

Ministry of Fisheries and Aquatic Resources
Tsunami Housing Reconstructon Unit
Ministry of Provincial Council and Local Government
Ministry of Finance and Planning

Japan International
Cooperation Agency
(JICA)

**Recovery, Rehabilitation and Development Project for
Tsunami Affected Area of Southern Region in
the Democratic Socialist Republic of Sri Lanka**

Final Report

Executive Summary

March 2006

PADECO Co., Ltd.
in association with
NIPPON KOEI Co., Ltd.
and
OVERSEAS AGRO-FISHERIES CONSULTANTS Co., Ltd.

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*For the currency conversion, in case necessary,
Exchange rate shown below is applied*

1 USD= 107.00 JPY,

1 Rs= 1.0 JPY

PREFACE

In response to the request from the Government of the Democratic Socialist Republic of Sri Lanka, the Government of Japan decided to conduct Recovery, Rehabilitation and Development Project for Tsunami Affected Areas of Southern Region in the Democratic Socialist Republic of Sri Lanka and entrusted the Project to the Japan International Cooperation Agency (JICA).

JICA selected and dispatched the Project Team which consists of PADECO Co., Ltd., NIPPON KOEI Co., Ltd., and Overseas Agro-Fisheries Consultants Co., Ltd. to the Democratic Socialist Republic of Sri Lanka between March 2005 and March 2006. The Project Team is headed by Mr. Yuichiro Motomura of PADECO.

The Project Team held discussions with the officials concerned of the Government of the Democratic Socialist Republic of Sri Lanka and conducted field surveys at the project area. Upon returning to Japan, the Project Team conducted further studies and prepared this final report.

It is my hope that this report will contribute to development in the Democratic Socialist Republic of Sri Lanka, and to the enhancement of friendly relationship between our two countries.

Finally, I wish to express my sincere appreciation to all the officials concerned of the Government of the Democratic Socialist Republic of Sri Lanka for their generous cooperation to the Project Team.

March 2006

Kazuhisa Matsuoka
Vice-President
Japan International Cooperation Agency

March 2006

Mr. Kazuhisa MATSUOKA
Vice-President
Japan International Cooperation Agency

Letter of Transmittal

Dear Sir,

We are pleased to submit herewith the final report of “ The Recovery, Rehabilitation and Development Project for Tsunami Affected Area of Southern Region in the Democratic Socialist Republic of Sri Lanka”.

This report presents the results of the project, which was undertaken in the Democratic Socialist Republic of Sri Lanka from March 2005 to March 2006 by the Project Team, organized jointly by PADECO Co., Ltd. NIPPON KOEI Co., Ltd. and Overseas Agro-Fisheries Consultants, Co., Ltd. under the contract with JICA

The Project Team, and in cooperation with a diverse sectors of the people in Sri Lanka, has formulated a comprehensive plan of tsunami rehabilitation and has implemented selected priority programs. The Project Team also technically supported some of the infrastructure rehabilitation funded by the Japanese Non-project Grant Aid. Because of the nature of planning and implementation processes involving intensive participation of various stakeholders, we believe that a fair amount of tangible and intangible achievements has been realized in the form of rehabilitation work of related sectors and communities in the Project Area.

We owe a great deal to many people for the completion of this report. We would like to express our deep appreciation and sincere gratitude to all those who extended their kind assistance and cooperation to the Project Team, in particular, the concerned officials of the four counterpart agencies of the Sri Lankan Government as well as concerned organizations in Southern Province.

We are very much thankful to the officials of your agency and the Ministry of Foreign Affaires.

We hope that the report will contribute to facilitating further socio-economic development in the Democratic Socialist Republic of Sri Lanka.

Very truly yours,



Yuichiro MOTOMURA
Team Leader

The Project for Recovery, Rehabilitation and Development Project
for Tsunami Affected Area of Southern Region
in the Democratic Socialist Republic of Sri Lanka

Executive Summary

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List of Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
ADB	Asian Development Bank
ASTM	American Society for Testing and Materials
BOQ	Bill of Quantities
CAD	Computer Aided Design
CBO	Community Based Organization
CCF	Child Care Foundation
CEY-NOR	CEY-NOR Foundation L.T.D.
CFC	Ceylon Fisheries Corporation
CFHC	Ceylon Fishery Harbor Corporation
CHA	Centre for Humanitarian Assistance
CNGS	Governments' Centre for Non-Governmental Sector
CNO	Centre for National Operations
DAC	Development Assistance Committee
DCC	Department of Coast Conservation
DDMC	District Disaster Management Coordinator
DFAR	Department of Fisheries & Aquatic Resources
DMC	Disaster Management Center
DS	Divisional Secretary
EDSC	Enterprise Development Service Center
EEZ	Exclusive Economic Zone
FAO	Food and Agriculture Organization of United Nation
FCS	Fisheries Cooperative Society
FRP	Fiber reinforced Plastic
F/S	Feasibility Study
GA	Government Agent
GOJ	Government of Japan
GOSL	Government of the Democratic Socialist Republic of Sri Lanka
GRP	Glass-reinforced Plastic
IBM	In-board Motor
IDB	Industrial Development Board
ILO	International Labor Organization
INGO	International Non Governmental Organization
IOTC	Indian Ocean Tuna Commission
IOM	International Organization of Migration
JBIC	Japan Bank for International Cooperation

JICA	Japan International Cooperation Agency
JICS	Japan International Cooperative System
JIS	Japan Industrial Standard
JPY	Japanese Yen
JRA	Japan Road Association
KOICA	Korea International Cooperation Agency
McRAP	Matara City Renewal Action Plan
M/M	Minutes of Meeting
MOFAR	Ministry of Fisheries & Aquatic Resources
MOPCLG	Ministry of Provincial Council and Local Government
MOU	Memorandum of Understanding
MOUDWS	Ministry of Urban Development and Water Supply
NADAS	National Aquaculture Development authority of Sri Lanka
NARA	National Aquatic Resources research & development Agency
NDTF	National Development Trust Fund
NHDA	National Housing Development Authority
NGO	Non Governmental Organization
NIFNE	National Institute of Fisheries and Nautical Engineering
NWSDB	National Water Supply & Drainage Board
OAFIC	Overseas Agro-Fisheries Consultants
OBM	Out-board Motor
ODA	Official Development Assistance
PDM	Project Design Matrix
PTA	Parents and Teachers Association
R/C	Reinforced Concrete
RRC	Regional Reconstruction Committee
Rs	Sri Lankan Rupees
SDC	Swiss Agency for Development and Cooperation
SME	Small and Medium Enterprise
TAP	Transition Accommodation Project
TAFREN	Task Force for Rebuilding the Nation
TOR	Term of Reference
UDA	Urban Development Authority
UNICEF	United Nations International Children's Emergency Fund
UNDP	United Nations Development Programs
USD	US Dollar
VAT	Value Added Tax
WSP	Water Steel Pipe Standard Specifications, Japan

Executive Summary

1. Introduction

Coastal areas in Sri Lanka were devastated by the tsunami that hit on the 26th of December 2004. Based on a request by the Government of the Democratic Socialist Republic of Sri Lanka, the Government of Japan decided to implement a project, "Recovery, Rehabilitation and Development Project for Tsunami-affected Area of Southern Region" in the Democratic Socialist Republic of Sri Lanka as part of JICA's technical cooperation program.

