dambulla Development Plan, which emphasizes tourism and prioritizes the protection of archaeological sites. The Culture section of the same document lists the renovation and development of important museums, including the Sigiriya Museum, among its first objectives. The ten year plan of the CCF, titled *Development of a 10-year Policy Framework for the Central Cultural Fund (2007-2016)*, also places the construction and establishment of a Visitor Information Centre and Museum in Sigiriya as one of its early goals.

In this setting exists the larger project to develop the new Sigiriya Museum, of which this Project is part. The overall goal of the development of the new Sigiriya Museum is ‘*to establish a deeper understanding of the cultural/historical value of Sigiriya (for both domestic and international visitors), increasing the number of visitors and promoting tourism, and to ultimately contribute to an increase in the local standard of living by stimulating the local economy*’. The project purpose for this Project is ‘*to increase the interest in Sigiriya and the understanding of its history (for both domestic and international visitors), by improving the interpretive display and presentation through the supply of equipment*’.

The overall development of the new Sigiriya Museum consists of activities in four major areas, which are: 1) the construction of the building itself, 2) the establishment of the main Museum display, 3) operation and management, and 4) the improvement of surrounding facilities. This planned Grant

Aid Project applies to activity number 2), is closely intertwined with activity number 1), smooth coordination is desired with planned Japanese Technical Cooperation Project related to activity number 3), and Museum opening is scheduled to coincide with the completion of activity number 4). The new Museum's research and conservation functions will be fulfilled by the CCF Sigiriya Project, which already has experience in these fields, and will move into the new Museum building. To reiterate, this planned Japanese Grant Aid Project is an input by the Japanese Side to achieve the output 'establishment of the museum display in the new Sigiriya Museum'.

Establish a deeper understanding of the cultural/historical value of Sigiriya (for both domestic and international visitors), increase the number of visitors and promote tourism, and ultimately contribute to an increase in the local standard of living by stimulating the local economy.



Problems

- Sigiriya's existing museum does not satisfy domestic/foreign visitors, and lacks educational facilities.
- Visitor information facilities do not exist in Sigiriya.
- Some of Sigiriya's main attractions (e.g. Fresco Pocket, Palace) are physically challenging to visit.

Figure 2-1 Summary of the Project

2-2 Basic Design of the Requested Japanese Assistance

2-2-1 Design Policy

(1) Basic Design Policy

Sigiriya is a renowned and irreplaceable UNESCO World Heritage Site that receives numerous domestic and international visitors. The objectives of the development of the new Sigiriya Museum are to provide the visitors with cultural and historical information, to further their understanding and interest, and to promote tourism. This particular Grant Aid aims to assist the overall development of the new Museum by supplying display equipment that is absolutely necessary for the new Museum to succeed in its objectives.

Based on the original request by the Sri Lankan government, subsequent field survey and discussions, the following basic policies will be followed in terms of Design:

- Decisions regarding the display plan and equipment plan will be made with the importance of Sigiriya Site in mind, particularly its status as a World Heritage site and the expected influx of international visitors. The goal would be to make this museum display one of the best in the region.
- The new Museum will be designed with a concern for the visitors' point of view and with adherence to an overall design plan. Such principles have been insufficiently followed in existing museum displays in Sri Lanka. Japanese museum design and display techniques will be utilized, for example, to guide the visitor through various exhibits, to balance the amount of explanatory text versus the amount of displayed objects, to balance the amount of display objects and equipment within the display space, and to balance the graphics and text within a display panel. The aim of the previous examples is to maximize the visitors' enjoyment and understanding by establishing a well-understood storyline to maintain interest and excitement. Steps will also be taken to optimize visitor movement, and to generally make the display more than a simple arrangement of artifacts. Meticulous adherence to these considerations will produce a museum display that will match the stature and significance of Sigiriya.
- The planning should exhibit careful concern for the proper conservation of artifacts, for the preservation of the attractiveness of the site as a tourist spot, for social issues such as access for the physically handicapped, and for the Museum's publicity value among domestic and international – including Japanese – audience.

(2) Policy regarding natural conditions

Sigiriya has a hot but not very humid climate and the area is not particularly prone to natural disasters.

The new Sigiriya Museum is located among greenery within an archaeological and nature reserve. The building will straddle streams and will be surrounded by water.

The architectural plan follows an architectural concept of unity with nature, with many parts of the building opening to the environment. The basic design policy in light of this architectural plan is to maximize the effect of the architectural concept in the visitor information orientation areas by leaving them as open as possible, while closing off the main display galleries to the elements and creating an artificially lighted and air-conditioned area to maximize the effect of the display design, to maintain security, and to ensure proper conservation of archaeological artifacts.

(3) Policy regarding social and economic conditions

The new Sigiriya Museum will receive both domestic and international visitors of all ages, and thus the basic policy will be to make the display understandable and acceptable to as many visitors as possible. The basic language policy would be to use three languages (Sinhala, Tamil, and English) where possible; equipment height will be set with visiting children in mind; a flat, obstacle-free route will be made available throughout the display area; and religiously and/or culturally sensitive artifacts will be displayed with particular care.

(4) Policy regarding procurement conditions, industry-specific conditions and business traditions

The demonstrated level of technology for custom display equipment in Sri Lanka has been judged insufficient for this Project, following a field survey of the market. Suppliers satisfying the Team's criteria for display cases and panels were also nonexistent; thus the basic procurement policy is to procure models, replicas, and other display equipment in Japan.

In terms of electronic equipment and their spare parts, equipment suitable for this Project are not readily available in the popular market in Sri Lanka, although similar equipment were available on order through licensed dealerships. After due consideration of multiple factors, including the necessity of supplying a complete system, not individual parts, the Team decided that the procurement policy for electronic equipment will be to procure these items in Japan.

For the printed sheets on panels and signage, the existing samples in Sri Lanka were also judged somewhat insufficient in quality, but considering the necessity of close collaboration with experts and researchers in Sri Lanka and the necessity of printing the sheets in Sinhala and Tamil, it has been decided that local procurement is most practical for this item. To achieve the level of quality desired, the Team considers that quality control by the Japanese side as absolutely necessary. As each sheet must be checked not only for total design and layout, but also in terms of contextual accuracy – the text, graphics, and photographs must be proofed and checked by an archaeologically literate person – and especially as graphic panels constitute a major element in the display, the policy will be to provide

quality control through consultant procurement supervision. Another item where local procurement has been deemed suitable is the Fresco Pocket paintings, as there are multiple artists in Sri Lanka with suitable experience and skill. Like the abovementioned printed sheets, the policy will be to provide Japanese consultant procurement supervision to ensure quality.

(5) Policy regarding the effective utilization of local suppliers

There are multiple suppliers of transportation services and interior finishing services with sufficient if generic experience in Sri Lanka, who would be suitable for the transportation and installation of equipment. The policy for the transportation and installation of Project equipment would be to effectively utilize local suppliers for these tasks, but strictly under the technical supervision of the main contractor, especially as the Project equipment consists of order-made and hard-to-replace items.

(6) Policy regarding the implementing organization's operational and management abilities

CCF, the organization responsible for the operation and maintenance of the new Sigiriya Museum, has experience in the operation and management of similar museum facilities. There has been a flurry of museum improvement and remodeling from the late 1990s onwards in Sri Lanka, including the Colombo National Museum and multiple CCF site museums. Such improvement and remodeling are aimed to increase the attractiveness of the site and/or museum for tourists. Another movement is to upgrade or newly provide audiovisual equipment and auditorium facilities in museums, the aim of which is to utilize the museum as an educational tool, mainly for school groups. No major problems are foreseen in CCF's ability to operate and manage the new Museum, as they have led such movements, and as they are currently smoothly operating various site museums with adequate staff allocated to various positions, such as visitor liaisons and security.

The CCF Sigiriya Project office has an artifact conservation and preservation unit with experience in conservation and maintenance of sensitive artifacts. The unit already utilizes desiccants and drying ovens during their normal course of work.

The CCF is a financially independent organization, operating in principle on income generated by the sales of entrance tickets to various museums and sites, and no major problems are foreseen in their ability to secure and allocate funding to the maintenance and management of the new Museum.

A problem seen in similar facilities within Sri Lanka was the failure and breakage of electronic equipment due to the fluctuation and surges in electricity supply, a problem particularly common in security system equipment. To counteract this problem, the policy will be to include stabilizers and surge protectors in the specifications of all electricity-dependent display equipment. The system of maintenance, cleaning of display equipment, and visitor control are already well established in CCF museums. Equipment maintenance instruction will be given to appropriate staff member(s) at the time of equipment installation; the Team will ascertain that such staff member(s) are to be appointed

by the time of equipment installation.

(7) Policy regarding the grade of equipment

The grade of equipment will be set so that Project-supplied equipment will not greatly exceed or lack in grade compared to existing equipment in Sri Lankan museums, and will not include exceedingly fancy, exceedingly experimental and new, exceedingly hard-to-maintain, or exceedingly expensive equipment. The main concern will be to achieve a grade suitable for Sigiriya's stature as a world-class site in the eyes of international visitors, and to supply equipment that will allow for the conservation of artifacts while at the same time displaying them.

(8) Policy regarding procurement methods and schedule

This Project requires about 18 months until completion, counting from the Exchange of Notes (hereinafter E/N). The manufacture of equipment will begin after the signing of the agreement with the contractor, equipment design planning, design plan drawing, and approval.

The equipment procured in Japan will be inspected after manufacture and before shipping, shipped, land-transported together with equipment procured in Sri Lanka (which shall also be inspected at completion), and installed. The rock wall replica of the Fresco Pocket replica will be transported and installed together with other equipment from Japan, and the copying of the painting shall be done on site, before handover.

2-2-2 Basic Plan (Exhibition/Equipment Plan)

2-2-2-1 Overall/Exhibition Plan

The following design concepts, originating in the Project Formation Study in September 2006 and confirmed in the Basic Design field survey, shall be followed in exhibit planning.

(1) Exhibit design concepts

The new Sigiriya Museum is not a purely archaeological museum, but a multiple-function facility with a visitor information center aspect. A purely archaeological museum is planned with equal weight to three museum functions: exhibiting artifacts, researching and storing artifacts, and education and outreach. In the new Museum, the emphasis is on two functions; exhibition, and education/outreach. Notably, the provision of information, service, and space to casual visitors and tourists are considered high priority functions.

Considering the unique circumstances of the new Museum, two main design concepts have been identified, as follows:

Concept 1: Clearly separate the museum area and visitor information area through layout.

- The building will be separated into two main areas with separate functions – an introductory, simple lobby zone and a full-blown archaeological museum zone centered in the Galleries – connected by a corbelled arch. The corbelled arch will serve as an entrance to the Journey Back in Time.
- In the lobby zone, the Lobby will function as a waiting area for the outdoor theater and the museum zone, and exhibit simple and symbolic displays. The Visitor Orientation Lobby will function as a tourist information center and show short visitor information videos.

Concept 2: Appeal to a wide audience through an immersive museum experience.

- The Journey Back in Time will begin in the main part of the museum zone (the five Galleries), and follow a timeline to introduce sites in and around Sigiriya.
- The five Galleries will have a double-decked floor, and the floor level will vary in both visitor route and display. A flat main walkway will be provided for the physically handicapped. The double-decked floor will solve the problem of low ceiling height in the Galleries.
- The exhibits in the Galleries will follow a storyline and keep visitors surprised and interested in what comes next. A centerpiece – a landscape model of the main Palace and Gardens ruins around Sigiriya Rock – will accentuate the storyline.
- A clear theme and message will be identified and identifiable in each Gallery in addition to the storyline, and will provide a unified (as opposed to haphazard) museum experience for the visitor.
- The Journey Back in Time will end when the visitor exits the fifth Gallery through the spiral staircase, which leads to a full-scale replica of the Fresco Pocket on the upper floor. The Fresco Gallery lets the visitor re-experience the wonder of discovery by archaeologists, and at the same time serves as a virtual preview of the site itself.

(See Figure 2-2)

(2) Exhibit plan for the introductory lobby zone

The introductory lobby zone is comprised of the Visitor Orientation Lobby, which will introduce the Museum and site through short videos; the Lobby, a resting and waiting area ornamented with symbolic displays; and the Mini Auditorium, which will function as a visitor center for larger groups.

1) Visitor Orientation Lobby

The Visitor Orientation lobby will function as a tourist information center and show short visitor information videos.

(See Figure 2-3)

- Tourist information of the Sigiriya area will be disseminated through short film screenings.
- Large flat-screen monitors in a standing-only hall allow for a large number of visitors.
- Three screens will be provided, for presentation in multiple languages, and for the possibility of simultaneous screening of introductory films covering different topics.
- The screens will be arranged next to each other, to invoke the image of the *Vesak Torana*.
- The plan is to initially screen edited (shortened) video clips made from existing audiovisual material. Some candidates for editing are the 1983 Sigiriya documentary, with existing soundtracks in English, French, and Japanese, and the film currently being shown in other CCF museums that includes introductory segments on Sigiriya.
- Equipment categories: audiovisual system, area sign.

2) Lobby

The Lobby will function as a waiting area for the outdoor theater and the museum zone, and also introduce the site through symbolic displays.

(See Figure 2-3)

- The Lobby serves many functions (as a lobby for the outdoor theater, waiting area for the museum zone, resting area, etc.) and will be ornamented by symbolic displays.
- The symbolic displays will consist of the Mahameru Stone, a central pillar found inside a Buddhist stupa, and relevant selected verses from the Culavamsa in three languages.
- The Mahameru Stone is currently housed in the Colombo National Museum and negotiations are underway for its loan. The relevant verses of the Culavamsa have been identified by the Expert Committee and the Tamil translation has been accepted as one of the undertakings by the Sri Lankan side.
- Equipment categories: display case, graphic panel (glass panel), museum information board, area sign, display lighting.

3) Mini Auditorium

The Mini Auditorium provides seated space for visitor orientation purposes, similar to other museum auditorium spaces seen in Sri Lanka. It will be located on the second floor (above the Lobby) and is envisioned to cater to domestic student groups on school trips and larger tourist groups that speak a non-English language.

(See Figure 2-4)

- The seated auditorium is available in most Sri Lankan museums; this new Museum will have one on the second floor, catering to school groups and large tourist groups requiring introduction in languages other than English.
- In contrast to the Visitor Orientation Lobby with its automated audiovisual presentations, this facility accommodates a presenter and seminar-style events.

- In the future, this room can be additionally equipped for 3D software and database use.
- Equipment categories: projector system.

(3) Exhibit plan for the museum zone

1) Gallery 1

Gallery 1 begins the Journey Back in Time through section ‘Archaeological Setting’, ‘Prehistory’, ‘Protohistory’, and ‘Early iron production’.

Theme: Sigiriya in its Setting

Message: The significance of Sigiriya in the early periods of its history

Equipment categories:

‘Archaeological setting’:

Graphic panels (incl. illuminated map and backlit panels).

‘Prehistory’:

Potana man excavation environment replica, display cases, artifact display kits.

‘Protohistory’:

Ibbankatuwa Megalithic Tomb replica, display cases, artifact display kits.

‘Early iron production’:

Alakolawewa iron smelting furnace replica, display cases, artifact display kits.

Overall: gallery sign, graphic panels, display lighting.

- The ‘Archaeological Setting’ section consists of panel displays, while the remaining sections feature a simple arrangement with a replica (Potana man skeleton, megalithic tomb, and iron smelting furnace, all actual size) and real artifacts.
- In each area, the replicas are combined with panels and artifacts, so that the period is ‘experienced’ as a whole, instead of merely observed within a glass case.
- Collecting data for replicas, locating artifacts, and contents creation for panels will be done by the Sri Lankan side. The manufacture of some artifact replicas (where actual artifacts could not be obtained) is also an undertaking of the Sri Lankan side.
- A description of display by wall/floor section is as follows:

(Circled numbers correspond to those in Figure 2-5)

- ① Wall: (Distributor board and control for wired panels)
- ② Wall: ‘Sigiriya in its Setting’ text
- ③ Wall: ‘Geology’ text and graphics
- ④ Wall: periodization chart (text and graphics), illuminated map describing Sigiriya in different periods, ancient territories (text and graphics), gallery sign
- ⑤ Wall: ‘Prehistory’ text and graphics

Floor: Potana Man excavation environment replica (actual size), display cases (Potana Man skeleton, stone tools, bone tools, etc.)

- ⑥ Wall: Potana Man excavation photo
Floor: same as ⑤
- ⑦ Wall: 'Protohistory' text and graphics
Floor: Ibbankatuwa Megalithic tomb replica (actual size)
- ⑧ Wall: Megalithic tomb photo, display case for small artifacts
Floor: same as ⑦, display case (funerary artifacts, ornaments, etc.)
- ⑨ Wall: 'Early iron production' text and graphics, Alakolawewa iron smelting furnace replica (actual size), display case (parts of furnace, other artifacts)

2) Gallery 2

Gallery 2 is centered on the presentation of statues and sculpture from the Early and Late Monastic Periods. Photos, architectural plans, and maps will also be exhibited.

Theme: Early and Late Period Monasteries

Message: Sigiriya's incarnation as monastic sites, and the art from that period

Equipment categories:

Display stands, artifact display kits, gallery sign, graphic panels, display lighting.