The objectives of the Project are:

1. To formulate a plan for a recovery, rehabilitation, and development program for the tsunami-affected area in the southern region of Sri Lanka;
2. To assist and monitor technically the implementation of recovery and rehabilitation projects to be funded under Japanese Non-project Grant Aid and ODA Loan; and
3. To share Japanese experiences in disaster management through implementation of the Project.

Areas subject to this Project include Galle District, Matara District, and Hambantota District, and the Project mainly focuses on the Galle Fishery Harbor, Tangalle Fishery Harbor, and Matara District.

The framework of the project is illustrated in Figure 1. The project can be classified into four parts: (i) Part I is the analysis of methods developed in Japan, through their experience in post-disaster rehabilitation and on how such methods could be applied in Sri Lanka; (ii) Part II is the planning and implementation of priority projects designed to examine the effectiveness of post-tsunami rehabilitation methods in Sri Lanka (to be reflected in the medium-term rehabilitation plan as well as the emergency physical rehabilitation projects); (iii) Part III is the evaluation of post-disaster management methodologies as identified in Part II above; and (iv) Part IV is the formulation of strategies and policies for the planning of a medium-term regional rehabilitation plan, as well as general conclusions from all the work done.

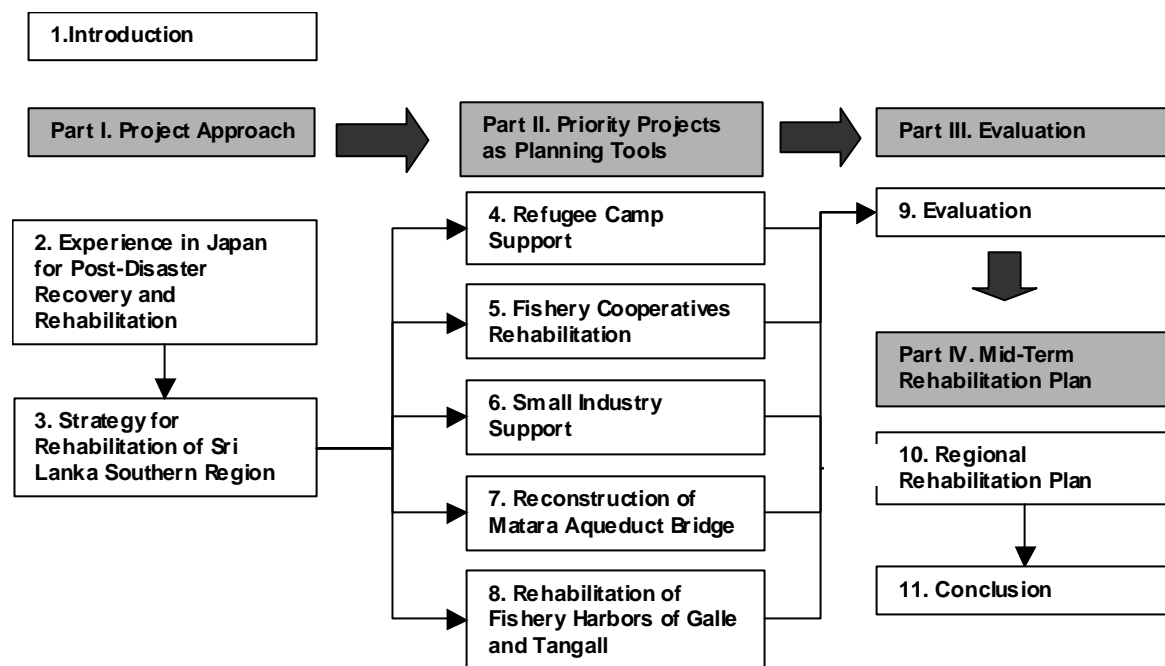


Figure 1 Framework of the Project

Part I Project Approach

2. Japanese Experiences in Post-Disaster Recovery and Rehabilitation

It is important to utilize proven methods for efficient and substantial rehabilitation of other countries. Japanese methodologies in post-disaster recovery process were studied. As such, two representative Japanese documents¹ in disaster rehabilitation methodologies were adopted for possible application to post-tsunami rehabilitation in Sri Lanka.

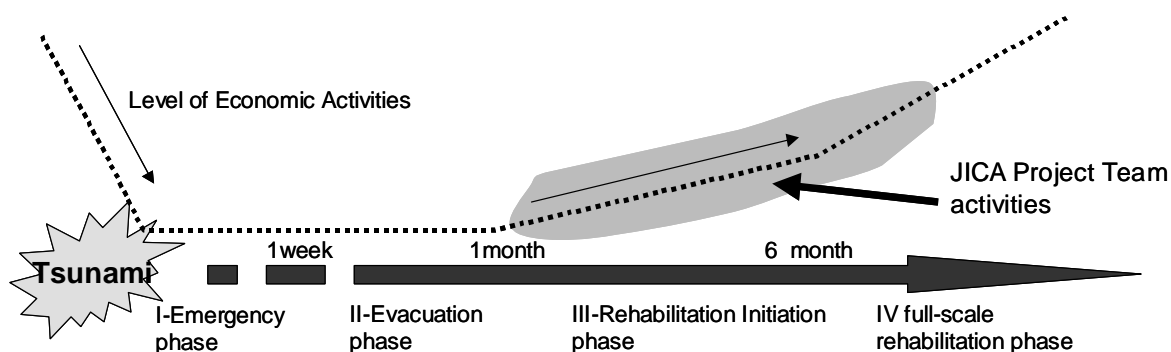
(1) Phases for Rehabilitation

As shown in Figure 2, there are four phases of rehabilitation after disaster:

- I) Phase I - Emergency phase (lasting up to one week after the disaster);
- II) Phase II - Evacuation phase (lasting between one and two months after the disaster);
- III) Phase III - Rehabilitation initiation phase (lasting between three and six months after the disaster); and
- IV) Phase IV - Full-scale rehabilitation phase.

¹ Lessons from Kobe Earthquake by the Office of the Cabinet of the Government of Japan, 2005 (<http://www.hanshin-awaji.or.jp/kyoukun/>) and Manual for Natural Disaster Rehabilitation Activity by Tokyo Metropolitan Government, 2003

The Project deals with activities for Phases III and IV. It was also found to be useful to classify rehabilitation work into two levels, administrative and on-site activities, for planning purposes.



Source: Project Team

Figure 2 Phases for Rehabilitation Activities after the Tsunami

(2) Approach for Administrative Activities - Finding Bottlenecks

Based on lessons from the Kobe Earthquake experience, the Office of the Cabinet of the Government of Japan summarized lessons and checkpoints for rehabilitation, which are classified into three phases: rescue, evacuation, and initial recovery. Since this methodology can promote the proper identification of bottlenecks and the quick preparation of rehabilitation plans, the JICA Project Team deemed that this methodology was very useful for tsunami rehabilitation in Sri Lanka. Based on the Japanese list for the initial recovery phases, the JICA Project Team extracted 75 lessons, classified into five major fields with 22 sub-fields. The five major fields are: (i) refugee camp closing and temporary housing provision; (ii) reconstruction of life and houses; (iii) township rehabilitation planning and implementation; (iv) demolition and clearance of damaged buildings and debris control; and (v) industry rehabilitation. Each sub-field has checkpoints that are used to assess bottlenecks in Sri Lanka.

(3) Approach for On-Site Activities - Co-Assistance

The Manual for Natural Disaster Rehabilitation Activities suggests a “Three-Level Model Structure.” The ordinary public security system is composed of two levels: public services and self-assistance. In the reconstruction phase after a disaster, when public service levels are reduced, co-assistance (mutual assistance among victims) supported by a CBO mediates between the two levels.

The function of the co-assistance is strengthened during the rehabilitation phase and substitutes for public service functions. The table below shows the difference in functions at the three levels and the extension of functions of co-assistance in different phases of the required services.

The organization for co-assistance may consist of a rehabilitation committee for the area, as well as residents in an area. Such co-assistance can be channeled by a regional rehabilitation committee (RRC) consisting of a representative of the residents.

Table 1 Roles and Functions of the Three-Level Organizations in Time Series

Phases	Role of public service (ko-jo)	Role of co-assistance (kyo-jo)	Role of self assistance (ji-jo)
Emergency evacuation phase	Procure goods for life and security operations in the administrative area	Organize the CBO in a democratic way as a representative of the community	Secure safety at the personal/household level
Rehabilitation initialization phase	Propose a master plan for reconstruction	Coordinate demand for reconstruction plans at the community level Report the summarized demand to administrative levels	Participate in the CBO.
Full-scale rehabilitation phase	Develop and implement the project for reconstruction	Undertake urban reconstruction as well as industrial rehabilitation and other related projects as an implementation body	Participate in project implementation

Source: Project Team

It was observed that there was a serious lack of public service and co-assistance in communities during tsunami rehabilitation in Sri Lanka. Even though this model is basically used for earthquake disasters in Japan, the methodology can apply to other types of disaster rehabilitation in similar situations. As such, the JICA Project Team assumed that co-assistance could accelerate tsunami rehabilitation at the community level in Sri Lanka. In the project, it seems worthwhile to test its effectiveness in Sri Lanka on an experimental basis. Needless to say, the model should be adjusted to fit realities in Sri Lanka by means of proceeding through the assessment process as described above.

(4) Hypotheses for Effective Rehabilitation Methods

The noted two approaches developed in Japan after the Great Hanshin-Awaji Earthquake, which recognized the importance of administrative and social factors in post-disaster management, were applied to post-disaster management of the Chuetsu Earthquake of 2003. This experience proved that the two approaches were quite useful. The JICA Project

Team therefore took up the following two hypotheses for effective rehabilitation methods (assuming each would be equally applicable and useful to Sri Lanka):

- 1) The list of lessons and checkpoints can enable authorities to quickly identify bottlenecks and necessary administrative activities for disaster rehabilitation; and
- 2) The enhancement of co-assistance can promote community rehabilitation under the conditions of reduced public assistance.

Adopting these two approaches, the JICA Project Team carried out the Project so that the validity and effectiveness of the approaches could be examined through an evaluation of Project results.

3. Strategy for Rehabilitation of the Southern Region

(1) Needs Assessment

According to the list prepared in Japan, the JICA Project Team assessed the situation against all checkpoints of administrative activities, which are identified above, and summarized the bottlenecks, necessary activities, and implementation program as shown in Table 2.

Table 2 Summary of Bottlenecks, Necessary Activities, Implementation and Priority

Fields	Bottlenecks	Necessary Activities	Proposed Implementation Methods by JICA Project Team	Priority
1. Refugee camp closing and temporary housing provision	<ul style="list-style-type: none"> • Location of semi-permanent housing: need to keep the location of semi-permanent housing near the center of their living activities in the planning phase or provide adequate facilities to secure their livelihood • Absence of land in areas preferred by people • Mixing of people from different villages, cast them in the same housing scheme <p>Lack of Utilities</p>	<ul style="list-style-type: none"> • Transportation services, facilities for filling the gap between present and previous lives • Provision of utilities such as drinking water wells 	<ul style="list-style-type: none"> • Select some camps and identify such issues, provide adequate facilities and services, and consider the impact of the provision in the with/without Project cases • With community participation, construct wells and other utilities • Provide useful information through newsletters 	High
2. Revival of industry	<ul style="list-style-type: none"> • Large number of people lost their livelihoods and the diversity of such livelihoods • Loss of productive assets like machinery, equipment, and boats due to the tsunami • Slow provision of such assistance • Lack of trade associations to enable affected to work together • Lack of technical assistance • Lack of access to capital in the form of credit or grants to replace lost assets • Loss of infrastructure 	<ul style="list-style-type: none"> • Identify key sectors such as fishing, coir, food processing, and ornamental fishing and conduct needs assessments • Form Community-Based Organizations or trade associations • Provide assistance to develop business plans to resume businesses • Provide grants, credit, and lease arrangements to procure productive assets lost during the tsunami • Provide training and access to markets • Revive collapsed markets and infrastructure • Need for better coordination between agencies to avoid duplication and missing those in need 	<ul style="list-style-type: none"> • From the survey results and secondary data from the GA office, followed by a questionnaire/ Interview for needs assessments • Organize those who need assistance into CBA or trade associations by raising awareness in the benefits of such organizations • Provide business consultants (Business Development Centre, Matara etc.) to develop business plans and provide training, consultancy, and marketing assistance • Assist to develop savings and credit program • Lobby Government to build infrastructure and link other agencies working on market development • Provide assistance within their budget and for needs such as credit, boats, nets, and equipment, and link the associations to agencies • Participate actively in the District Secretary Office led coordination meetings at Matara and CHA led coordination meetings in Colombo. Provide all information regarding assistance to avoid duplication 	High