- The entire Gallery will be presented artistically through the use of display lighting. The artifacts will not be presented clearly by time period; rather, the emphasis is on presenting fragmentary and ordinary sculpture as art to domestic visitors, in order to increase their appreciation of such ordinary objects and the importance of archaeological conservation.
- It was originally intended to lower the floor level in relationship to the walkway, in order to create a spacious, dark well of space. This was reversed to a raised floor display, in order to respect cultural and religious sensibilities. Most of the Gallery space is designed as a sub-gallery, to be viewed as a whole from the walkway, and this raising of the floor does not present access problems for the physically handicapped. The change in floor level adds visual interest to the visitor route.
- The story of King Kasyapa is introduced in the walkway at the end of Gallery 2, thus leading to the contents of Gallery 3.
- The Sri Lankan side is locating the artifacts and creating the panel content.
- A description of display by wall/floor section is as follows:

(Circled numbers correspond to those in Figure 2-5)

Floor of Gallery 2: Display stands (Buddhism-related statues and sculpture)

- ⑩ Wall: Early Monastic Period photos
- ⑪ Wall: 'Early/Late Monastic Period' text and graphics, gallery sign

- ⑫ Floor: Display stand (Intermediate Period seated Buddha)
- ⑬ Wall: Monastery plans, Bohdi Temple plans, and other panels
- ⑭ Wall: Kasyapa story text

3) Gallery 3

Gallery 3 deals with the world-famous Royal Palace, and it serves as a focus and centerpiece of the entire museum zone, both content-wise and planning-wise.

Theme: Royal Palace and The Golden Age of Sigiriya

Message: The scale and planning of the famous Royal Palace

Equipment categories:

Landscape model, projector system, display stands, artifact display kits, gallery sign, display cases, graphic panels, display lighting.

- As the artifacts of this period lacked flair, a large landscape model of the area surrounding Sigiriya Rock was agreed upon by both sides as a centerpiece, presented under a reinforced glass floor so that the visitor can ‘fly’ over the model and view the details from every angle.
- The landscape model will be around 1/200 scale, and the Sigiriya Rock will rise above the glass floor within its glass case. This presentation method solves the issue of religious sensitivity brought up during the Project Formation Study, and also creates a display with impact. The under-floor model also creates an open space within the visitor route necessary for optimal crowd movement.
- Panels will feature important and academically well-accepted information about this period, such as ‘the scale and structure of the Palace’, ‘ancient urban planning’, ‘summit Palace structure’, and ‘water garden engineering’, in text and graphics.
- As researchers have not agreed upon a reconstruction of the Palace or Lion Staircase, multiple reconstruction drawings will be presented in a slide show through the projector system.
- This projector system can also be used to present 3D fly-through animation of reconstructed palace (i.e. virtual reality presentations), which is under consideration by the Sri Lankan side.
- Artifacts in this Gallery can be roughly divided by material (brick/terracotta or metal), and each kind will be presented in its own area with suitable display stands, cases, and panels.
- The Sri Lankan side is collecting data for the landscape model, locating artifacts, and creating display content.
- A description of display by wall/floor section is as follows:

(Circled numbers correspond to those in Figure 2-5)

Under the floor (whole Gallery): Landscape model

Upper wall space: Projector system screen (see cross-section in Figure 2-5)

- ⑮ Wall: ‘Royal Palace and the Golden Age of Sigiriya’ text, ‘scale and structure of the Palace’ text and graphics, ‘ancient urban planning’ text and graphics, photos, gallery sign
- ⑯ Wall and floor: display cases (architectural elements and ornaments from the Palace – mostly terracotta and brick)
- ⑰ Wall: ‘summit Palace structure’ text and graphics, ‘water garden engineering’ text and graphics, projector system
- ⑱ Wall: panel about artifacts
Floor: display case (metal artifacts)

4) Gallery 4

Gallery 4 introduces important and famous artwork from Sigiriya: the Mirror Wall graffiti poems, fresco paintings, and terracotta souvenir figurines.

Theme: Paintings, Poetry, and Sculpture

Message: The importance of Sigiriya in the art and literature of Sri Lanka

Equipment categories:

Audio system, display cases, artifact display kits, gallery sign, graphic panels, display lighting.

- The Mirror Wall exhibit, which is the focus of this Gallery and was originally planned with an actual-size replica as the centerpiece, shall instead be a layered multiple-panel exhibit centered on the graffiti poems with a directional shower of sound (poem readings) coming from the audio system on the ceiling. This section will again utilize the double-decked flooring and create a vertically spacious area, adding visual interest to the visitor route. The room is planned as a sub-gallery to be viewed as a whole from the walkway, and this changing of floor levels does not present access problems for the physically handicapped.
- The fresco paintings in this Gallery will be from the Boulder Garden monastic caves and from the outside surface of the Mirror Wall – the latter a very recent discovery – recreated in actual size on canvas.
- The featured artifacts are the terracotta souvenir figurines in addition to other small but fine examples. These artifacts would be presented in a relatively high-grade display case, impressing on the visitor their value.
- The Sri Lankan side is locating the artifacts and creating display content. Most of the fresco copies already exist. Some new photography might be necessary as an undertaking by the Sri Lankan side.
- The Mirror Wall graffiti must be identified and deciphered by an outside expert; the commissioning of this expert is also an undertaking by the Sri Lankan side.

- A description of display by wall/floor section is as follows:
(Circled numbers correspond to those in Figure 2-5)

- ⑱ Wall: ‘Paintings’ text, ‘Sculpture’ text, gallery sign
- ⑲ Wall: fresco paintings (copies)
- ⑳ Wall: ‘Mirror Wall and graffiti poems’ text and graphics
Floor: display case (graffiti poem map)
Ceiling: audio system
- ㉑ Wall: fresco paintings (copies)

5) Gallery 4/5

Gallery 4/5 will be full of small artifact displays. The Sigiriya Earring (replica) will be the focus of the exhibit, and the entire Gallery will be designed around this focal point with a curved display wall drawing attention to it. The Sigiriya Earring will have its own display case with a built-in magnifying glass for the viewers’ enjoyment.

Theme: Courtly and Monastic Life

Message: Everyday life in Sigiriya

Equipment categories:

Display cases, artifact display kits, gallery sign, graphic panels, display lighting.

- The curved display wall will show a collage of blown-up photos of the Sigiriya Earring, and will also have openings to allow for free visitor movement.
- Across the curved display wall, display cases and panels will feature pottery dishes, import ceramics, coins, and other artifacts from the periods featured in Galleries 2 to 4.
- The manufacture of the Sigiriya Earring replica will be undertaken by the Sri Lankan side.
- The renaming of Gallery 4/5 to ‘Gallery 5’ is under consideration.
- A description of display by wall/floor section is as follows:

(Circled numbers correspond to those in Figure 2-5)

- ㉒ Wall: ‘Courtly and Monastic Life’ text and graphics, map, text and graphics on foreign trade, text and graphics on coins, display case (coins)
Floor: display cases (ornaments, pots and dishes from court and monasteries)
- ㉓ Wall: Sigiriya Earring collage, gallery sign
Floor: display case (Sigiriya Earring replica)

6) Gallery 5

The curved display wall separates Gallery 5 from Gallery 4/5. Gallery 5 continues the journey through Sigiriya’s history, through the missing centuries to the re-discovery of the site by

archaeologists (and introduces the visitor to the history of archaeology in Sri Lanka). The Journey Back in Time ends with panels on future research.

Theme (tentative): The Missing Centuries, Rediscovery of Sigiriya, and Ethnoarchaeology

Message: Sigiriya was never 'lost'

Equipment categories:

Display cases, display stand, artifact display kits, gallery sign, graphic panels, display lighting.

- The ethnoarchaeological display utilizes the outside of the curved display wall, a collage of photos and actual artifacts (or replicas). The two sides of this curved wall will add an art-gallery feel to the museum.
- The Sri Lankan side is locating the artifacts and creating display content. Some outside expertise is required to identify artifacts – outside consultation and the manufacture of artifact replicas (where original artifacts are unavailable) are undertakings by the Sri Lankan side.
- The Gallery exit leads to the spiral staircase and the Fresco Gallery. Care would be taken to present the spiral staircase as a part of the display.
- The renaming of Gallery 5 to 'Gallery 6' is under consideration.
- A description of display by wall/floor section is as follows:

(Circled numbers correspond to those in Figure 2-5)

⑤ Wall: 'Hidden Centuries' text, photo panels, gallery sign

⑥ Wall: 'Archaeological History' and 'Future Research' (tentative) text and graphics, photo panels, display case (lion tile terracotta)

Floor: display cases (doorlock etc.)

⑦ Wall: 'Ethnoarchaeology' and 'Landscape Archaeology' text and graphics

⑧ Wall: 'Folk Figurines' text and graphics, display cases (folk figurines and replicas), display stand (grinding stones)

7) Fresco Gallery

The Fresco Gallery will be split into two halves due to architectural constraints, so the fresco pocket will be replicated in two halves, actual size.

Theme (tentative): The Fresco Pocket

Message: Taking a closer look at the famous paintings

Equipment categories: Fresco pocket replica, gallery sign, graphic panel, display lighting.

- The Gallery will give a virtual experience to visitors who cannot visit the actual site, and give a closer look under better lighting conditions to others.

- The exit ramp allows access to those who cannot climb the spiral staircase
(See Figure 2-6 for the spatial relationship between Galleries 1-5 and the Fresco Gallery)

2-2-2-2 Equipment Plan

The equipment plan has been made based on the above display plan, and with due consideration to the purposes, location, quantity and specification of equipment that can be supplied as under the Grant Aid scheme. All equipment shall be transported to the new Sigiriya Museum and set and/or installed.

(1) Display cases

The function of a display case is to display and at the same time conserve and preserve precious artifacts. Anti-theft designs, the use of safety glass, and, in some cases, air-tightness and humidity control are required.

(2) Display stands

The function of display stands are to support and display stone statues and sculptures. The material will be steel, due to the weight of the artifacts in question.

(3) Artifact display kits

These kits support artifacts of various materials, and the kits themselves will be made of metal, epoxy or plastic, wood, glass, etc. depending on the requirements of the display.

(4) Signage

4-1) Museum information board

A board in the Lobby will give information about the whole museum building, together with floor plans.

4-2) Area signs

The area signs will show the name of the area, plan, and purpose (text summary) in the Visitor Orientation Lobby and Lobby, to inform visitors and guide visitor movement.

4-3) Gallery signs

The gallery signs will give the gallery name, plan, and purpose (text summary) in seven locations within the Galleries, to inform visitors and guide visitor movement.

(5) Graphic panels

5-1) Graphic panels

Panels will be used for the display of text, graphics, photos etc.

5-2) Graphic panel (illuminated map)

Site distribution maps from various periods, showing Sigiriya's position in the archaeological landscape, will be displayed using LED illumination in Gallery 1.

(See Figure 2-7)

5-3) Graphic panel (backlit)

The geological diagram of Sigiriya Rock will be overlaid on a photo of rock stratigraphy using backlit 'contra-vision' panels.

(See Figure 2-7)

(6) Landscape model

A landscape model with Sigiriya Rock in its center will be placed under floor level in Gallery 3. The floor will be made of reinforced glass, covering most of the model except the Sigiriya Rock itself, which will emerge from floor level within a glass case with railings. The model includes the glass floor and supporting frame in its specifications.

(7) Potana Man excavation environment replica

The excavation environment of the Potana Man skeleton will be recreated in replica, in Gallery 1. The environment around the skeleton will be in replica, while the skeleton itself will be exhibited in the original.

(8) Ibbankatuwa Megalithic tomb replica

The scene of discovery and excavation of the tomb will be re-created in Gallery 1, through a replica of the tomb and its surrounding environment.

(9) Alakolawewa iron smelting furnace replica

The Alakolawewa furnace will be recreated in Gallery 1 by a replica of the excavated furnace base and a full-scale reconstruction of the furnace body.

(10) Fresco Pocket rock wall replica and paintings

The shape of the pocket and the fresco paintings will be replicated accurately in the Fresco Gallery, although due to exhibit space constraints the pocket will be recreated in two halves. The rock wall surface will be replicated using FRP (fiber reinforced plastic) and the fresco

paintings will be hand-copied onto the replica surface.

(11) Audiovisual system

The audiovisual equipment will be used to disseminate visitor information, including tourist information of the larger Sigiriya area. Large flat screen monitors were chosen because they are clearly visible in lighted conditions, require no air conditioning, and large enough to be viewed by a crowd of standing visitors. Three screens will allow for multiple-language screenings, as well as multiple topic screenings.

(12) Projector system in Gallery 3

This projector system will be used to present visual information in Gallery 3, such as reconstruction diagrams of the Palace and the Lion Staircase. As the reconstructions are not universally accepted among researchers, multiple diagrams will be shown in slide-show format using the projector system, instead of permanently on panels. It was originally envisioned to allow for visitor control of the projector through a touch-panel system, but later reconsidered due to the risk of malfunction and breakdown. Rather, the projector system will cycle through pre-programmed material and can also be controlled by museum staff.

(13) Audio system

An audio presentation system for Gallery 4 will play recordings of Mirror Wall graffiti poem readings. The display plan of the Mirror Wall has changed from an actual-size replica to a layered panel display with a shower of sound, due to the difficulty in choosing a section of the Mirror Wall to replicate for display.

(14) Projector system in Mini Auditorium

The Mini Auditorium projector system will be used to present visitor information to large groups – domestic student groups are envisioned as the main users, as well as large foreign tourist groups requiring a language of presentation other than English. In contrast to the Visitor Orientation Lobby with its automated audiovisual presentations, this facility accommodates a presenter and seminar-style events.

(15) Display lighting

To secure suitable lighting for each display, and to allow for future changes in the display layout,

movable lighting equipment, laid on tracks and with dimmer adjustments, are required.

The glass panel display of Culavamsa verses, to be located in the Lobby, has been determined to be more suitable as an undertaking by the Sri Lankan side, due to it being a part of the building and due to the availability of etched glass panels in Sri Lanka. This decision was explained to the Sri Lankan side, and agreed upon by both sides, during the explanation of the draft report.

Table 2-1 List of Equipment to be supplied by the Japanese side

Equipment	Description	Location (*)	Qty	Specification	Remarks
Display case	Display case for artifacts	LB,G1,G3,G4,G4/5,G5	19	High transparency glass A-1(Qty=2), A-2(Qty=3) A-3(Qty=2), B(Qty=4), C-1(Qty=1), C-2(Qty=5), D(Qty=2)	A-D denotes cases of different size (7 types)
Display stand	Display stand/shelf for artifacts	G2,G3,G4,G5	5	Steel	
Artifact display kit	Individual supports for artifacts	LB,G1,G2,G3,G4,G4/5,G5	66	Metals, plastic, wood, glass	
Museum information board	Panel showing museum information	LB	1	Printed sheets and steel plates	
Area sign	Signage in lobby areas	VOLB, LB	2	Printed sheets and steel plates	Local procurement for printed sheets
Gallery sign	Signage in galleries	FG,G1,G2,G3,G4,G4/5,G5	7	Printed sheets and steel plates (3 photographic sheets to be directly applied to wall, i.e. no board)	Local procurement for printed sheets
Graphic panel	Panels to display text, graphics, and photos	LB, FG, G1, G2,G3,G4, G4/5,G5	56	Printed sheets and boards	Local procurement for printed sheets
Graphic panel (illuminated map)	Gallery 1 archaeological setting display	G1	1	Illuminated map panel	
Graphic panel (backlit)	Gallery 1 geological display	G1	1	Backlit panel with positive film	Contravision

Landscape model	Large model of Sigiriya area under floor	G3	1	Painted FRP (main segment W5700×D5100×H950)	Includes glass floor and frame
Ibbankatuwa Megalithic tomb replica	Tomb and environment at discovery	G1	1	Painted FRP Actual size (W3250×D1400×H500**)	
Potana Man excavation environment replica	Excavation environment of skeleton	G1	1	Painted FRP Actual size (W3570×D3570×H200***) with glass case	Actual skeleton to be displayed
Alakolawewa iron smelting furnace replica	Recreation and reconstruction of furnace	G1	1	Painted FRP Actual size (W1495×D1575×H2000***)	
Fresco pocket replica	Rock wall replica and paintings	FG	1	Lightweight steel frame, painted FRP Pocket A : W10810×H3900 Pocket B : W12310×H3900	Local procurement for painting
Audiovisual system	Presentation of films and information	VOLB	1	Flat panel monitors (3), DVD player, amplifier, speaker, stabilizers etc.	
Audio system	Presentation of poem readings	G4	1	Audio unit, control unit, directional speakers, stabilizers etc.	
Projector system for Gallery 3	Presentation of visual material	G3	1	Projector, screen, DVD player, stabilizers etc.	
Projector system for Mini Auditorium	Presentation of films and information	MA	1	Projector, screen, computer, DVD player, VCR, wireless microphone, stabilizer etc.	
Display lighting	Spotlights etc. for display objects	VOLB, LB, G1-5,FG	205	With dimmers	

*Location LB : Lobby VOLB : Visitor Orientation Lobby
G1 : Gallery 1 FG : Fresco Gallery
MA : Mini Auditorium