Fields	Bottlenecks	Necessary Activities	Proposed Implementation Methods by JICA Project Team	Priority
3. Reconstructi on of Houses	<ul style="list-style-type: none"> • Large amount of land required for construction of new houses • Legal transfer of these lands from existing ownership (even government agencies) to new owners • The poor location and quality of some of the lands identified • The buffer zone rule and people's reluctance to leave this area • Lack of capacity of NGOs to construct houses • Lack of skilled labor required for construction • The price of construction materials impacts the construction of housing 	<ul style="list-style-type: none"> • 90% of land has been identified and agencies have allocated land, but construction has begun only on about 30% of the land. In Matara, an MOU has already been signed with donors for 3,187 houses and land has been allocated. • The need is to expedite construction work. Training needs to be given to enlarge the pool of skilled labor. Legal formalities need to be finalized. • Efficient approaches for procurement (joint procurement) should be considered. 	<ul style="list-style-type: none"> • Give monthly targets and schedules to agencies doing construction and close monitoring done • Assist to introduce joint procurement techniques 	
4. Township rehabilitation planning and institutional building	<ul style="list-style-type: none"> • The township program preparation activities started one month after the disaster. This was due to the fact that the public sector's capacity to make decisions during the disaster situation was insufficient. Lack of expertise in township planning during the disaster situation 	<ul style="list-style-type: none"> • Advice on township program development and implementation • Disaster preparation training for officials of Matara Municipality 	<ul style="list-style-type: none"> • Provide adequate consulting services for planning agencies • Consult with JICA HQ for implementation budget for rehabilitation work • Conduct disaster management training and consultancy for municipality offices and other government agencies • Promote greater coordination and leadership for township development 	High
	<ul style="list-style-type: none"> • Infrastructure: delay of infrastructure rehabilitation can be seen, particularly in the public sector, such as high cost aqueduct rehabilitation. 	<ul style="list-style-type: none"> • Identify bottlenecks in infrastructure rehabilitation and rehabilitation funds (Matara Aqueduct, Galle and Tangalle Harbors) 	<ul style="list-style-type: none"> • Provide the engineering consulting services for tender, design and monitoring for the project funded by Japanese Non-project Grant Aid 	High
5. Demolition of damaged buildings and debris disposal	<ul style="list-style-type: none"> • Lack of expertise • Lack of resources and machinery • Lack of knowledge in recycling of materials 	<ul style="list-style-type: none"> • Consulting/planning services for wreckage disposal management • Provision of machinery to assist wreckage removal • Transfer of technology for wreckage recycling as construction materials • Need to develop garbage management capacity throughout the country and in both the public/private sectors 	<ul style="list-style-type: none"> • Provide training and consultancy • Provide assistance to buy machinery or provide money for renting machinery • Provide state-of-the-art consultancy and technology on wreckage and garbage recycling <p>Medium</p>	

(2) Selection of Priority Projects

With the bottleneck analysis summarized in Table 2 and tsunami damage survey (Chapter 3.1), as well as the detailed discussions with concerned authorities of the Sri Lankan Government, the Project Team selected two infrastructure rehabilitation activities as part of the priority project.

- 1) Rehabilitation of Matara Aqueduct
- 2) Rehabilitation of fishery harbors in Galle, Tangalle and a limited part of the fishery harbor in Kirinda

Concerning community level rehabilitation, the Project Team nominated camp management and industrial or livelihood reconstruction from bottleneck analysis (Table 2). After a series of discussions with concerned authorities, the following three ideas were formulated as priority projects in Matara District.

- 3) Support of refugee camp associations
- 4) Support of fishery cooperative societies
- 5) Support of associations of small enterprises (food industry and ornamental fish industry)

In addition to these, the JICA Project Team has been working on the Matara township rehabilitation plan. Relevant plans for infrastructure and urban development have been examined in order to make a proposal to Matara city that is strong against disasters.

(3) Co-assistance Approach for Pilot Projects

Out of the five Priority Projects, three projects for grassroots rehabilitation were designed to test the on-site co-assistance approach as explained above. The following show the co-assistance approach for each Pilot Project.

1. Refugee Camp Support

Based on lessons learned in Japan, the JICA Project Team assisted refugees to establish camp associations that could promote co-assistance among disaster-affected people for effective recovery from devastation. The role of the associations was to make decisions on management issues of the camps, including procurement of necessary equipment and facilities, as well as coordination of seminars and trainings.

2. Fishery Cooperative Societies (FCS) Support

Most of the property of fisherman were lost or damaged during the tsunami. As such, equipment was required for resuming fishing activities. The JICA Project Team decided to

support FCS, which consisted of fishermen, and support cooperative members mainly through a micro-credit scheme.

3. Associations of Small Industries Support

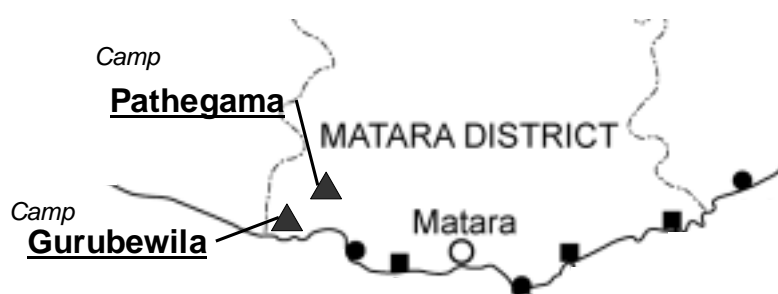
For promoting co-assistance activities, trade associations of targeted industries were formed. The associations were expected to support, reopen, and improve the businesses of members, to lobby for matters affecting trade such as licenses, taxes, and inspection procedures, to enhance the social/economic status of the industry, and to appeal for necessary assistance from the Government, NGOs and donors.

Part II Implementation of Priority Projects

4. Refugee Camp Support

(1) Outline of the Project

- Project Title: Refugee Camp Management Support Pilot Project
- Location: The Gurubewila and Pathegama Camps were selected as model camps out of the 22 refugee camps in the Matara District
- Project Duration: July 2005 to February 2006
- Background: As of April 2005, 3,325 people lived in 22 refugee camps in the Matara District. Minimum living necessities were assured in the camps, however, refugees were not organized and were unable to improve many problems in their lives through their own initiatives.
- Project Goals: Develop capacity of affected people (camp refugees) to contribute to improving their quality of life
- Project Components:
 - Development of a strong society of affected persons capable of lobbying for their rights and assistance and capable of contributing to the improvement of their own lives;
 - Improvement of basic household needs, water, sanitation, as well as environmental aspects at temporary housing sites, working in partnership with affected people; and
 - Creation of a structure for refugee camp associations to learn from each other's good practices. A newsletter has been launched for this purpose.



Source: Project Team

Figure 3 Locations of the Two Model Camps

(2) Activities and Results

Activities	Contents	Results
Camp Household Survey	Conduct questionnaire surveys to understand socioeconomic conditions and needs of households at model camps	Issues on transportation, education, water, electricity, and so on were clarified.
Camp Management Survey	Interview managers of all 22 refugee camps to identify management issues	Problems in management and coordination of basic necessities were clarified.
Institutional Building of Camp Associations	Form camp associations at model camps	In April, associations were formed.
Steering Committee Meeting	Form steering committees of stakeholders to handle the Pilot Project	The committee meetings were held once a month.
Lending of Equipment	Select and lend necessary equipment for people at refugee camps	Gas cookers were lent to the two camps in August, while cupboards, generators, and stationery were lent in October.
Coordination among the stakeholders	Coordinate with the District Secretary in Matara and divisional secretaries in Weligama and Lordstar	People in the camps have been actively discussing among themselves and negotiating with outside entities.
First-Aid Training	Conduct first aid training for refugees	The first-aid training was held at the Pathegama and Gurubewila Camps in September.
Preparation of Well Digging	Provide wells, pumps, and tanks for bathing water	Construction work was canceled because refugees would move to permanent houses.
Newsletter	Provide newsletters to learn about good practices on improving refugee lives	Eight newsletters in local language were issued on a monthly basis.
Study Tour	Conduct study tours to other camps for sharing experiences and information	The first tour with refugees from the Pathegama Camp was conducted in July.
Positive Thinking Workshop	Conduct workshop for relieving psychological distress and encouraging positive thinking	Workshops were held at both camps in October.
Evaluation Workshop	Conduct workshop for assessing the Pilot Project	Workshops were held at both camps in December.



Figure 4 Transitional Shelters in Pathegama Camp



Figure 5 Training of Practical First Aid Skills



Figure 6 Seminar for Fire Safety by Shell Gas Company



Figure 7 Lecture on First Aid by Red Cross



Figure 8 Newsletters Issued for Tsunami-Affected People in Matara

(3) Achievement and Evaluation

The following results were identified in the evaluation process:

- People in the model camps gained the initiative to improve their livelihoods;
- Capability for rehabilitation was enhanced through seminars and workshops;
- People understood the importance of the co-assistance approach and actively assisted committees and community activities;
- Livelihood rehabilitation was promoted by the Pilot Project; and
- Concerning the sustainability of the Pilot Project, the camp residents will maintain cooperation even after shifting to permanent houses. Newly-developed micro-credit schemes facilitate solidarity.

5. Fishery Cooperatives Rehabilitation

(1) Plan of the Pilot Project

- Project Title: Fishery Cooperatives Society (FCS) Support Pilot Project
- Location: Epitamulla, Noonawella, and Dodampahala FCS in Matara Province
- Counterpart Organization: Fisheries District Office and Cooperatives District Office
- Project duration: July 2005 to February 2006
- Background: The three fisheries cooperative societies had been in existence for some time primarily for executing micro-finance schemes for society members. Their office buildings were destroyed and they could not resume their activities.
- Project Goal: The lives of fishermen are re-established at the community level with the support of the FCS
- Project Components:
 - Increase knowledge and facilitate capacity building in FCS-related activities;
 - Conduct open seminars; and
 - Construct fishing gear lockers, small auction halls, and FCS office buildings.

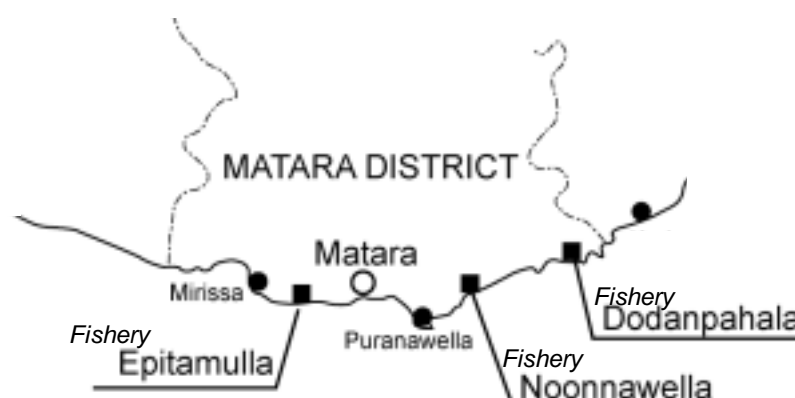


Figure 9 Locations of the Three Target Fishery Cooperatives

(2) Activities and Results

Activities	Contents	Results
Interview survey of directors of FCSs	Conduct questionnaire surveys of directors in the nine FCSs in Matara District	Their situations and problems were clarified.
Steering committee	Hold a steering committee of the FCSs and coordinate the Pilot Project	Five committee meetings were held in July to December.
Needs Assessment Workshop	Hold workshops and clarify their needs	Workshops were held for the Noonawella and Epitamulla FCS in August.
Coordination with Stakeholders	Collaborate with the Department of Fishery and Aquatic Resources (DFAR) and Co-operative District Office	Memorandum of understanding on the Pilot Project was signed by the DFAR and Co-operative Office in the Southern Province.
Construction Work	Construct the following facilities <ul style="list-style-type: none"> • Bank office, OBM locker, community hall for Dodanpahara • Bank office for Epitamulla • Auction hall for Noonawella 	Bank office in Epitamulla was completed in November, and the office building and the OBM locker in Dodanpahara were completed in December. Other buildings were also completed.
Seminar	Hold seminar on positive thinking and business plan preparation	These seminars were held in October.
Study Tour	Visit other FCSs or co-operatives for exchanging their experience and information	Study tours to Noonawella FCS, Kotopola and a multi-purpose cooperative center were carried out.
Evaluation Workshop	Conduct workshop for assessing the Pilot Project	Workshops were held at every fishery cooperatives in December.



**Figure 10 Collapsed Fishery
Cooperative Bank Office Building in
Epitamulla**



**Figure 11 Opening Ceremony of the
Reconstructed Office Building for
Epitamulla FCS**

(3) Achievements and Evaluation

The following results were identified during the evaluation process:

- People in the fishery societies became more motivated to rehabilitate their livelihood through the introduction of co-assistance;
- Their capability for rehabilitation was enhanced through seminars and workshops;
- People understood the importance of the co-assistance approach and actively assisted committees and community activities;
- Since fishery cooperative banking was just resumed, it will contribute to livelihood rehabilitation; and
- Sustainability of the FCSs has been enhanced with renovated micro-credit schemes, construction of society buildings, and mutual learning among counterpart cooperative societies.