** Triangular in shape, W and D denote lengths of two short sides of triangle

*** Size of main section, to be positioned on triangular base

Table 2-2 List of Equipment to be supplied by the Japanese side, by location

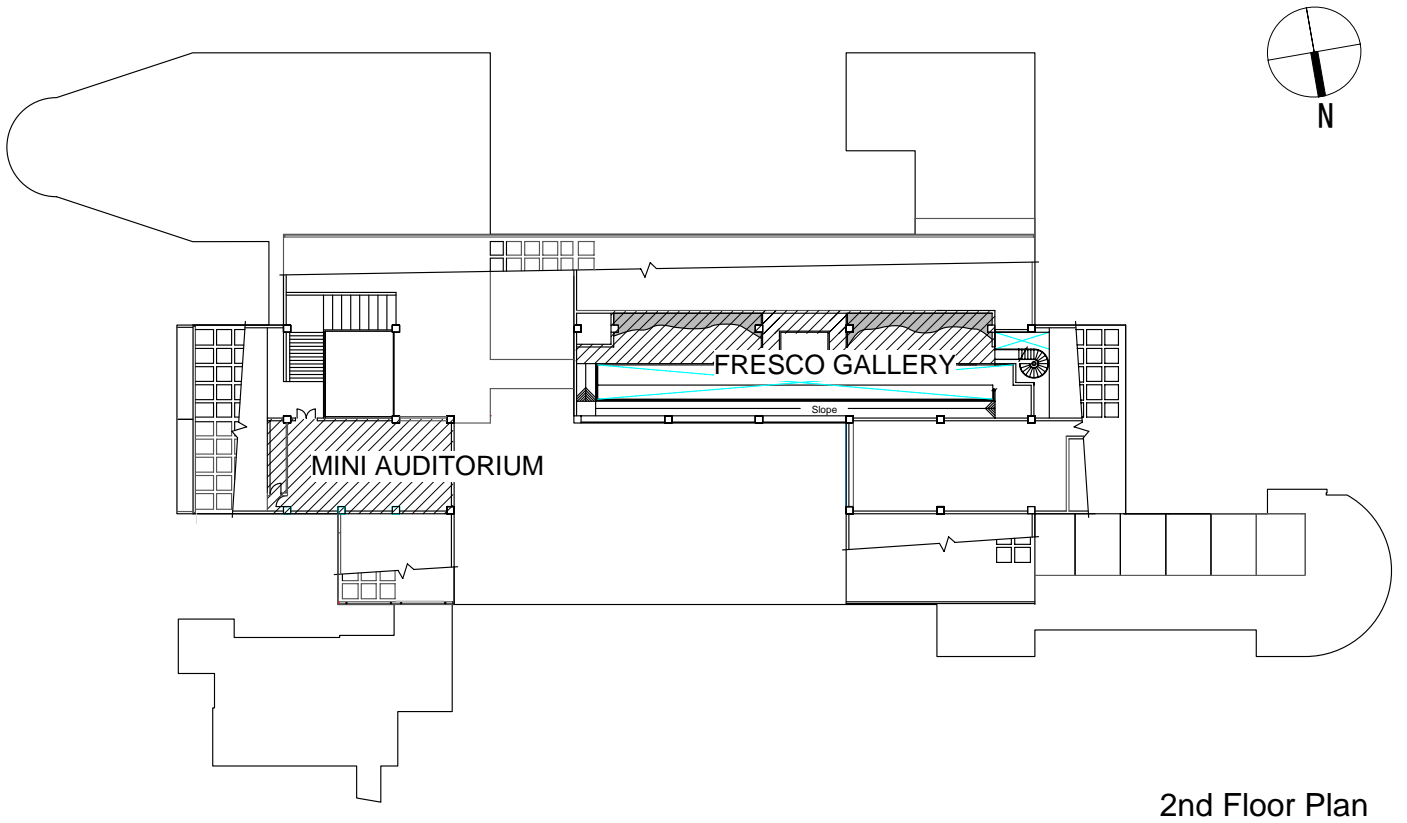
NO.	DESCRIPTION	Q'TY	UNIT	BREAKDOWN OF THE TOTAL EXPENDITURE										
				VISITOR	ORIENTATION LOBBY	LOBBY	MINI AUDITORIUM	GALLERY 1	GALLERY 2	GALLERY 3	GALLERY 4	GALLERY 4/5	GALLERY 5	FRESCO GALLERY
1	DISPLAY CASE	19	Set		1			3		3	6	4	2	
2	DISPLAY SHELVES/STAND	5	Set						2	1	1		1	
3	ARTIFACT DISPLAY KIT	66	Set		1			6	11	33	6	2	7	
4	1 MUSEUM INFORMATION BOARD	1	Set		1									
4	2 AREA SIGN	2	Set	1	1									
4	3 GALLERY SIGN	7	Set					1	1	1	1	1	1	1
5	1 GRAPHIC PANEL	56	Set	3	1			13	7	11	6	7	7	1
5	2 GRAPHIC PANEL (ILLUMINATED MAP)	1	Set					1						
5	3 GRAPHIC PANEL (BACK LIGHTED)	1	Set					1						
6	LANDSCAPE MODEL OF SIGIRIYA	1	Set							1				
7	REPLICA OF POTANA MAN EXCAVATION ENVIRONMENT	1	Set					1						
8	REPLICA OF IBBUNKATUWA MEGALITHIC TOMB	1	Set					1						
9	REPLICA OF ALAKOLAWEWA IRON SMELTING FURNACE	1	Set					1						
10	REPLICA OF FRESCO POCKET	1	Set											1
11	AV SYSTEM	1	Set	1										
12	PROJECTOR SYSTEM FOR GALLERY 3	1	Set							1				
13	AUDIO SYSTEM	1	Set								1			
14	PROJECTOR SYSTEM FOR MINI AUDITORIUM	1	Set				1							
15	LIGHTING FIXTURE	205	Set	6	8			37	27	27	26	19	31	24

Table 2-3 List of Equipment to be supplied by the Sri Lankan side

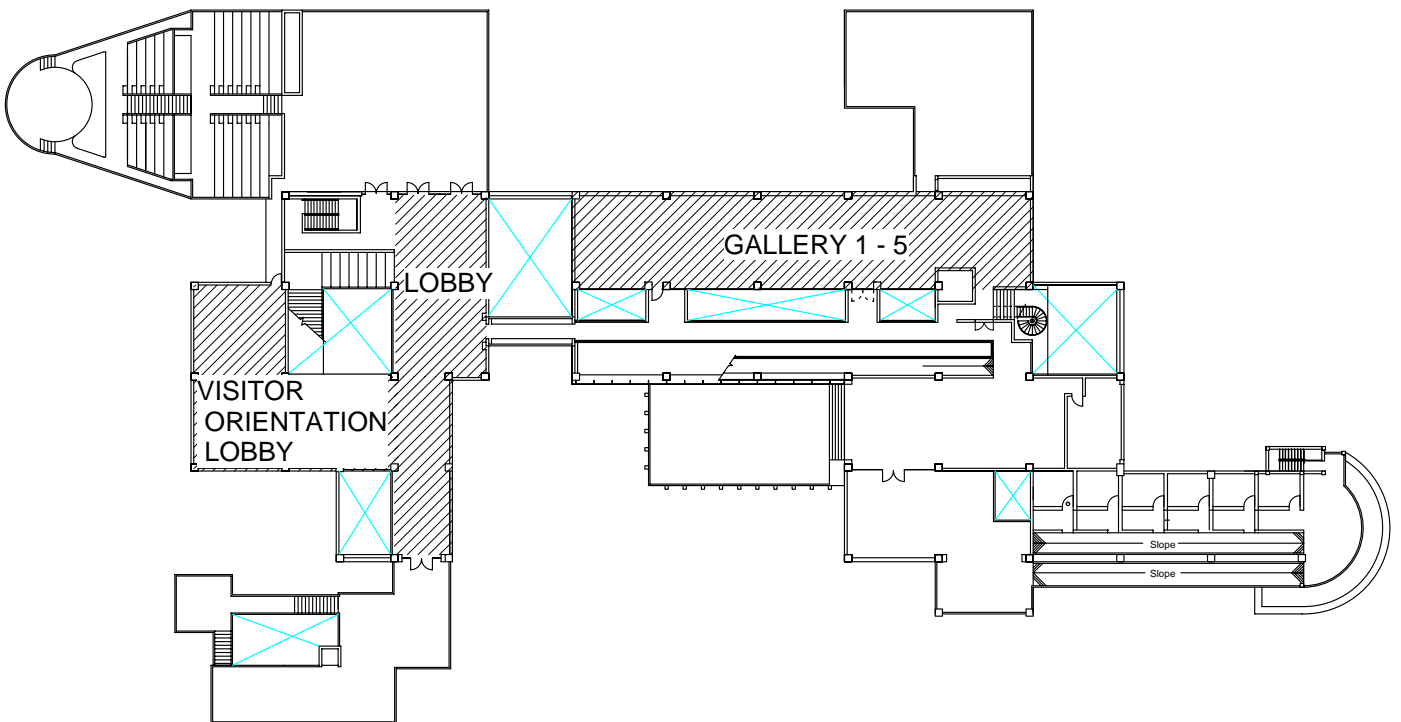
Equipment	Description/Specifications	Remarks
Glass panel	For Culavamsa text display	Included in construction
Caption boards	Name plates for artifacts etc.	To be made by CCF
Replica of Sigiriya Earring	Sigiriya Earring	
Replica of Ibbankatuwa beads	Striped beads	
Replica of Ibbankatuwa necklace	Necklace of beads	
Replicas of folk figurines	Terracotta folk figurines	
Security system	Two-way radio for personnel	
Ticket counter	Standard ticket booth	
Generator	For whole Museum building	

2-2-3 Basic Design Drawings

The figures on the following pages are plan drawings of locations where Project equipment shall be installed:



2nd Floor Plan



1st Floor Plan

Figure 2-1 FLOOR PLAN OF AREAS RELATED TO REQUESTED JAPANESE ASSISTANCE

The Project for the Improvement of Display Equipment of the Sigiriya Museum



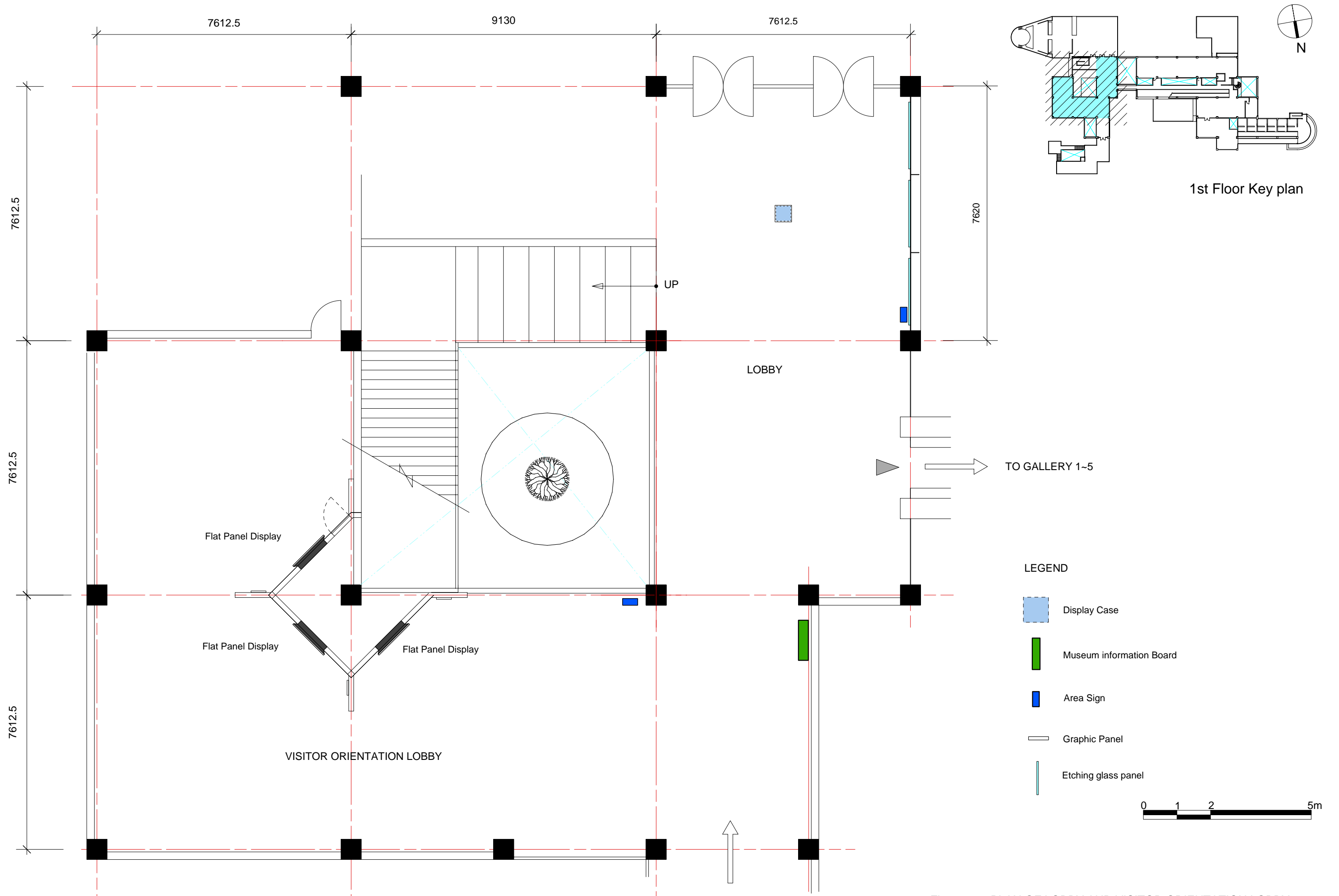
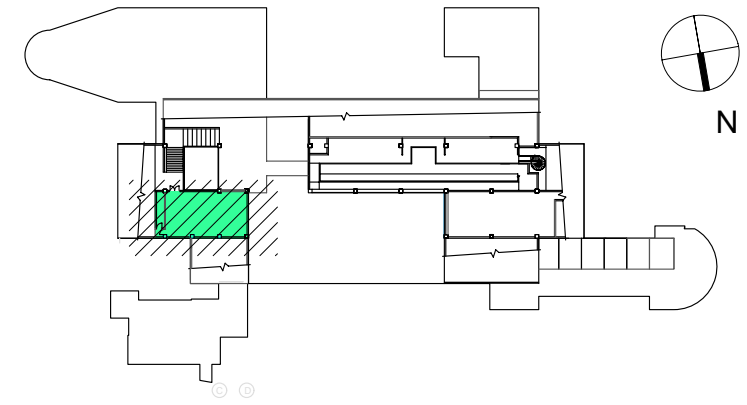
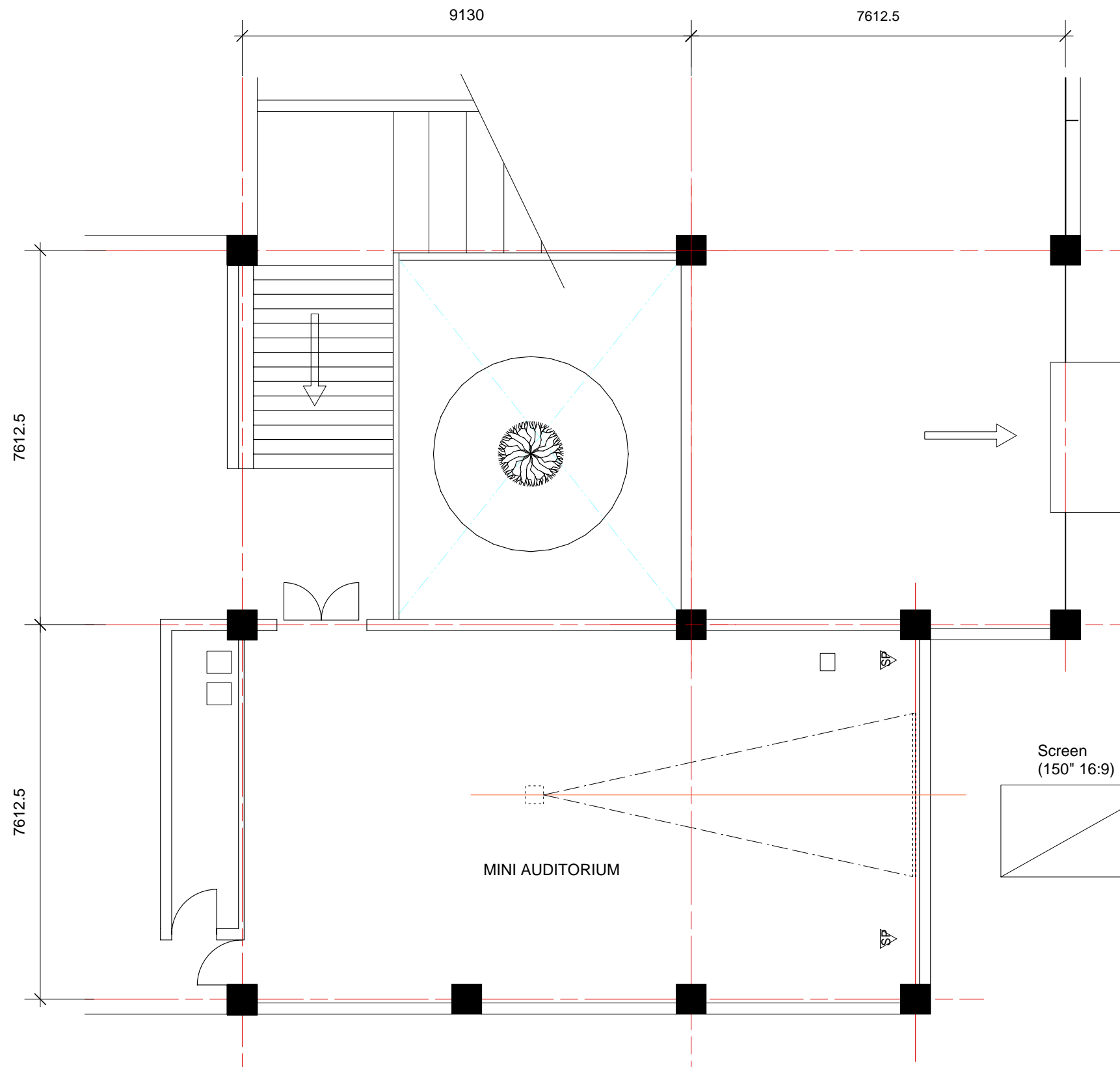