6. Small Industry Rehabilitation

(1) Plan of the Pilot Project

- Project Title: Small-scale Industry Support Pilot Project
- Location: Matara City and Nearby Vicinity
- Counterpart Organization: Industrial Development Board (IDB)
- Project Duration: July 2005 to February 2006
- Background: Recovery of local industries is essential for regional rehabilitation. The

food processing and ornamental fish industries were selected as target groups for the Pilot Project by the JICA Project Team after working together with IDB.

- Project Goal:
 - Each small business establishment recovers from tsunami damage both in terms of income and employment.
- Project Components:
 1. Forming small business/establishment owner associations for targeted sectors to promote co-assistance;
 2. Lending necessary equipment and tools for business operations; and
 3. Providing technical and management advises.

(2) Activities and Results

Activities	Contents	Results
Business Associations	Form business associations for both industries among tsunami-affected businesspersons	Both business associations were established in May. Membership and committee members were decided as well.
Survey on Equipment	Conduct interview surveys on required equipment for association members	Clarify required types of equipment.
Steering Committee	Establish steering committees including both associations, the Industrial Development Board, NGO, and JICA Team	Three committee meetings were held.
Lending of Equipment	Lend equipment and tools for reopening businesses	Pieces of equipment were handed over to the food base industry in August. Equipment for divers in ornamental fish industry was handed over in November.
Coordination among Stakeholders	Collaborate with Industrial Development Board of Ceylon (IDB) and UNDP for the Pilot Project	IDB and JICA Project Team agreed on collaborating for the Pilot Project. JICA Project Team and UNDP agreed to commence a micro-credit scheme for the target industries.
Workshop	Hold workshops for identifying the needs of members of both associations	Two workshops on the food industry and one on ornamental fish industry were conducted in September, resulting in the clarification of the needs of each association.
Exhibition of Food Products	Hold a exhibition of food products to promote business	The exhibition was held in October and a lecture for business management and a evaluation session were also convened.
Evaluation Workshop	Conduct workshop for assessing the Pilot Project	Workshops were held at both associations in December.



**Figure 12 Food Business Owners
Waiting for Evaluators at the Exhibition
Hall**



**Figure 13 Handover Ceremony of
Diving Equipment**

(3) Achievements and Evaluation

The following results were identified through the evaluation process:

- Although small industry cooperatives are not common in Sri Lanka, the Pilot Project succeeded in forming functioning cooperatives;
- With equipment lent through associations to members, all businesses have been successfully restarted;
- While members of the food association understood the importance of the co-assistance approach through the Pilot Project activities, the ornamental fish association had some difficulty in establishing an understanding;
- Concerning the sustainability of association activities, members of the food association appreciate the food exhibition and micro-credit scheme and remain in the association; and
- However, the Ornamental Fish association is less sustainable in this current form. Divers and suppliers are engaged in very different businesses and often have conflicting interests. Reorganization of this association may need further co-assistance.

7. Reconstruction of Matara Aqueduct Bridge

(1) Outline

- **Background:** The Matara Aqueduct was completely destroyed and washed away by the tsunami. The Aqueduct, which supplied water to about 78,000 people in the Dondra Area before the tsunami, was temporarily repaired with a polyethylene pipe. There was

an urgent need to provide a new permanent aqueduct before the next monsoon season.

- Project Components:
 - Construction of the Aqueduct Bridge over the Dondara Lagoon Channel, along with National Road No.2.

The JICA Program Team has been in charge of technical assistance of design, tender, and construction monitoring. Construction work is being implemented by the Non-Project Grant Aid scheme.



Note: The photo shows a temporary pipe and support at low tide.

Figure 14 Damage to the Matara Aqueduct

(2) Summary of Activities and Progress

Activities	Progress
Topographic and Geological Investigations	Topographic survey, drilling works and laboratory test were carried out and necessary data for design work was provided.
Preparation of Design Work	Design drawing, cost estimation, and implementation plan were prepared.
Preparation of Draft Tender Documents	Draft Tender document was already prepared and submitted to the Sri Lanka Government.
Tendering Procedure	Tender process was finished and a contractor was selected.
Monitoring of the work	The JICA Project Team monitored and advised on the construction work and procurement. The JICA Project Team approved shop drawings.

8. Rehabilitation of Fisheries Harbors of Galle and Tangalle

(1) Outline

- Background: Most damage at the Galle and Tangalle Fishery Harbors was concentrated at on-land facilities. One of the urgent problems in the Galle Fishery Harbor was ice supply, as several facilities and related equipment were damaged at the Tangalle Fishery Harbor.
- Project Components
 1. Galle Fisher Harbor:
 - Construction of a refrigeration ice plant, Ceylon Fishery Harbor Corporation's (CFHC) office building, an auction hall, a canteen, a welfare shop, a quay wall, a slipway, and a winch hut; and
 - Demolition of five existing buildings, an old CFHC office, and some unused facilities.
 2. Tangalle Fishery Harbor:
 - Repair and provision of port facilities.

The JICA Project Team has been in charge of assisting design, tender, and monitoring for the above construction works. Construction work is being implemented by the Non-Project Grant Aid scheme.

3. Kirinda Fishery Harbor:

- Among the various buildings and facilities damaged by the tsunami, the auction hall was most frequently used by local people. CFHC and JICA Project Team agreed to rehabilitate the roof of the auction hall; and
- Bathymetric surveys were carried out to review of the sand drafting at the Harbor.

(2) Summary of Activities and Progress

Activities	Progress
Preparation of Rehabilitation Plan	Rehabilitation plan, basic design, and drawings were prepared and construction costs were estimated.
Preparation of Draft Tender Document	Draft Tender document was prepared and submitted to the Sri Lanka Government.
Tender Procedure	Tender process was finished and a contractor was selected.
Monitoring or Work	The JICA Project Team monitored and advised on construction works, procurement, and project management.
Rehabilitation of Kirinda Fishery Harbor's auction hall	Rehabilitation of the roof was completed in August. This construction work was implemented as a Pilot Project of the JICA Project Team.
Bathymetric surveys at Kirinda Fishery Harbor	Bathymetric surveys were carried out to review of the sand drafting at the Harbor in November/December 2005 and in February 2006. The data will be used for the future planning of the Harbor.

Part III Evaluation

9. Evaluation

The JICA Project Team evaluated the methodological approaches including the bottleneck identification and the co-assistance approaches, as described above, against observations noted in the actual implementation of the Projects.