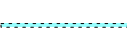



Figure 2-2 PLAN OF LOBBY AND VISITOR ORIENTATION LOBBY
The Project for the Improvement of Display Equipment of the Sigiriya Museum



2nd Floor Key plan

LEGEND

-  Projector
-  Speaker
-  Screen
-  Rack Mount

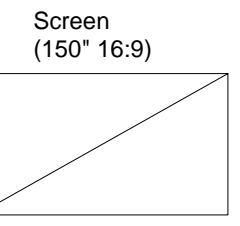


Figure 2-3 PLAN OF MINI AUDITORIUM

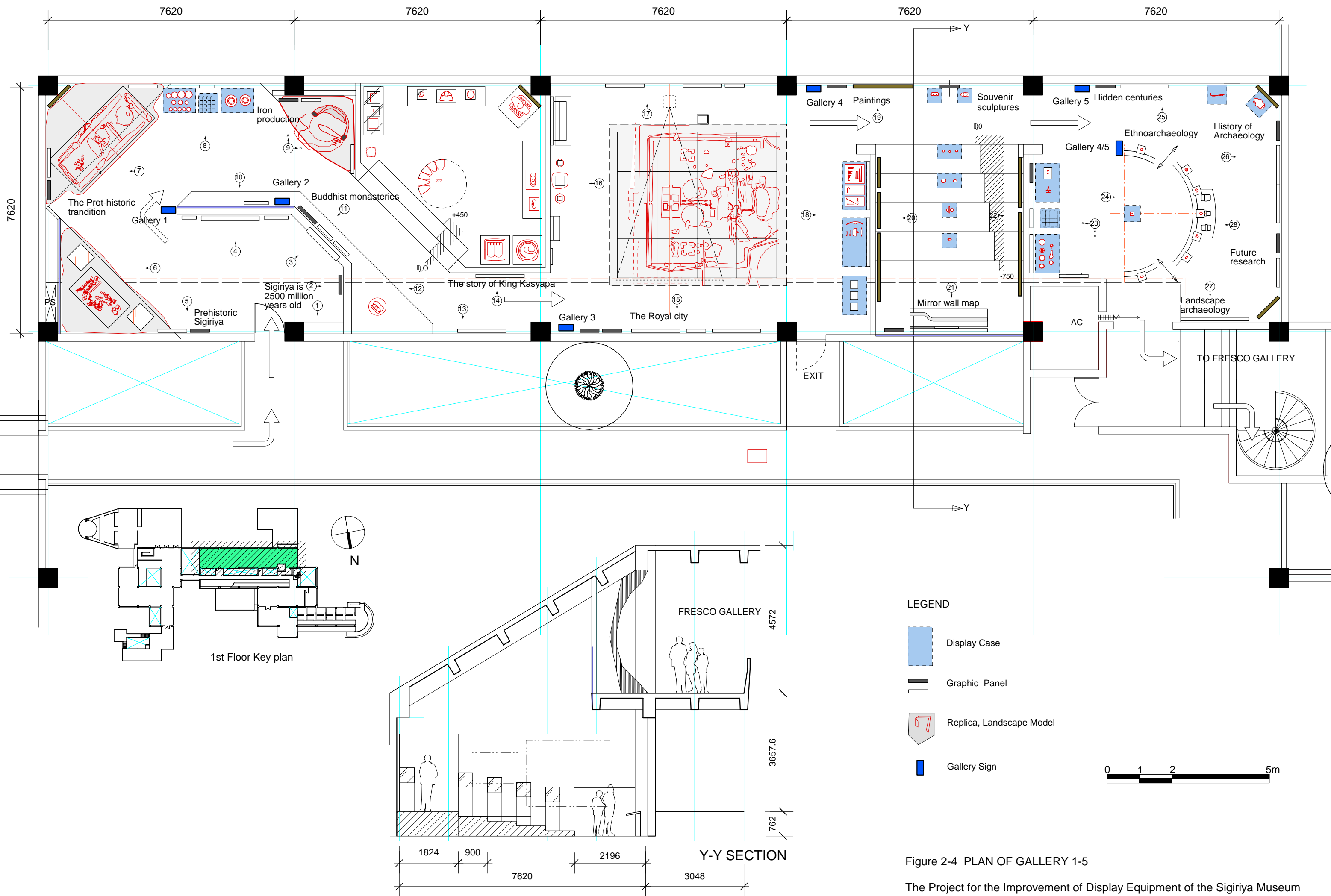


Figure 2-4 PLAN OF GALLERY 1-5

The Project for the Improvement of Display Equipment of the Sigiriya Museum

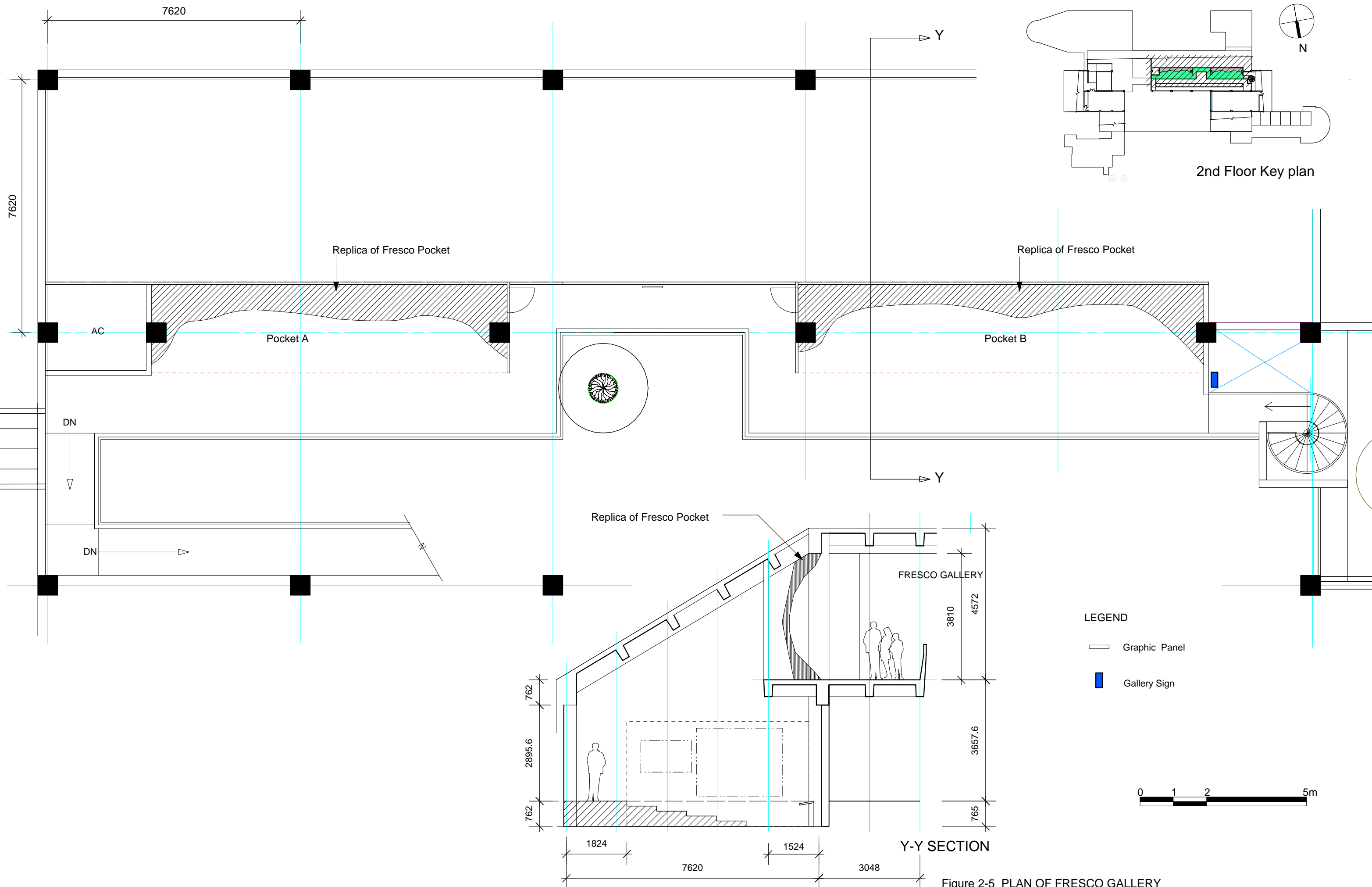
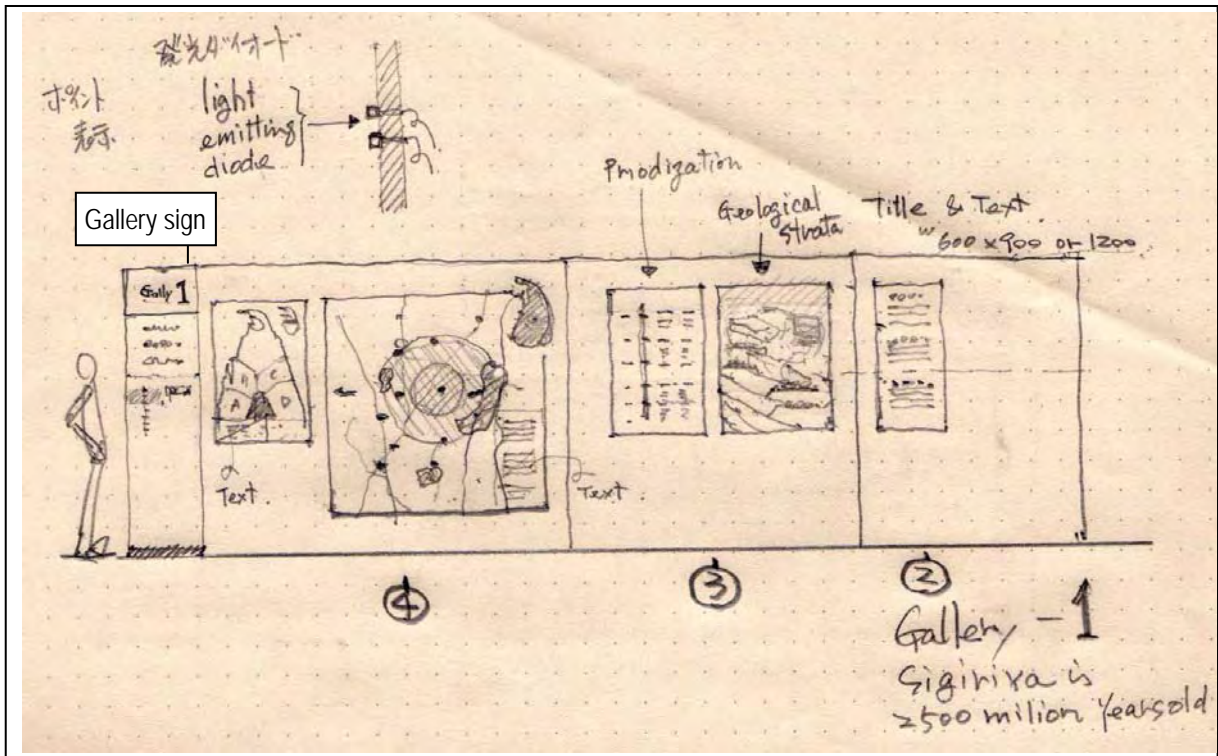
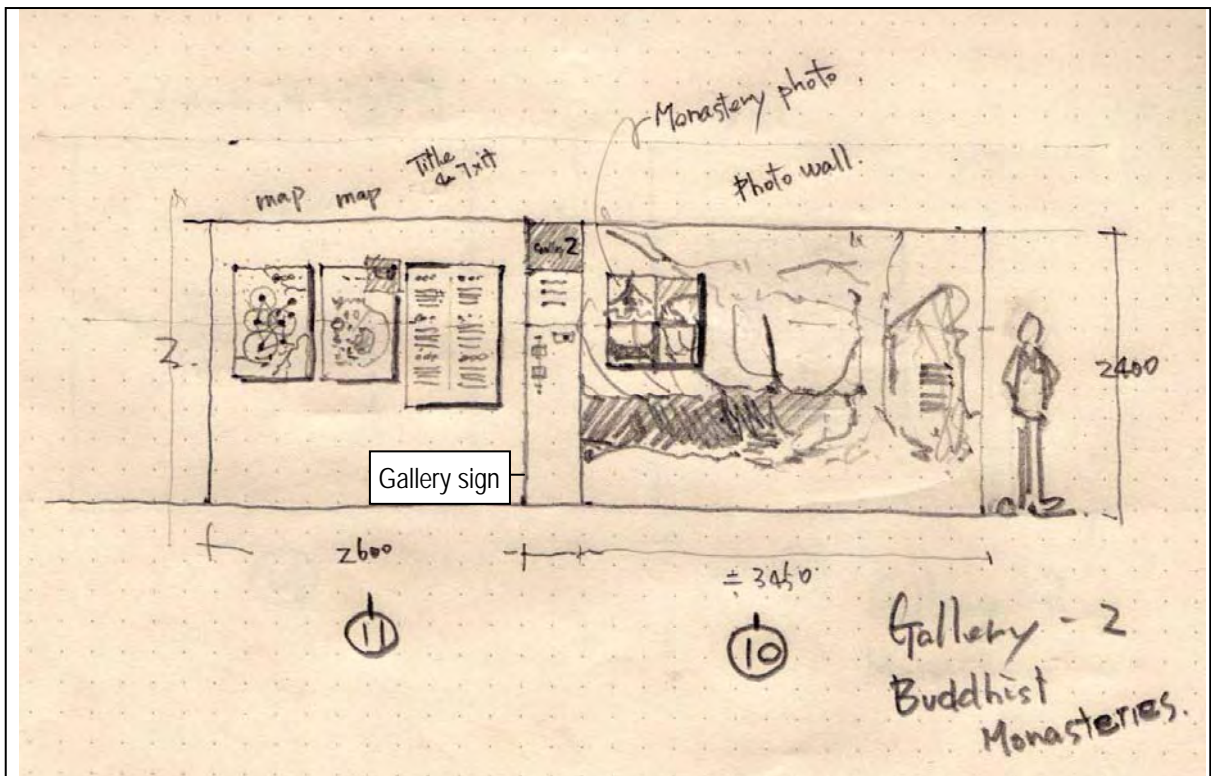


Figure 2-5 PLAN OF FRESCO GALLERY



④illuminated map ③backlit panel (geology, on right) ②panel (text)



⑪Display panel (text and graphics) ⑩Display panel (photos)

Figure 2-7 Sketched impressions of wall displays

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

The policies for implementation of the design and equipment plans (as described above in section 2-2-2 Basic Plan) are as follows:

(1) Organizations concerned

The responsible organization for this Project is the Ministry of Cultural Affairs, and the implementing organization is the CCF. In order to implement the Project smoothly, CCF needs to be in close touch with the Japanese consultant and contractor, and a contact person with full responsibility and power to make decisions needs to be designated within the CCF. The person responsible will coordinate between, and delegate tasks among, the Sri Lankan-led overall development project for the new Sigiriya Museum and this Japanese Grant Aid Project, and also ensure that the undertakings of the Sri Lankan side for this Project are implemented smoothly and without delay.

(2) Consultant

In order to implement this Project, there will be a consultant agreement for Detailed Design and Supervision between the Japanese consultant and the CCF. The consultant will prepare tender documents and implement the tender on behalf of CCF.

(3) Contractor

Within Japan's Grant Aid scheme, a Japanese contractor who is selected through a tendering process will implement the equipment procurement, transportation, and installation. As there will be need for maintenance services after the completion of this Project, the contractor will be directed to consider methods of coordination and contact even after installation and handover.

(4) The utilization of local suppliers and the necessity of engineer dispatch

This Project needs to be closely coordinated with the Sri Lankan construction project. Furthermore, all procedures concerning display planning, including procedures to be undertaken by the Sri Lankan side should be checked for progress, and quality controlled by the consultant(s) dispatched from Japan. As the policy is to utilize local artists for the fresco painting and local suppliers for printed sheets, the collection and confirmation of data prior to manufacture of these items, the coordination of schedule and progress, and quality control of these items by contractor engineers are deemed crucial to the

success of this Project, and thus the contractor shall also need to technicians and engineers from Japan.

(5) Equipment procurement policy

Equipment such as display cases, replicas, and models are in full and direct view of museum visitors. Sufficiently high-grade equipment shall be procured so as not to damage the image of Sigiriya as a site in the eyes of the international audience.

Panels and signage are also in full and direct view of museum visitors, and sufficiently high-grade equipment must be procured. However, due to practical considerations of coordinating content with Sri Lankan researchers and printing in local languages, the printed sheets shall be procured locally.

For audiovisual equipment, special equipment that necessitates special operating or maintenance procedures shall be avoided, and more generic equipment shall be procured. As projectors, computers, DVD players and VCRs were in use at CCF site museums at Jetvana and Abhayagiri, it has been determined that there are no technological issues leading to the exclusion of such equipment. The content to be delivered through this equipment shall be provided by the Sri Lankan side.

2-2-4-2 Implementation Conditions

(1) Procurement conditions

It is possible to locally procure the copying of fresco paintings. However, it is difficult to locally procure replicas and models of sufficient quality and appropriate scale. Thus these items shall be procured in Japan, while taking into due consideration the ease of maintenance and the minimization of the need for spare parts. Locally available or readily importable items shall be specified as spare parts wherever possible.

In terms of electronic equipment and their spare parts, equipment suitable for this Project were not readily available in the popular market in Sri Lanka, although similar equipment were available on importing order through licensed dealerships. Spare parts were also available after import. Printed sheets for panels and signage can be procured locally.

(2) Security considerations

There is a need to pay close attention to the possibility of terrorist attacks in Sri Lanka. Latest safety information shall be obtained prior to the transportation of equipment from port to site, and contingencies (such as insurance) shall be planned for.

2-2-4-3 Scope of Works

The undertakings of the Japanese side and the Sri Lankan side are shown in Table 2-4. General undertakings and obligations of the recipient country under the Grant Aid scheme will be described in 2-3 Obligations of the Recipient Country.

Table 2-4 Undertakings of the Project Work

No.	Item	Japan	Sri Lanka
1	Construction of new Museum		●
2	Preparation of the display area		
	1) Interior work (floor, deck floor, walls, display walls, ceiling)		●
	2) Electrical work		
	a. The main transformer and circuit breakers		●
	b. Lighting with the exception of display lighting, electrical outlets, and wiring		●
	c. Emergency generator for display lighting		●
	3) Air conditioning and ventilation		●
4) Security system		●	
3	Preparation of display equipment		
	a. Project equipment (2-2-2-2 Table 2-1)	●	
	b. Project equipment (2-2-2-2 Table 2-3)		●
	c. Text, graphics, photos, and any other information necessary for display, as well as voice and video recordings, translation, and other display content		●
d. Furniture and other equipment with the exception of a. and b.		●	
4	Preparation of non-display areas including construction, equipment, and furniture		●
5	Preparation of surrounding areas and access to the new Museum		●
6	Transport and customs		
	1) Marine (air) transport from Japan	●	
	2) Tax exemption and clearance at port of entry		●
	3) Land transportation from port to site	●	

2-2-4-4 Consultant Supervision

(1) Basic policy concerning construction and procurement supervision

In accordance with Japan's Grant Aid scheme, the consultant will form a Project team in order to provide continuous and smooth service throughout Detailed Design and Supervision work. The consultant will keep in mind that the Project site is a major tourist attraction and a UNESCO World Heritage site, and conduct safety management, keep deadlines, arrange for third-party inspection of equipment prior to shipping, supervise installation of the equipment, and arrange the handover. The

consultant will also supervise local procurement to ensure sufficient quality in the product.

(2) Detailed design and supervision plan by consultant

1) Detailed Design dispatch

The Detailed Design final plan confirmation, review of equipment specifications, preparation of tender documents, approval of tender documents, handover of plans, explanation of plans, and tender review shall be done by the Project Manager and specialists in Display/Equipment Planning.

Table 2-5 Proposed Consultant Dispatch

Title	Responsibility
Project Manager	Confirmation of the final plan, review of equipment specifications, approval of tender documents
Display/equipment planner (1)	Handover of plans, explanation of plans, tender review
Display/equipment planner (2)(3)	Preparation of tender documents

2) Supervision dispatch

In order to secure sufficient quality and to maximize the effect of the Project, continuous supervision shall be provided during the implementation phase. Supervision plans include shall be provided during field surveys in Sri Lanka; checking of equipment shop drawings, confirmation, and approval in Japan; confirmation of installation conditions in Sri Lanka; mid-term inspection in Japan; and supervision during installation work in Sri Lanka. An inspection engineer shall observe inspection processes listed below, prior to shipping:

- Observation of factory inspections.
- Observation of pre-shipping inspection procedures.

The implementation supervisor shall also inspect the equipment following installation and be in charge of handover procedures.

(3) Supervision plan of contractor

The contractor must provide strict supervision to procure, install, and adjust equipment while adhering to required quality standards and schedule. An experienced Japanese specialist in the manufacture and procurement of relevant equipment shall visit Sri Lanka as needed, conduct preliminary surveys and make arrangements, and shall also install and adjust equipment with the aid of local suppliers and labor.

For equipment to be procured in Japan, the confirmation and checking of equipment shop drawings, inspection of factory manufacture, pre-shipping inspection, and dock-side inventory check at the time of loading shall be conducted. On-site procurement management shall be conducted for the Fresco Pocket Replica paintings and other equipment that will be received, quality checked, and

handed over in Sri Lanka.

(4) Safety management

The contractor shall select a safety manager who will supervise the works with a focus on the prevention of worksite injuries and third-party damages. On-site safety management considerations are shown in the list below. Any accidents will be reported with utmost haste to the CCF, the Ministry of Cultural Affairs, JICA Sri Lanka Office, the Embassy of Japan in Sri Lanka, and JICA Headquarters.

- Establish rules of safety management and appoint a safety manager.
- Inform and instruct personnel in safety rules and management.
- Obtain and understand latest safety and security information.
- Establish emergency phone trees and escape routes.
- Prevent accidents through periodic inspection of machinery.
- Plan safe transportation routes and insist on safe driving.
- Ensure social benefits for laborers.

(5) Outline of Project actors

The following figure depicts the relationships between actors in this Project through implementation.

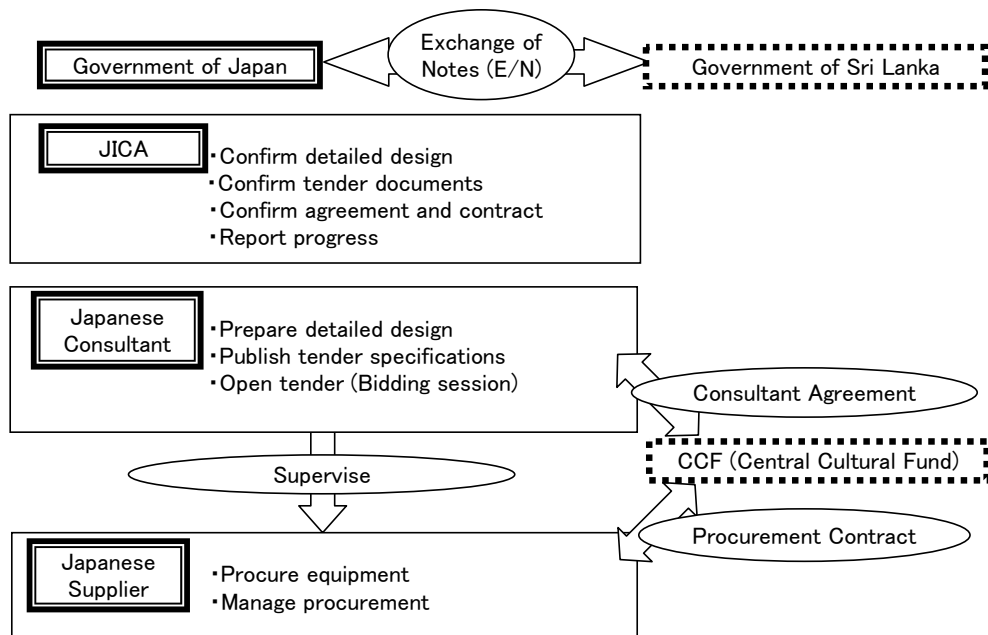


Figure 2-8 Relationship of actors in the Project

2-2-4-5 Quality Control Plan

(1) Schedule management

To ensure adherence to shipping and handover deadlines listed in the contract, a comparison of the actual progress to the schedule presented at the time of agreement shall be conducted every month or week. When delays are foreseen, the contractor shall be called to attention and asked to provide and implement a remedial plan. The contractor shall be instructed to transport and install all equipment on schedule.

Care would be taken to check in advance the transport conditions and the procedures regarding customs clearance and site handover, in order that such processes should go smoothly.

(2) Quality control

Equipment manufacture and procurement shall be supervised (see list below) in order to ensure adherence to the quality, specifications, and quantity of items specified in contract documents. When the possibility that the quality of the product is different from that specified in shop drawings and specifications is recognized during the supervision procedures listed below, the consultant shall immediately instruct the contractor to correct, change, or fix the problem in order to ensure the quality of the products.

Where the contract specifies the payment be made upon ship-loading, third-party inspectors shall be brought in to confirm the correspondence between loaded equipment and equipment list. The inspection shall be made by a reputed third party organization other than the consultant or contractor. The inspection shall consist of the comparison of equipment list to shipping list and comparison of shipping items to shipping list, to confirm contents and quantity.

Equipment shall be inspected on arrival at the site for any malfunction or other problems. Supervision shall continue until the end of implementation, ensuring the proper instruction on the operation of equipment and a timely handover.

- Examination of shop drawings and specifications of project equipment.
- Examination of shop drawings and specifications to the facilities, equipment, furniture, etc. procured by the Sri Lankan side.
- Examination and on-the-spot inspection of equipment during manufacture.
- Examination of installation plans and installation instructions of equipment.
- Inspection of installation and confirmation of its completion.

2-2-4-6 Procurement Plan

Local procurement conditions for museum equipment, examined in similar facilities and at CCF, have led to the formation of the following procurement plan:

- Display cases, display stands, and artifact display kits: Items are locally available but of insufficient quality. Procurement in Japan is feasible when considering the need to ensure appropriate grade of equipment.
- Signage (museum information board, area signs, and gallery signs): These items are made of printed sheets on steel boards. For printed sheets, the existing samples in Sri Lanka were judged somewhat insufficient in quality, but considering the necessity of close collaboration with experts and researchers in Sri Lanka and the necessity of printing the sheets in Sinhala and Tamil, it has been decided that local procurement is the most practical. To achieve the level of quality desired, the quality control by the Japanese side is necessary. For the steel boards, the quality of local products was questionable to a degree that Japanese procurement became feasible.
- Graphic panels: There are four kinds of panels. For the first (plain panel), the plan is the same as for signage. For the second (illuminated map panel) and third (backlit panel), Japanese procurement is feasible in light of the need to ensure an appropriate grade of equipment. For the fourth (glass panel), the Team intends to suggest to the Sri Lankan side that they take over this item, as it requires too close a coordination with construction work.
- Landscape model: This item is displayed under a glass floor. Similar models in Sri Lanka lacked the quality required for the effect desired, and shall be procured in Japan. Tempered glass can be imported by local suppliers in Sri Lanka, but glass layering was not available locally, so the glass floor shall also be procured in Japan.
- Replicas (Potana Man excavation environment replica, Ibbankatuwa Megalithic Tomb replica, Alakolawewa iron smelting furnace replica, and Fresco Pocket (rock wall) replica): Similar replicas in Sri Lanka lacked the quality required for the effect desired, and thus replicas shall also be procured in Japan. Multiple artists and specialists for copying the Fresco Pocket paintings were present in Sri Lanka, so the plan is to procure the painting locally, but with strict controls to ensure appropriate grade.
- Audiovisual system, audio system, projector system, and display lighting: Similar models and their spare parts were available on special order through licensed dealerships. The plan is to procure these items in Japan, after consideration of multiple factors including the necessity of supplying a complete system, not individual parts.
- Forty-foot container trucks will be used to transport the equipment from port to site.

Table 2-6 Equipment procurement list

Equipment	Procurement location	Sri Lanka	Japan	3 rd country
Museum information board (printed sheet)		●		
Area sign (printed sheet)		●		
Gallery sign (printed sheet)		●		
Graphic panel (printed sheet)		●		
Fresco pocket replica (painting)		●		
Display case			●	
Display stand or shelf			●	
Artifact display kit			●	
Museum information board (board)			●	
Area sign (board)			●	
Gallery sign (board)			●	
Graphic panel (board)			●	
Graphic panel (illuminated map)			●	
Graphic panel (backlit)			●	
Landscape model			●	
Potana Man excavation environment replica			●	
Ibbankatuwa Megalithic tomb replica			●	
Alakolawewa iron smelting furnace replica			●	
Fresco Pocket replica (rock wall)			●	
Audiovisual system			●	
Audio system			●	
Projector system for Gallery 3			●	
Projector system for Mini Auditorium			●	
Display lighting			●	

2-2-4-7 Training for Initial Operation and Utilization

The initial operating and maintenance instructions of equipment shall be given to appropriate museum staff at the time of installation of the equipment. There is no need to provide special training for this purpose.

2-2-4-8 Soft Component (Technical Cooperation) Plan

The utilization and maintenance of equipment supplied by this Project is within the capacity of the CCF staff, and thus a soft component plan is not necessary for this Project.

2-2-4-9 Implementation Schedule

(1) Detailed Design

After the E/N, an agreement regarding consulting services shall be made between the consultant and CCF, detailed design plans would be confirmed, specifications for equipment would be finalized, and tender documents made. Upon approval of tender documents, the tender, and then tender evaluation, will be conducted.

It is estimated that approximately 3.5 months are necessary for this process, ending in an agreement with the contractor.

(2) Implementation schedule

The implementation phase, from contract to handover, is estimated to take approximately 14.5 months.

1) Manufacture of equipment

It should be noted that for the landscape model and fresco pocket (rock wall) replica, accurate surveys and other preparation in Sri Lanka are necessary prior to manufacture. The Team estimates a total of 9 months – 4 months for preparation and approval of shop plans and 5 months for manufacture – for the procurement of these items.

2) Shipping, arrival, and clearance procedures

A total of 2 months is estimated for this process, including pre-departure inspection, shipping, arrival, land transport, and unloading at the site.

3) Installation and local procurement

Equipment procured in Japan shall be installed in their proper location in the building upon completion of the construction and finishing work. The model, replicas, and panels will simply be installed, while the electronics and lighting shall be installed, adjusted, and run on trial. For the Fresco Pocket replica, the painting process starts after the installation of the rock wall replica. Together with inspection and examination, 3.5 months is estimated from installation to handover.

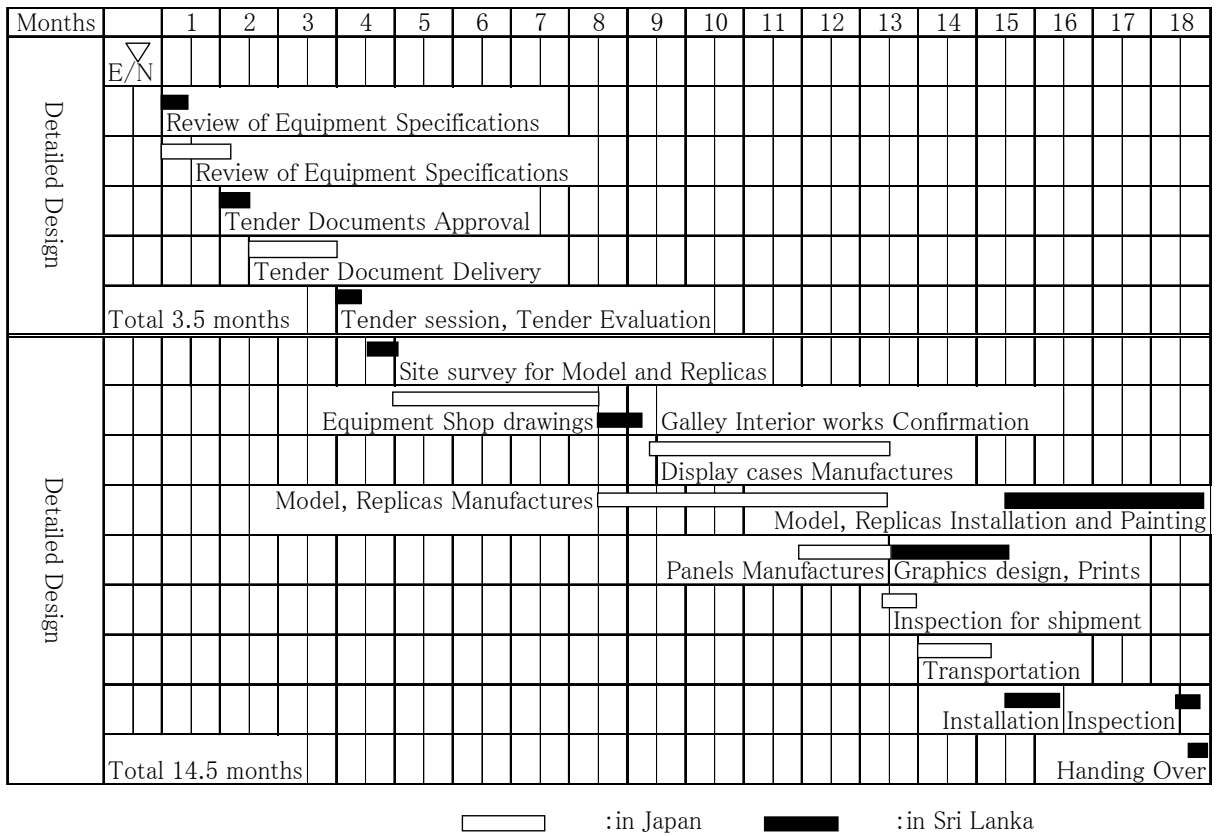


Figure 2-9 Project Implementation Schedule

2-3 Obligations of the Recipient Country

The general obligations for the recipient country under Japan's Grant Aid scheme are as follows. It has been confirmed and recorded in the Minutes of Discussions (hereinafter M/D) that CCF will make the appropriate applications to relevant organizations, and funding measures, in a timely manner.