(1) Evaluation of Bottleneck Identification Approach

The checkpoints, bottlenecks, and implementation methods as shown in Table 2, were evaluated from the following perspectives:

- Whether the checkpoints identified in Japan were applicable in post-tsunami southern Sri Lanka or not?
- Whether or not the identified bottlenecks were appropriate for recovery? Were there other bottlenecks?
- Was the implementation method adopted for the bottleneck appropriate?

The degree of applicability was assessed and a score was given to each item on a scale of 0 - 10. Table 3 summarizes the score for each evaluation categories.

Table 3 Average Score of Each Evaluation Categories

Field	Field	Checkpoints	Bottlenecks	Implementation	Missing Checkpoints
Refugee Area Closing and Temporary Housing Provision	7.0	3.9	7.8	8.0	0
Reconstruction of Houses	9.0	5.6	7.3	6.0	-2.0
Township Rehabilitation Planning and Institutional Development	7.0	5.3	7.0	6.7	-2.0
Demolition of Damaged Buildings and Debris Disposal	0	1.0	1.0	1.0	0
Industry Rehabilitation	8.0	7.0	7.1	6.4	-2.0

Source: JICA Team

Bottlenecks identified by the listed checkpoints are generally found to be quite relevant. Implementation methods that have been derived from these bottlenecks are also found to be appropriate, although slightly less than bottlenecks. However, some of the checkpoints applied directly from those compiled in Japan were found to be irrelevant. Also, there seems to be some missing checkpoints necessary for Sri Lanka. The difference can be attributed to the fact that the list developed in Japan was compiled after the great earthquake experience, whereas the disaster in Sri Lanka was caused by a giant tsunami, a completely different phenomenon. Also, underlying economic and social circumstances were quite different, which made some difference in the weighting of issues in each respective society.

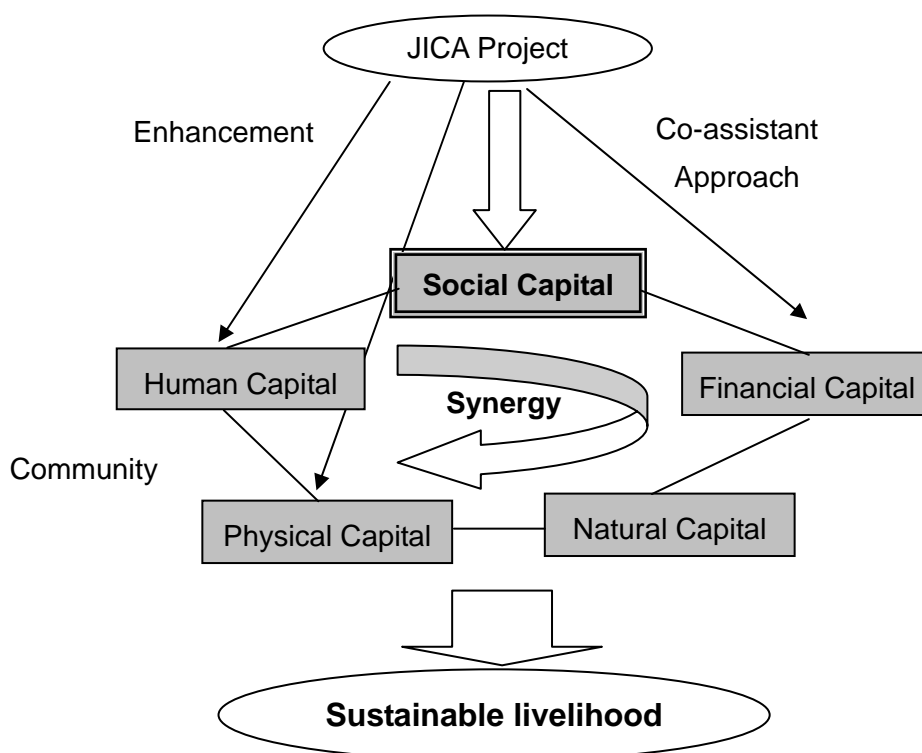
However, the list itself was proven to be quite useful in identifying work to be done in a very systematic manner and in quickly reaching practical solutions. It is therefore most desirable for Sri Lanka to prepare such a list in a fashion similar to the Japanese one, via a thorough compilation of its own experience in post-disaster management.

(2) Evaluation of Co-Assistance Approach

The Pilot Projects were evaluated in terms of how co-assistance contributed to the improvement in the lives of victims. To clarify the difference between activities without co-assistance (such as the simple provision of equipment), the concept of “social capital” was introduced to the evaluation (it is one of the five capitals necessary for a Sustainable

Livelihood Approach, originally proposed by DFID²). Social capital can be defined as “various factors affecting cooperative behavior of human group aiming at some development goals in human group”. The other four capitals are human capital, natural capital, physical capital, and financial capital.

It is assumed that the Pilot Project, based on the co-assistance, enhanced the social capital and the synergy with social capital and other capitals, and promoted rehabilitation of the quality of life in each community. Based on this consideration, the JICA Project Team implemented the following three methods of evaluation for the co-assistance.



Source: JICA Team

Figure 15 Five Resources Needed for Sustainable Livelihood

1) Evaluation of Social Capital from the Perspectives of Beneficiaries

This aims to clarify how beneficiaries recognize the social capital and its contribution to improvement of the quality of life through community activities of the Pilot Projects. This was done through a series of workshops. Major findings are summarized below:

- Correct understanding of the requirements/needs in the community was encouraged in the fishery societies and the camp associations;

² http://www.livelihoods.org/info/info_guidancesheets.html According to DFID, social capital is defined as “ the social resources upon which people draw in pursuit of their livelihood objectives”.

- While the fishery societies and the camp associations recognized that the fairness of committee management was improved, the small industry associations did not recognize that fairness improved;
- Besides the ornamental fish industry association, all societies/associations replied that trust among members and internal, spontaneous mutual help were enhanced or improved;
- Most societies negotiated with or contacted external agencies more actively, such as donors, government agencies, and other societies; and
- All fishery cooperatives and camps possessed very cooperative attitudes vis-à-vis community activities. While the attitude of the food association became more cooperative, the ornamental fish association did not.

2) Evaluation of Capitals for Improvement of the Quality of Life as Enhanced by the Project

Through the assessment of the five capitals, this evaluation clarified how each capital was enhanced by activities of the Pilot Projects and identified the differences between the approach of the Pilot Projects' and the assistance of other donors. This was implemented through the evaluation workshops.

- **Refugee Camp Societies and Fishery Cooperatives**

Financial, human, social and physical capitals were severely damaged by the tsunami. There was no significant damage in natural capital. While other agencies mainly assisted human, financial, and physical capitals through the provision of equipment/money, workshops, and seminars, the JICA Pilot Project enhanced social capital and supported the financial, human, and physical capitals, which are complementary to the social capital.