- To bear the following commissions to the Japanese bank for banking services based upon the B/A.
 - 1) Advising commission of A/P.
 - 2) Payment commission.
- To ensure the unloading and customs clearance at the port of disembarkation in the recipient country.
- To exempt the products, materials and services purchased within the recipient country under the Grant Aid, from internal taxes such as value-added tax and other fiscal levies which may be imposed in the recipient country.
- To accord Japanese nationals, whose services may be required in connection with the supply of products and services under the verified contract, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.
- To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of products and services under the verified contracts.
- To maintain and use properly and effectively the equipment provided under the Grant
- To bear all the expenses, other than those to be borne by the Grant, necessary for the transportation and installation of the equipment.

In regards to value-added tax on locally procured items, the procedure followed in Sri Lanka is for the implementing organization to refund the taxed amount to the contractor. CCF is the responsible organization for the refund in this Project.

(1) Additional undertakings, including changes and additions to Museum construction

The necessity of the following items for the execution of the display plan, and the necessity to change the construction plan and obtain additional funding where required, was confirmed by both sides.

- Interior work (deck floor, display wall, floor and wall finishing). The deck floor and display wall must be made of wood, and according to display design.
- Air conditioning for Galleries 1 to 5, and ceiling fans in the Visitor Orientation Lobby.
- Emergency generator for the new Museum.

- Etched glass display panel with Culavamsa verses on the west outer wall of the Lobby (including frame/support for such wall).
- Track lighting hangers, wiring, and adjustments to the electrical supply to accommodate display equipment.
- Construction plan changes due to requirement of equipment (dropping floor, generator room).
- Procurement of museum furniture, including ticket counters and bookshelves.
- Two-way radios, as part of the security system which relies on security guards.
- Procurement of artifact replicas, in replacement of artifacts that are necessary to the display but unavailable for the new Museum (Sigiriya Earring, Ibbankatuwa beads and necklace, folk figurines).

(2) Additional undertakings for overall Museum improvement

The Sri Lankan side has identified the following overall Museum improvement plans they wish to undertake:

- Air conditioning for the Mini Auditorium, Curator's Office, and storage rooms.
- Procurement of an elevator to ease handicapped and elderly visitor access.
- Construction of a tea restaurant at the entrance of the new Museum.
- Landscaping in the vicinity of the new Museum.

(3) Other undertakings concerning the display area

The following undertakings were confirmed to be necessary to be funded and implemented by the CCF in the event that the Project is approved and implemented.

- The procurement of caption boards.
- The preparation of contingency funds to cover equipment not approved for Grant Aid.
- Assignment of personnel within CCF and the Ministry for this Project (specifically the commissioning of the Expert Committee and a research team) in the preparatory stages before Museum opening, and the support of preparatory data procurement, survey, and conservation activities.
- Assignment of some new Sigiriya Museum personnel before installation (specifically the maintenance and electrical engineers).
- Commissioning of outside experts and specialists where required (e.g. surveying of the Fresco Pocket, expert identification of artifacts, new photography, manufacture of abovementioned replicas, translation, illustration, audio recordings, editing of audiovisual material).

2-4 Project Operation Plan

(1) Maintenance and management of the new Sigiriya Museum

Tasks that must be fulfilled in the operation of the new Museum include the opening and closing of the museum, visitor interaction, and outreach activities.

The 39 personnel identified in the following table are planned to be assigned to the new Museum, and this planned staff allocation has been judged sufficient (both in expertise and organization) for the operation of this facility.

Visitors will interact with both educational officers and gallery attendants, under the established system of CCF. Educational officers interact with student groups and other special groups, give guided tours and presentations, and operate audiovisual equipment. Educational officers also plan seminars, presentations, and educational programs, and are thus in charge of outreach activities. Gallery attendants are assigned to a certain display space and attend to visitor needs and questions within their area.

Regular inspection, repairs, and replacement of parts will be necessary for Project equipment, electrical and A/C facilities, and the building itself. The two engineers are in charge of such maintenance.

Laborers will provide the daily cleaning, and maintain the facilities in general.

Table 2-7 Planned staff allocation for the new Sigiriya Museum

Title	Job description	Number of staff (Total: 39)
Assistant Director	Administrative head of CCF Sigiriya.	1
Officer In Charge	Head contextual side of the Museum, trained in related field.	1
Engineer (1)	Civil engineer: responsible for maintenance of building and equipment, will become counterpart for Japanese suppliers at installation and receive maintenance instructions.	1
Engineer(2)	Electrician.	1
Education officer	In charge of outreach, group education, etc.	5
Gallery attendant	Assigned to gallery space, can oversee daily maintenance of gallery equipment.	10
Chief security officer	Security personnel.	1
Security officer		3
Security guard		6
Laborers	Cleaning and maintenance, miscellaneous jobs.	10

(2) Maintenance of the display

The daily maintenance of display items and equipment will be done by the gallery attendants, but the civil engineer will be in charge of minor repairs to display items such as models and replicas, as a result of his/her training at the time of installation.

The necessity for renewal of display items (panels, photos, text) including corrections, or creation of new video and other software, will be determined by the Officer in Charge and such activities might be conducted in collaboration with CCF Headquarters, CCF Sigiriya staff, universities and research institutes, as needed. Education officers, in addition to the Officer in Charge, could join or initiate such activities.

The display equipment to be supplied by this Project is for permanent display, and an overhaul of the display is not expected. The new Museum has additional spaces suitable for periodically renewed and/or special displays, and the education officers as well as the Officer in Charge could plan such displays and assign personnel.

CCF has experience in operating and maintaining museum facilities, and similar facilities such as the Polonnaruwa Museum have been operating without major problems, with the exception of the breakdown of their security system which includes infrared sensors and monitoring cameras. Management and operation of the new Museum is not envisioned to pose a problem.

2-5 Project Cost Estimation

2-5-1 Initial Cost Estimation

The total cost for the Sri Lankan side, including the improvement of display area, supply of display and other equipment, and refund of value-added tax, is *approximately 37,937,000 Sri Lanka Rupees (LKR)*.

Table 2-8 Estimation of costs borne by the Sri Lankan side

Item	Qty	Cost (in 1,000LKR)	Remarks
Interior work	1 set	5,800	Estimate made by Sri Lankan side
A/C for Gallery 1-5 and installation	1 set	6,000	Estimate made by Sri Lankan side
Emergency generator (250KVA)	1 set	3,750	Estimate made by Sri Lankan side
Glass panel in Lobby	1 set	500	Estimate made by Sri Lankan side
Adaptation of electricity system	1 set	4,000	Estimate made by Sri Lankan side
Major construction plan changes	1 set	2,750	Estimate made by Sri Lankan side
Museum furniture	1 set	2,000	Estimate made by Sri Lankan side
Two-way radios for security system	1 set	1,000	Estimate made by Sri Lankan side
Artifact replicas	1 set	2,000	Estimate made by Sri Lankan side
A/C for other rooms and installation	1 set	1,000	Estimate made by Sri Lankan side
Landscaping around Museum	1 set	5,000	Estimate made by Sri Lankan side
Elevator for handicapped access	1 set	1,500	Estimate made by Sri Lankan side
Tea restaurant	1 set	1,500	Estimate made by Sri Lankan side
Subtotal	1 set	36,800	
Refund of value-added tax (VAT)	1 set	1,137	VAT on locally procured Project equipment
Caption boards	1 set	-	To be made using CCF staffing and 2008 CCF funding resources
Display content information (incl. commissioning of outside experts)	1 set	-	To be made using CCF staffing and 2007/ 2008 CCF funding resources
Total		37,937	

2-5-2 Operation and Maintenance Cost

There are 5 site museums operated by CCF and managed by site project offices of the CCF. The budget of each CCF project office consists of operation, archaeological research, conservation/development/maintenance budget categories, and the new Sigiriya Museum operation costs are

expected to come out of the first, while maintenance costs are expected to come out of the last. The operation and maintenance costs of the new Museum are estimated as follows:

Table 2-9 Operation and maintenance costs

Item	Cost (in 1,000LKR/year)	Computation conditions
Maintenance and repair cost (incl. Equipment)*	6,220	Based on costs at similar facility, corrected for area (3,600/1,500 m ²) (Polonnaruwa Museum area: 1,500m ² , new Sigiriya Museum area: approx. 3,600 m ²)
Electricity fees	3,700	Calculated as 40% usage of maximum current capacity of the whole Museum
Sanitary facilities	280	Based on costs at similar facility, corrected for area (3,600/1,500 m ²)
Phone charge	170	Costs accrued by CCF Sigiriya Project office
Water charge	77	Based on costs at similar facility, corrected for area (3,600/1,500 m ²)
Other maintenance costs	510	Costs accrued by CCF Sigiriya Project office
Total	10,957	

* Maintenance and repair costs include the replacement of 50 display lighting lamps per year, estimated at 100,000 LKR.

The CCF plans to increase the entrance fee for Sigiriya for domestic visitors, from 20LKR to 40LKR, which is still a reasonable entrance fee for a modern museum, comparable to a kilogram of rice (25 - 40LKR). The entrance fee for the new Museum will not be charged separately, but will be part of the overall Sigiriya site ticket. As foreigners are currently charge 100 times the domestic price, or US\$20, the ticket prices for foreigners is planned to stay at its current rate.

The estimated operation/maintenance costs calculated in the above table (10,957,000LKR) is to be partly covered by this ticket price increase, which is conservatively estimated to result in an additional 10,000,000LKR (difference of 20LKR x 500,000 visitors = 10,000,000LKR). CCF Sigiriya Project is also winding down on its excavation and research, and part of the archaeological research budget (1,264,000LKR) can be allocated to the maintenance of the new Museum. The Team judges these plans to be sound, and do not foresee any problems in the securing museum maintenance costs.

The estimated 10,957,000LKR is approximately 36% of the 2006 operating budget of CCF Sigiriya Project (total operating budget 30,689,000LKR).

2-6 Other Relevant Issues

- This Project requires about 18 months until completion. As Japan's Grant Aid scheme requires project completion and handover before the end of the fiscal year, it is necessary to conduct the E/N by August of the year before the Project is scheduled to be finished.
- Display content information necessary for preparation of shop drawings (i.e. for equipment such as replicas, models, and artifact display kits which require the preparation of shop drawings) must be prepared and provided by the Sri Lankan side by the time of Detailed Design, to ensure timely progress of this Project.
- The remaining display content information such as text, drawings, photographs, and all other necessary information for graphic display equipment must be prepared and provided by the Sri Lankan side, immediately following the selection of contractor.
- The construction of the new Sigiriya Museum, including interior works and the installation of air conditioning systems, must be completed at the latest at the time of equipment installation. The equipment to be procured by the Sri Lankan side must also be ready and on-site by this date.
- The Curator or Officer-In-Charge of the new Museum should ideally be already assigned at the beginning of this Project. The staff of the new Museum should be assigned by the time of equipment installation, so that they can be instructed in their operation and maintenance.

Chapter 3 Project Evaluation and Recommendations

3 Project Evaluation and Recommendations

3-1 Project Effect

(1) Expected effects

The direct and indirect effects expected from this Project are shown in the table below:

Table 3-1 Project effects

Problem	Project Action	Direct Effects	Indirect Effects
The exhibit in the existing museum lacks consideration towards the visitor in its layout, and also lacks content.	<ul style="list-style-type: none"> • Provide display equipment (e.g. display cases and artifact display cases). • Provide a unified museum experience through well- planned exhibits (e.g. signage, graphic panels, and replicas). 	<p>① <u>Improve the understanding and interest in Sigiriya among both domestic and international visitors, through well-captioned exhibits that showcase the finest of Sigiriya's artifacts.</u></p> <p>«Indicators» Rare or valuable artifacts displayed in cases: From 0 to 19 Models and replicas: From 0 to 5 Graphic panels: From 0 to 55 Audiovisual exhibits: From 0 to 5</p>	<ul style="list-style-type: none"> • Increase the proportion of visitors that visits the Museum (among visitors to Sigiriya Site). • Encourage the appreciation of the historical and cultural value of Sigiriya, increasing the number of visitors to the Site, and thus contributing to the promotion of tourism in the immediate area.
The exhibit in the existing museum is insufficiently captioned, and the museum also lacks educational facilities.	<ul style="list-style-type: none"> • Provide explanatory graphic panels. • Provide audio- visual equipment that can be used as educational tools. 	<p>② <u>Increase the attractiveness of Sigiriya as an educational destination for school groups, especially for school trips as part of the history curriculum.</u></p>	<ul style="list-style-type: none"> • Tourism promotion results in the economic revitalization of the local area and the improvement of the standard of living for local residents.
Famous heritage such as the Fresco Pocket and Summit Palace are only accessible to able-bodied visitors.	<ul style="list-style-type: none"> • Provide an accurate replica. • Provide audiovisual exhibits. 	<p>③ <u>Give a virtual experience of hard-to-access heritage through audiovisual and replica exhibits.</u></p>	

1) Direct effect ①

The existing museum exhibits pottery shards, brick fragments, and other artifacts that do not need tight climate or security control in a layout reminiscent of a storage-room. In contrast, the new Sigiriya Museum has a museum zone which will be supplied through this Grant Aid Project with replicas, graphic panels, and other display equipment. The new Museum presents the visitor a variety of choices, in terms of movement, the level of information imbibed, and time spent in the Museum. The central exhibit is a landscape model, which will interest visitors across age and educational levels, and exhibits are planned with care to make history and heritage education friendlier and more immediate. The new Museum allows the visitors to view rare, delicate, and/or important artifacts on site, incorporate exhibit methods such as replicas, models, audiovisual and graphic information, and present everything through a well-understood storyline, to impress the visitor with the true value of Sigiriya as a World Heritage, which might not be fully appreciated by the casual visitor to the existing museum.

The new Sigiriya Museum will have not only a museum zone but also a visitor center zone. The Visitor Orientation Lobby and Mini Auditorium will be supplied with audiovisual equipment, enabling the visitor to view short informational videos in multiple languages on multiple screens, which becomes especially useful in giving a short introduction to Sigiriya to the time-stressed tourist. The multiple screens also offer the possibility to expand the viewing options to introductory clips about other sites of interest in the Sigiriya area and offerings at the outdoor theatre in the new Museum building.

2) Direct effect ②

In the new Sigiriya Museum, the exhibit in the museum zone is arranged so that artifacts of importance are all arrayed along the main visitor route, and secondary exhibits and panels that give the more interested visitor a greater depth of information are easily discernible from the main exhibit. This allows the new Museum to maintain a satisfactorily high academic level of information suitable for educational trips, while catering to a wide audience with varying levels of interest.

The Mini Auditorium accommodates the lecturer-led audiovisual presentation, and is intended to provide school groups a venue for historical and cultural education, and tourist groups with special language requirements a venue for their visitor orientation.

3) Direct effect ③

Sigiriya World Heritage Site is not easily accessible to the physically handicapped or the elderly visitor, as some of its major attractions (Fresco Pocket, Summit Palace) can only be reached by climbing stairs. The new Sigiriya Museum will provide such visitors an immersive experience through full-scale replicas of the Fresco Pocket and excavation environments, which – while the real site experience is admittedly irreplaceable – does provide an alternative. The new Museum will also offer one of the few indoor resting and waiting facilities available in this protected site.

(2) Baseline survey results

The use of the existing museum has been baseline surveyed in February 2007. The objective of the survey was to obtain visitor numbers to the existing Museum, Sigiriya World Heritage Site, and to various areas within the Site, and collect visitor opinion regarding the existing museum and Sigiriya World Heritage Site. The methodologies used were statistical report analysis, quantitative survey (visitor numbers by attribute/category of visitor, collected for two weeks), and questionnaire survey (among foreign tourists, schools and school groups, tour agencies and/or tour guides).

Summary findings of the baseline survey are listed below. Baseline survey results were used as reference material in this Basic Design Study, and will become baseline indicators to measure indirect effects after the completion of this Project.

(Detailed methodology and results in Appendix 6-1 Baseline Survey)

Overall visitor trends

- The average number of visitors to Sigiriya World Heritage Site was 1,200 persons per day, and the majority (77%) was domestic visitors. The average number of visitors to the existing museum was 137 persons per day, and the majority (99%) was domestic visitors.
- Only 15% of the domestic visitors that visited Sigiriya World Heritage Site visited the existing museum. In a breakdown by age (schoolchildren, youth, adults, and seniors), only 6% of youth and adults that visited the Site visited the existing museum, while 60% of both schoolchildren and seniors who visited the Site visited the existing museum. A possible explanation might be that these schoolchildren were directed to the museum as part of their school trip, and these seniors chose to visit the museum when they found out that parts of the World Heritage Site were too physically strenuous to visit.

Foreign visitor trends

- Of the foreign visitors to Sigiriya World Heritage Site, 83% were European and 13% were East/Southeast Asian, in appearance. 90% of foreign visitors were visiting Sigiriya for the first time. The typical foreign visitor came by chartered vehicle, toured the site with a private guide, and their tour agency or guide determined both their itinerary (including what sites to visit around Sigiriya) and their place to stay. Only a few of them stayed in hotels in the Sigiriya area.
- The foreign visitors at Sigiriya World Heritage Site tended to visit other cultural heritage sites as well. Most likely, these foreign visitors tour Sigiriya as part of a larger Cultural Triangle or Cultural Heritage tour, and foreign visitors that find themselves in Sigiriya are already generally interested in heritage sites and museums.
- Less than 1% of foreign visitors that visited Sigiriya World Heritage Site visited the existing museum, despite their possible general interest in museums. An explanation, deduced from the questionnaires, is that their tour agencies and guides judge the existing museum to be low on the customer satisfaction level, and consequently do not include the existing museum in their

itinerary.

- The questionnaire survey of foreign visitors that visited the existing museum revealed a low level of satisfaction, compared to other museums in Sri Lanka that they have also visited. At the same time, over 95% of foreign visitors and tour agencies/guides expressed interest in learning more about the history and culture of Sri Lanka, and the majority of both expressed a desire to visit a new and improved museum.

Implications to the tourism trade

- Most tour agencies and guides consider 2-3 hours (and a maximum of 4-6 hours) as sufficient to tour the Sigiriya World Heritage Site. It should be noted that the Site is physically challenging and is hard to tour in a shorter amount of time, and also that the Sri Lankan experts involved in this Project consider the actual Site visit to be a vital experience that should not be truncated or replaced by the availability of a new Museum. The inclusion of the new Sigiriya Museum to the foreign tourists' itinerary will thus most likely require a change in the tour agency or guide's overall tour plan.

Implications to education

- Most of the domestic visitors to the Sigiriya World Heritage Site were youth or adults, and less than 10% were schoolchildren. In contrast, nearly half of the domestic visitors to the existing museum were schoolchildren.
- The schoolchildren visiting Sigiriya World Heritage Site were not only from nearby locations, but came from all around the country, including the South and Southeast Provinces, and many were from large cities such as Colombo and Kandy. Of the schools surveyed, 95% said they conduct school trips at least once a year. Most of the schoolchildren were in their tenth year of education or above, indicating that the visit to Sigiriya World Heritage Site came during their study of the history curriculum.
- Almost all of the school group leaders expressed interest in learning more about the history and culture of Sri Lanka, and to visit a new and improved museum. One of their criticisms about the existing museum was the lack of explanatory text material.

Nationwide tourist trends

- According to published statistical reports, the number of foreign tourists visiting Sri Lanka is on the rise since the ceasefire agreement in 2002. Tourist numbers dropped following the December 2004 Tsunami, but is again steadily increasing since 2005.
- Domestic visitor numbers to Sigiriya World Heritage Site have temporarily declined in 2004, but over 500,000 domestic tourists per year can still be conservatively expected in the future.

3-2 Recommendations

3-2-1 Recommendations

The operation, and management, and funding of the new Sigiriya Museum has been satisfactorily planned by the CCF. The CCF has indicated its willingness to further improve its management of the new Sigiriya Museum by submitting an application for Technical Cooperation; in light of this, the Team offers the following recommendations:

- (1) Recommendations regarding activities at the new Sigiriya Museum, with the aim to maximize and sustain the effect of this Grant Aid Project, i.e. establish a deeper understanding of the cultural/historical value of Sigiriya (for both domestic and international visitors), increase the number of visitors, and promote tourism.

- 1) Display content

Regular reviews of museum content (including panel and audiovisual software content) by both museum staff (such as the Officer-In-Charge and the Museum Educator) and outside experts (such as those in CCF Headquarters and academic institutions), along with regular staff training sessions, will ensure that the latest and accurate information is disseminated to the visitor.

- 2) Staff training

Both Museum Educators and Gallery Attendants will be in direct contact with visitors. Job descriptions for these two kinds of staff should be worked out so that they together provide a service-oriented, seamless interface to visitors, and both kinds of staff should be regularly trained to hone their skills in customer service as well as their historical and cultural knowledge.

- 3) Museum maintenance

The management of the facilities (building and equipment) will need sufficient manpower and funds. The daily maintenance and cleaning of the Galleries is particularly important, and an innovative and non-traditional approach to this problem – such as assigning some of the more frequently required cleaning tasks to Gallery Attendants and others who are stationed in each Gallery, instead of solely relying on cleaning staff – could result in an efficient solution.

- 4) Education and outreach

The information being gathered by the CCF research team for this Project, especially the background information gathered for each artifact and graphic panel exhibit, can be effectively converted in form to create publications such as museum or artifact catalogues. The Expert Committee is already considering such possibilities. A combined effort by the new Museum staff, as part of their

education and outreach activities, to collaborate with the research team and Expert Committee (as well as other organizations such as CCF headquarters and/or academic institutions) and create other possible forms of publications, such as leaflets (oddball fact lists, quiz-sheets, etc. for each Gallery or theme for schoolchildren), and glossy color pamphlets for foreigners.

(2) Recommendations regarding the activities at the new Sigiriya Museum, to promote tourism and, ultimately, the revitalization of the local community.

1) Coordination between museums and related organizations

Once the new Sigiriya Museum opens, each Cultural Triangle site under the management of CCF will have a CCF-operated museum. Coordination between museums was proposed in the Project Formation Study as a method to mutually increase the number of visitors; the same is recommended here. Suggested steps are, for example, displaying each other's museum brochures, sharing web links and databases, and organizing multiple-site events.

Coordination between CCF and non-CCF museums and institutions, such as museums managed by the Department of National Museums, Department of Archaeology, universities and other institutions would also be beneficial. Japanese Technical Cooperation would be effective in this area of museum coordination as Japan has a well-established museum industry, but at the same time, inter-ministry and inter-departmental coordination (especially in publicity and event organization) is important and can be improved greatly, for example, by improved coordination between CCF and the Ministry of Tourism or Sri Lanka Tourist Board (SLTB), and also between various projects within CCF.

2) Tourist promotion activities in the new Sigiriya Museum

The Team recommends the Book Gallery in the new Sigiriya Museum to have a 'museum shop' function. The development of a high-quality exclusive line of products, to be manufactured perhaps at CCF's Replica Centre, holds high potential.

3) Tourist promotion activities in the Sigiriya area

The most sustainable way to increase the number of visitors to the new Sigiriya Museum would be to collaborate with hotels, religious and cultural sites, Department of Archaeology-managed archaeological sites, and other establishments in the Sigiriya area, to extend the total amount of time spent in Sigiriya by the average visitor, i.e. making it an overnight destination. This would also necessitate the new Museum management's collaboration with tourism divisions in the local administration, the Ministry of Tourism and/or SLTB.

3-2-2 Collaboration with Other Schemes

(1) Collaboration with Technical Cooperation

1) Collaboration necessary for the implementation of this Project

To maximize the effect of this Grant Aid Assistance, the Sri Lankan side had requested two kinds of technical cooperation from the Japanese Government, namely: ① total coordination of the display, and ② technical cooperation in creating audiovisual content for the new Museum. While these items were included in their November 2006 Grant Aid application form, they were recognized as potentially not fitting the Grant Aid scheme and thus the Team has come up with the following recommendations in order to make such assistance available.

① Total coordination of the display

This item included two activities: the first is the coordination of Grant Aid-supplied equipment, to equipment and interior finishing supplied by the Sri Lankan side. This activity can also be described as museum design or display design, as the aim is to ascertain that the display equipment, display space, furniture within that space, lighting, and interior details such as the texture and color of the walls and floor follow a unified design concept. As the interior work and the procurement of furniture and other non-display equipment have been sorted as undertakings of the Sri Lankan side. The consultant shall provide advice to the Sri Lankan side in the 'total coordination' of various elements within the new Sigiriya Museum as part of their Grant Aid implementation work – at the time of final plan confirmation during the Detailed Design stage, at the equipment shop plan discussions in the procurement supervision stage, and other occasions when the consultant visits Sri Lanka – in the form of design advice, constructive criticism, and progress monitoring.

The second activity is the coordination required in the manufacture of display panels: namely the coordination of text, graphics, photographs and other content information to the panel design. Content preparation has also been sorted as an undertaking of the Sri Lankan side, and the consultant will advise and consult on the choice of information, editing, graphics manufacture, and other content adjustment from the viewpoint of overall display design, in other words coordinate the display content information provided by the Sri Lankan side and layout design, so that the result would be effective graphic design. The layout design of each panel has been included in specifications of the display panels, and thus will be procured using Japanese Grant Aid assistance, and quality control for procurement is included as part of consultant activities.

② Audiovisual content creation

Equipment that will require audiovisual content are the following three:

- Audiovisual equipment in the Visitor Orientation Lobby, that will show visitor orientation films on topics such as the introduction of the history and culture (of Sri Lanka in general or

specifically about Sigiriya), visitor orientation programs about the site or Museum, and perhaps information on tourist attractions in the local area.

- Projector system in the Mini Auditorium to air visitor orientation films with commentary.
- Projector system in Gallery 3, which will project changing large-screen visual information.

The Team has confirmed that there are suitable films and documentaries in existence for immediate use in these audiovisual systems, and the expertise to create more of the same quality, in Sri Lanka. The existing audiovisual content suitable for the lobby area includes ‘Sri Lanka: Roots of paradise’ (48 minutes, CCF) which introduces the cultural heritage of Sri Lanka and often aired in CCF museums, and ‘Sigiriya the Lion Mountain’ (1983, 50 minutes, CCF and French Embassy Cultural Division). These films were not specially made for the purpose of visitor orientation, and some editing activity (such as extracting the section that deals with Sigiriya out of the former, to make a shorter film; updating the footage for the latter as it is outdated) would increase the effectiveness of these films. Additionally, the Sri Lankan side has strongly requested 3D virtual reality (VR) content for the projector system in Gallery 3, in addition to slideshows of reconstruction drawings of the Palace and Lion Terrace. The Team has identified a division in the University of Colombo School of Computing (UCSC) that already creates such content in Sri Lanka, and therefore the 3D/VR content can be produced locally. However, the existing material made by UCSC is not geared for museum use, and the production of new, museum-specific film clips is recommended to maximize the effect of the display.

Both audiovisual and 3D content should be short, few-minutes-long clips that deliver a strong but concise message (like those seen in Japanese museums) instead of long films and computer graphic displays that focus more on the presentation of technology than contextual accuracy. Technical cooperation for the creation of museum-specific clips will not only increase sustainability, but also increase the effectiveness of display space that will be supplied by this Grant Aid Project.

It should be noted that a Technical Cooperation Project (‘IT Human Resources Development Project’, 2002-2005) has been implemented at UCSC, and 3D graphics and virtual reality content has been developed (coincidentally with Sigiriya as the subject) as a research project from the technology transferred at that time.

2) Collaboration with the proposed Technical Cooperation project

The CCF has submitted an application for Technical Cooperation in Tourism promotion activities at the new Sigiriya Museum in July 2006. In the application, the Sri Lankan side listed the desired effects as follows: staff education, improvement of museum activities (conservation, education, dissemination of information and outreach, recording, monitoring the condition of artifacts, and planning), technical cooperation in museum operation and management, aiding the advance in Sigiriya research through the strengthening of conservation and research functions, monitoring the operational methods of the museum, achieving worldwide recognition for the Museum, museum and

heritage education for locals, and the dissemination of acquired knowledge to other museums in Sri Lanka. Planned activities listed in the application are as follows:

- Education of museum staff (museology, visitor interfacing methods and outreach, maintenance of equipment, museum planning).
- The formation of a recording and researching unit, and its utilization for educating students and visitors.
- Instruction in museum operation and management.
- Establishing methods and manuals for museum maintenance and gathering visitor feedback.
- Activities to enhance worldwide recognition of the new Museum.
- Museum education and outreach activities within Sri Lanka.
- Education of staff in other Museums within Sri Lanka.

In short, the application listed activities and desired effects in two fields: technical cooperation for the improvement of archaeological techniques (conservation, research, and recording), and tourism promotion.

The following Project Formation Study in September 2006 in turn focused on tourism promotion activities centered in the Sigiriya area, and came up with the following recommended directions for the Technical Cooperation Project:

Table 3-2 Directions of Technical Cooperation identified in the Project Formation Study

Input from the Sri Lankan side	Input from the Japanese side
From new Sigiriya Museum staff: Museum curator Museum coordinators Museum educators Maintenance engineers From CCF staff: Heritage management/ tourism specialist From local administration/Ministry of Tourism: Tourism administrator	Dispatch of Experts: Archaeological tourism promotion (Leader) Display planning Museum coordination and outreach Museum education Intangible heritage/Tourism art (theater promotion/souvenir production) Tourism marketing Training in Japan: Heritage management/heritage tourism OJT, local training: Tourism promotion targeting Japanese tourists

An active movement towards the improvement and upgrading of various museums in Sri Lanka were observed by the Team, and the suggested technical cooperation for a Museum Coordinator is timely. Other CCF facilities are procuring equipment geared towards education and tourism promotion; thus technical cooperation to Museum Educators in the new Sigiriya Museum has high potential to spread to these other facilities. For the suggested assistance to improve the quality of tourist products/art, another timely move was the recent acquisition by CCF of a traditional crafts school which is now

their Replica Centre. Lastly, interviews with CCF staff indicated that some staff members were enrolled in courses offered by the Sri Lanka Tourist Board (SLTB), indicating interest in the overall improvement of tourism promotion within this Project's implementing organization.

The Team confirmed that the Project Formation Study's findings have been accepted by the Sri Lankan side, resulting in the commitment to allocate a Maintenance Engineer and Museum Curator (or equivalent) as part of the new Museum staff.

Audiovisual content creation (mentioned in the preceding section) is closely connected to tourism promotion, the inclusion of this item in the Technical Cooperation Project is recommended by the Team. Such technical cooperation can be envisioned to have two parts: the first is assistance in editing existing content for use in the new Museum, and the second is technical cooperation at UCSC to create 3D/ VR content. The completion of the former by the time of Museum opening is especially important in realizing the full potential of Grant Aid, and thus the Team recommends early input for this proposed element of the Technical Cooperation Project.

(2) Collaboration with JBIC-TRIP

A subproject of the tourism sector development activity using Japan's Yen Loan program (JBIC-TRIP: Tourism Resources Improvement Project) is underway in the area around the new Sigiriya Museum. The Team has informed JBIC-TRIP project members of the salient points of this Project, when participating in a JBIC-TRIP meeting as observers. The importance of improving the surroundings of the new Museum and the access road has been conveyed.

During discussions, it became clear that while the improvement of the main visitor road (from New City to Sigiriya Site) and the dry zone herbarium were included in JBIC-TRIP's agenda, the landscaping around the new Museum was definitely not included. Therefore, the landscaping around the new Museum has been accepted as one of the undertakings by the Sri Lankan side for this Project.

Regarding the access road, the current route for visitors with personal or hired vehicles is to be driven down the gravel access road between the inner moat and outer rampart (which ideally should be a pedestrian-only path), and be dropped off in front of the West Gate in front of the checkpoint/entrance and ticket office (see figure below). This current route not only places both parked and moving cars in front of the West Gate and creates a hazard to visitors, but also places the new Museum outside the main access route for visitors with vehicles, including most foreign visitors.

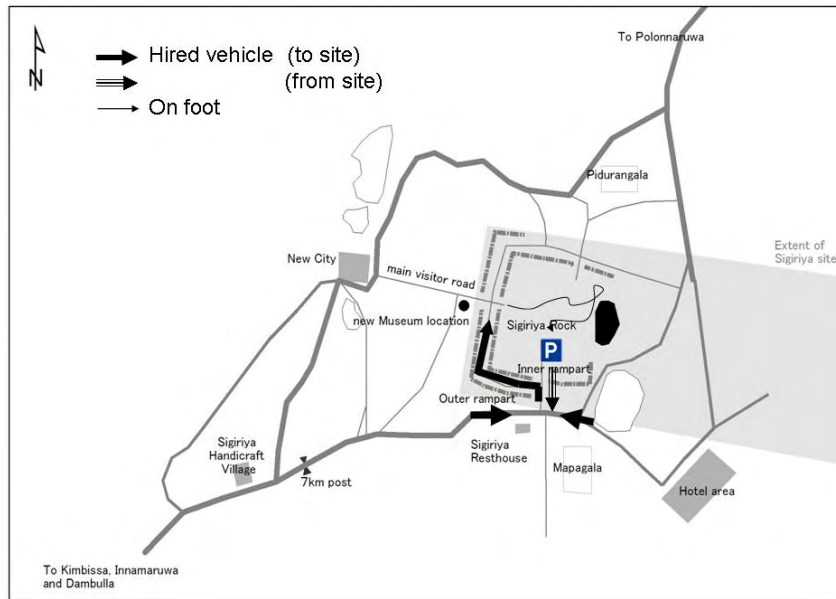


Figure 3-1 Current access route for most foreign visitors

The Team has requested the Ministry of Tourism (the implementing organization for TRIP) and CCF (the contact organization for the TRIP Sigiriya subproject) to consider this problem. The Team was presented with the following solutions during their Explanation of Draft Report trip:

- 1) The TRIP access road improvement plan shall progress as it was originally planned in 2005, and improve access to the New City, which shall serve as a gateway for all visitors.
- 2) The gravel access road between the inner moat and outer rampart, providing access to visitors with private or hired vehicles, shall be completely closed off for normal traffic, and foreign visitors shall access the site on foot by the main visitor road, along with domestic visitors (see Figure below).

The TRIP access road improvement plan mentioned in 1) above will move the main access road outside the protected archaeological, wildlife, and nature reserve, and thus serve to increase the protection of the reserve. It will also promote the local economy by directing tourist traffic to the New City and the main visitor road, increase the visual impact of the site by approaching it from a vantage point on foot, and also place the new Sigiriya Museum en route of the site.

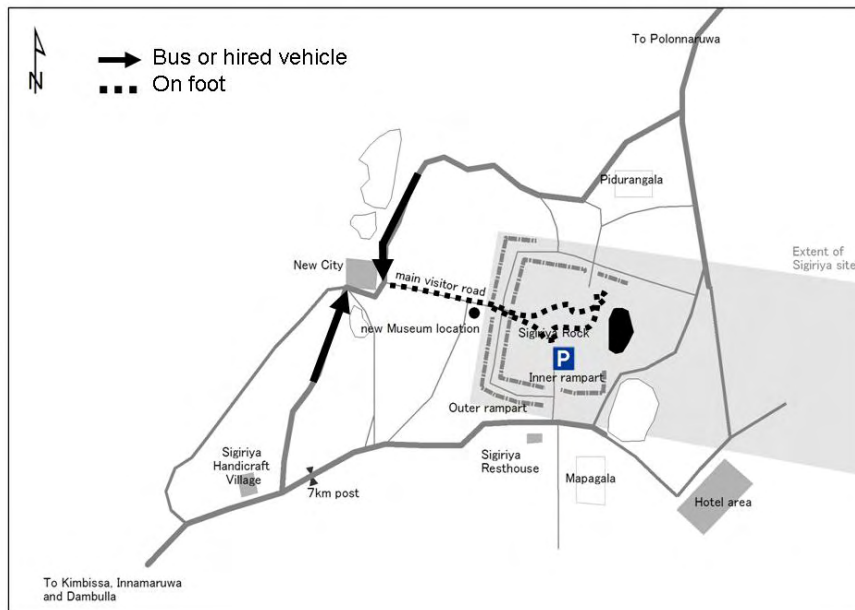


Figure 3-2 Proposed future access route for all visitors (= current domestic visitor route)

However, fierce opposition can be expected from tour operators and others in the tourist industry, as the route change will reduce their speed and effectiveness in covering this site in a short visit. A lot will depend on the ability of CCF and the Ministry of Tourism to withstand their lobbying and pressure. It should be noted that the parking lot near the South Entrance of the site shall be kept open for handicapped visitors.

(3) Collaboration with the Japanese volunteer program (JOCV)

There are no plans for direct collaboration with the Japanese volunteer program (JOCV), but the dispatch of a short-term volunteer is under consideration, preceding the main phase of the Technical Cooperation project. Additionally, a volunteer is already active in the Negombo TRIP subproject area, and the Nuwara Eliya TRIP subproject is also considering applying for a volunteer. The Team considers that a nation-wide dispatch of tourism promotion volunteers might be effective in collaboration with the Technical Cooperation Project.

Appendices

1. Member list of the Study Team
2. Study Schedule
3. List of Parties Concerned in the Recipient Country
4. Minutes of Discussions (M/D)
5. Other Relevant Data
6. Reference

1. Members of the Study Team

1-1 Basic Design Study

Name	Team Position	Position/Institution
Hideki SAKATA	Team Leader	Deputy Resident Representative, JICA Sri Lanka Office
Sonoko IWAMOTO	Project Coordinator	Senior Project Administration Officer, ICT and Governance Team, Project Management Group I, Grant Aid Management Department, JICA
Tsuneki NARAHARA	Project Manager/ Maintenance Planning	Consultant, Zen-Noh Architects & Engineers Inc.
Hirofumi NAGAKANE	Display Planning/ Equipment Planning (1)	Consultant, Zen-Noh Architects & Engineers Inc.
Yoshiko ABE	Display Planning/ Equipment Planning (2)	Consultant, Zen-Noh Architects & Engineers Inc.
Yukio KATAYANAGI	Procurement Planning/ Cost Estimation	Consultant, Zen-Noh Architects & Engineers Inc.

1-2 Explanation of Draft Report

Name	Team Position	Position/Institution
Hideki SAKATA	Team Leader	Deputy Resident Representative, JICA Sri Lanka Office
Manabu IIDA	Project Coordinator	Assistant Resident Representative, JICA Sri Lanka Office
Tsuneki NARAHARA	Project Manager/ Maintenance Planning	Consultant, Zen-Noh Architects & Engineers Inc.
Hirofumi NAGAKANE	Display Planning/ Equipment Planning (1)	Consultant, Zen-Noh Architects & Engineers Inc.
Yoshiko ABE	Display Planning/ Equipment Planning (2)	Consultant, Zen-Noh Architects & Engineers Inc.

2. Study Schedule

2-1 Basic Design Study

Date			Official		Consultant			
			SAKATA	IWAMOTO	NARAHARA	NAGAKANE	ABE	KATAYANAGI
1	1/11	Thu		Narita to Colombo	Narita to Hong Kong to Colombo			
2	1/12	Fri	Coutesy call to JICA, Embassy of Japan (EOJ) Survey of Colombo National Museum, with members of the Ministry of Cultural Affairs and National Heritage (MCANH)-appointed Expert Committee (Expert Committee) and officials from the Central Cultural Fund (CCF)					
3	1/13	Sat	(Colombo to Polonnaruwa) Survey of Polonnaruwa Museum with Expert Committee and CCF					
4	1/14	Sun	Survey of new Sigiriya Museum construction with Expert Committee and CCF Survey of existing Sigiriya Museum with Expert Committee and CCF Survey of Sigiriya World Heritage Site with Expert Committee and CCF (Sigiriya to Colombo), internal meeting					
5	1/15	Mon	Meeting with Expert Committee and CCF					
6	1/16	Tue	Courtesy call and discussion at MCANH with Expert Committee and CCF Courtesy call and discussion at ERD re: undertakings by the Sri Lankan side, with Expert Committee and CCF			Courtesy call and discussion at MCANH Display planning		
7	1/17	Wed	Discussion with ERD re: Minutes of Discussion (M/D) Discussion with Expert Committee and CCF re: M/D Internal meeting			Display planning Discussion with Expert Committee and CCF Internal meeting		
8	1/18	Thu	ODA Task Force Meeting at EOJ Discussion with MCANH re: M/D			Display planning Discussion with MCANH		
9	1/19	Fri	Signing of M/D Report to EOJ, Report to JICA Sri Lanka Office			Signing of M/D Display planning		
10	1/20	Sat		Colombo to Narita	Contract negotiations with local consultant re: baseline survey Survey of related facilities (Dutch Museum, National History Museum, National Art Gallery)			
11	1/21	Sun	Data analysis, internal meeting					Narita to Hong Kong to Colombo
12	1/22	Mon	Discussion with JICA Sri Lanka Office re: assistance schemes Discussion with Expert Committee and CCF re: Grant Aid scheme and Display Plan					
13	1/23	Tue	Discussion with local consultant re: baseline survey design Discussion with Expert Committee and CCF re: display plan Visit UNESCO National Commission					
14	1/24	Wed	Discussion with Expert Committee and CCF re: Grant Aid scheme, display plan, and baseline survey					
15	1/25	Thu	Discussion with Expert Committee and CCF re: display plan					
16	1/26	Fri	Discussion with MCANH re: donors and organizations Discussion with Expert Committee and CCF re: display plan					
17	1/27	Sat	(Colombo to Kandy) Visit model maker, CCF Replica Centre and National Museum at Kandy					
18	1/28	Sun	(Kandy to Dambulla to Sigiriya to Colombo) Visit Dambulla Painting Museum Survey construction of new Sigiriya Museum (progress monitoring, discussion of architectural design changes)					
19	1/29	Mon	Discussion with Colombo National Museum re: display renovation Visit Mahaveli Center Discussion with JICA Sri Lanka Office re: Study progress Market survey for equipment planning, procurement planning Census and statistics research					
20	1/30	Tue		Analysis of answers to questionnaire Visit Survey Department, Geological Survey and Mines Bureau	Display and equipment planning	Same as NARAHARA		Market survey for equipment and procurement planning

Date			Official		Consultant			
			SAKATA	IWAMOTO	NARAHARA	NAGAKANE	ABE	KATAYANAGI
21	1/31	Wed			Courtesy call and discussion with Ministry of Tourism (MOT) re: access roads MOT/JBIC-TRIP joint meeting Discussion with CCF re: answers to questionnaire and display content	Display and equipment planning	Same as NARAHARA	Market survey for equipment and procurement planning
22	2/1	Thu			(Colombo to Polonnaruwa to Sigiriya) Discussion with Polonnaruwa Museum re: maintenance and facilities	Display and equipment planning	Same as NARAHARA	
23	2/2	Fri			Discussion with CCF re: display content Visit Sigiriya, Ibbankatuwa and Alakolawewa sites (Sigiriya to Anuradhapura)	Display and equipment planning	Same as NARAHARA	
24	2/3	Sat			Survey of Jetvana Museum, Abhayagiri Museum, Archaeological Museum at Anuradhapura	Display and equipment planning	Same as NARAHARA	
25	2/4	Sun			Data analysis Internal meeting (Anuradhapura to Colombo)	Display and equipment planning	Same as NARAHARA	
26	2/5	Mon			Meeting with Expert Committee and CCF re: Display planning	Display planning, Market survey for equipment planning	Same as NARAHARA	Market survey for equipment and procurement planning
27	2/6	Tue			Visit Colombo University School of Computing re: audiovisual material Market survey for equipment and procurement planning	Display planning	Visit Kelaniya University re: display content	Same as NARAHARA
28	2/7	Wed			Discussion with CCF re: donors and organizations, display content	Display planning	Same as NARAHARA	Market survey for equipment and procurement planning
29	2/8	Thu			Discussion with Expert Committee and CCF re: display plan			Market survey for equipment and procurement planning
30	2/9	Fri			Discussion with Expert Committee and CCF re: Technical Notes (T/N) and display plan			Market survey for equipment and procurement planning
31	2/10	Sat			Data analysis, internal meeting, display planning			
32	2/11	Sun			Data analysis, internal meeting, display planning			
33	2/12	Mon			Discussions with JICA Sri Lanka Office, ERD, MCANH Joint meeting of concerned parties	Discussions with Expert Committee and CCF re: display plan Joint meeting of concerned parties	Same as NARAHARA	
34	2/13	Tue			Visit Survey Department Check progress of baseline survey Data analysis	Market survey for equipment and procurement planning	Same as NARAHARA	Market survey for equipment and procurement planning
35	2/14	Wed	Report to EOJ		Display content supplementary survey Report to EOJ and JICA Sri Lanka Office Participate in JBIC-TRIP SAPI meeting as observer	Report to EOJ and JICA Sri Lanka Office Market survey for equipment and procurement planning	Same as NARAHARA	Report to EOJ and JICA Sri Lanka Office Market survey for equipment and procurement planning
36	2/15	Thu			Colombo to Hong Kong to Narita			

2-2 Explanation of Draft Report

Date			Official		Consultant		
			SAKATA	IIDA	NARAHARA	NAGAKANE	ABE
1	5/10	Thu			Narita to Singapore		
2	5/11	Fri			Singapore to Colombo		
			Courtesy call to Ministry of Cultural Affairs (MCA), internal meeting				
3	5/12	Sat	(Colombo to Sigiriya) Explanation of Draft Report at Sigiriya Project office, additional survey at Sigiriya Project office				
4	5/13	Sun	Survey of new Sigiriya Museum construction, progress monitoring (Sigiriya to Colombo), internal meeting				
5	5/14	Mon	Courtesy call to EOJ Explanation and discussion of Draft Report with Expert Committee and CCF Courtesy call to ERD				
6	5/15	Tue	Explanation and discussion of Draft Report with Expert Committee and CCF Discussion with Expert Committee and CCF re: T/N				
7	5/16	Wed	Drafting of Minutes of Discussion Discussion with ERD re: M/D				
8	5/17	Thu	Discussion with Expert Committee, CCF, and MCA re: Minutes of Discussion Discussion with ERD re: M/D				
9	5/18	Fri	Signing of M/D Report to EOJ, report to JICA Sri Lanka Office				
10	5/19	Sat			Colombo to Singapore		
11	5/20	Sun			Singapore to Narita		

3. List of Parties Concerned in the Recipient Country

(1) Ministry of Cultural Affairs (formerly Ministry of Cultural Affairs and National Heritage)

G L W SAMARASINGHE	Secretary
Hema JAYAWEERA	Consultant, Foreign Cultural Relations

(2) Expert Committee

Senaka BANDARANAYAKE	Archaeologist
Chandana ELLEPOLA	Architect and consultant for new Sigiriya Museum
Siri Nimal LAKDUSINGHE	Former Director of the Department of National Museums
Nimal DE SILVA	Director, Postgraduate Institute of Archaeological Research

(3) Central Cultural Fund (Ministry of Cultural Affairs)

1) Central office

W H WIJAYAPALA	Director-General
Jayasena PERERA	Additional Director-General
Nilan COORAY	Director of Development

2) Construction of Museum at World Heritage Site Sigiriya Project

P A S PRATHIRAJA	Project Manager, Construction of Museum
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3) Sigiriya Project

Samedha KARUNARATNE	Project Manager, Sigiriya
Samantha WIJESINGHE	Information Officer, Sigiriya
Kusumsiri KODITHWAKKU	Chief Research Officer, Sigiriya
Kusumpriya RAJAPAKSA	Photographer, Sigiriya

4) Polonnaruwa Project

Gamini LENORA	Project Manager, Polonnaruwa New Museum
Rohan GUNASIRI	Officer-in-charge of Museum, Polonnaruwa New Museum
Kumari ALAHAKOON	Information Officer, Polonnaruwa Museum

5) Other

Bagya VITANAGE	Director, Replica Centre, Bataleeya
Lalith KUMARASIRI	Painting Conservator, Dambulla Museum
Lal DISSANAYAKE	Research Officer, Jetvana Project/Museum
S R RANGANA	Information Officer, Abhayagiri Project/Museum
S G N K TIMILAKA	Security Officer, Abhayagiri Project/Museum
CHANDRARATHNE	Assistant Director, Kandy Museum

(4) Department of Archaeology (Ministry of National Heritage)

H M RATNAWEERA	Officer-in-charge of Museum, Sigiriya Museum
Senake WIJERATNE	Assistant to Officer-in-charge, Sigiriya Museum
Mahinda RAJAPAKSA	Assistant to Officer-in-charge, Sigiriya Museum
A M L G BALEDA	Officer, Anuradhapura Museum

(5) Department of National Museums (Ministry of National Heritage)

Nanda WICKRAMASINGHE	Director, Department of National Museum
Ranjith HEWAGE	Museum Keeper, National Museum Colombo

(6) Department of External Resources (Ministry of Finance)

M P D U K MAPA PATHIRANA	Director, Japan Division
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(7) Ministry of Tourism

Prathap RAMANUJAM	Secretary (-February 2007)
George MICHAEL	Additional Secretary
Y H DE SILVA	Project Director, Tourism Resources Improvement Project

(8) Survey Department

B J P MENDIS	Surveyor General
S M W FERNANDO	Additional Surveyor General
C KUMARASINGHE	Map Sales Manager

(9) Geological Survey and Mines Bureau

Udaya DE SILVA	Senior Geologist
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(10) Sri Lanka National Commission for UNESCO

R P PERERA	Secretary General
K Prasanna CHANDITH	Deputy Secretary General

(11) Other

Prabath WIJESEKARA	Model maker, former Design Director, Colombo National Museum
Prishantha GUNAWARDENA	Head of the Department of Archaeology, Kelaniya University
N D KODIKARA	Professor, Colombo University School of Computin