- **Small Industry Associations**

For small industry associations, the financial and physical capitals were seriously damaged, while human capital was significantly damaged by the tsunami. There was no significant damage in natural capital. Since there was no association before the tsunami, the social capital was not affected by the tsunami either. While no other agencies focused upon these small industries, the JICA Pilot Project enhanced their social capital and other capitals in a balance manner.

3) Evaluation of Social Capital from the Perspectives of Improvement of Life Quality

The evaluation clarified: (i) how the enhancement of the social capital contributed to improve the quality of life of affected people; (ii) how financial, physical, natural, and human capital were enhanced or complemented by the social capital; and (iii) how social

backgrounds and characteristics affected the social capital development. Major findings are summarized below:

- Camp societies and fishery cooperatives acquired the capability to understand the appropriate requirements/needs for the improvement of the quality of life from a medium-term perspective. For example, camp societies identified micro-finance, a generator, and a sound system (instead of a well and electricity, which were not expected for the long term as they were going to leave their transitional shelters sooner or later);
- Communities that existed before the tsunami realized easy and fair opportunities for assistance to other members, while other communities had some difficulties. This is because the trust among members is essential for fair opportunity and it takes some time to build up a trustful relationship;
- The members in the food association started to assist improvement of food technology one another, which will strongly promote the rehabilitation of the quality of life;
- All target communities could acquire loans fund from external agencies and negotiate with other agencies through the initiative of these committees. The establishment of committees made communities socially recognized and visible to external agencies, which enabled them to receive assistance from external agencies more easily; and
- The co-assistance approach fits well with the traditional desire of Sri Lankan rural societies to work in group situations. The people could easily accept the co-assistance approach and this fact resulted in the smooth implementation of the Pilot Projects.

Part IV Support of Mid-Term Rehabilitation Plan

10. Suggestions for Regional Rehabilitation Plan

The city of Matara does not have urban development plans with comprehensive countermeasures against disasters. The JICA Project Team reviewed the existing plans and is providing a basic framework for a sustainable post-disaster rehabilitation plan by integrating various activities and lessons learned from the implementation of this Project.

(1) Review of Existing Urban Plans in Matara Urban Area

There are follow-up plans related to rehabilitation in the Matara Urban area.

1) 100 m buffer zone

After the tsunami, the Sri Lanka Government designated a 100 m buffer zone along the coast, which regulates buildings in the area within 100 m of the shoreline. The regulations in the buffer zone are summarized as follows:

- Rebuilding of damaged residential houses is prohibited;
- People whose houses were damaged are to be given new land and houses by the Government; and
- Buildings for tourism, fishery, and religion, infrastructure, and historical structure are exempted from the above regulations.

2) McRAP (Matara City Renewal Action Program)

The McRAP is the only township program being prepared for post-disaster Matara. Objectives of this program include avoiding ad hoc land use in the face of the relocation of tsunami-affected families, improving infrastructure and public facilities in the process, and building a disaster-free new urban center, assembling currently-scattered public services and economic institutions in a designated area.

(2) Suggestions for Rehabilitation Plan

Some issues remain regarding the existing rehabilitation plans as follows:

- There is no rehabilitation plan at the community level;
- There is no study or research at present that relates to lessons learned from rehabilitation experiences; and
- Although Matara is prone to not only tsunamis, but also floods, a cross-sectoral disaster management plan does not exist.

The JICA Project Team summarized the suggestions on rehabilitation in the subsequent section.

1) Identification of Bottlenecks

The list of possible bottlenecks (adapted from the one prepared in Japan) proved to be quite useful. However, it is strongly recommended that the list be modified to reflect the actual circumstances in Sri Lanka by planners of the regional rehabilitation plan especially in the following points:

- The dual structure of local administration in Sri Lanka;
- Involvement of a large number of donors and NGOs;
- The co-assistance approach;

- Availability of land for evacuees;
- Roles of the Urban Development Authority, Provincial Government, and Municipality;
- Consideration of the needs and opinions of victims themselves;
- Revival of small-scale industries; and
- Expansion to include public health and education, as anticipated in the earlier stages.

2) Co-Assistance

The co-assistance approach proved to be quite effective in post-disaster management. A number of points have emerged in the course of implementing the Pilot Projects, which, if properly done, would make the approach even more effective as follows:

- Members of a newly formed society should be of a similar background (as much as possible);
- Societies should be given an opportunity to negotiate with external organizations to the extent possible;
- Meetings should be held as frequently as possible;
- Micro-finance can act as good glue to keep society cohesive, while its interest payments can be used for the society's own activities;
- Training can enhance the standing of society to individuals, stronger individuals strengthen the society, which becomes even stronger in strengthening individuals, a mutually-reinforcing cycle; and
- Formation of internally-cohesive and outwardly-oriented societies enables them to link up with existing organizations to enlarge their scope.

(3) Recommendations on Disaster Management in Matara Urban Area

The JICA Project Team developed recommendations on disaster management measures. These recommendations are mainly focused on the existing urban area, with tsunamis and floods selected as targeted disasters.

The disaster management measures consist of two kinds of measures: disaster prevention and emergency preparedness and response. Disaster prevention measures are expected to prevent or reduce physical disaster damage directly, while emergency preparedness and response are measures on planning and preparing emergency activities. An important point is that government authorities need to implement both kinds of countermeasures in a

balanced manner because neither of them can adequately prevent disaster alone. The following displays the details of these two measures.

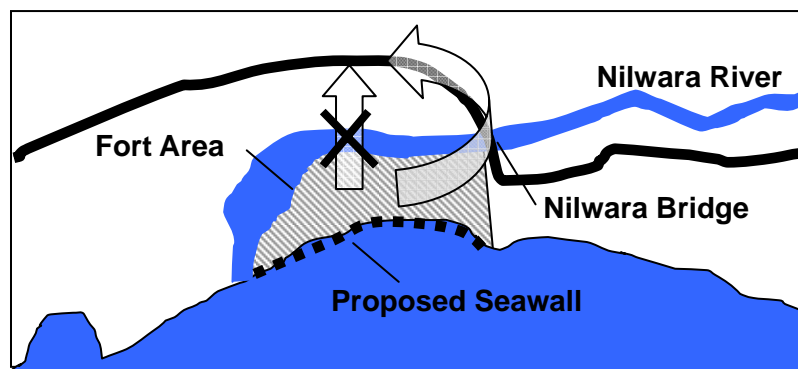
1) Disaster Prevention Measures

- Urban Planning:

- Introduction of building codes in hazard areas, including: regulations of building construction for surviving tsunamis, prohibition of buildings lower than the highwater tsunami level, and regulations of building layout to reduce damage;
- Relocation of public facilities; and
- Development of emergency road network.

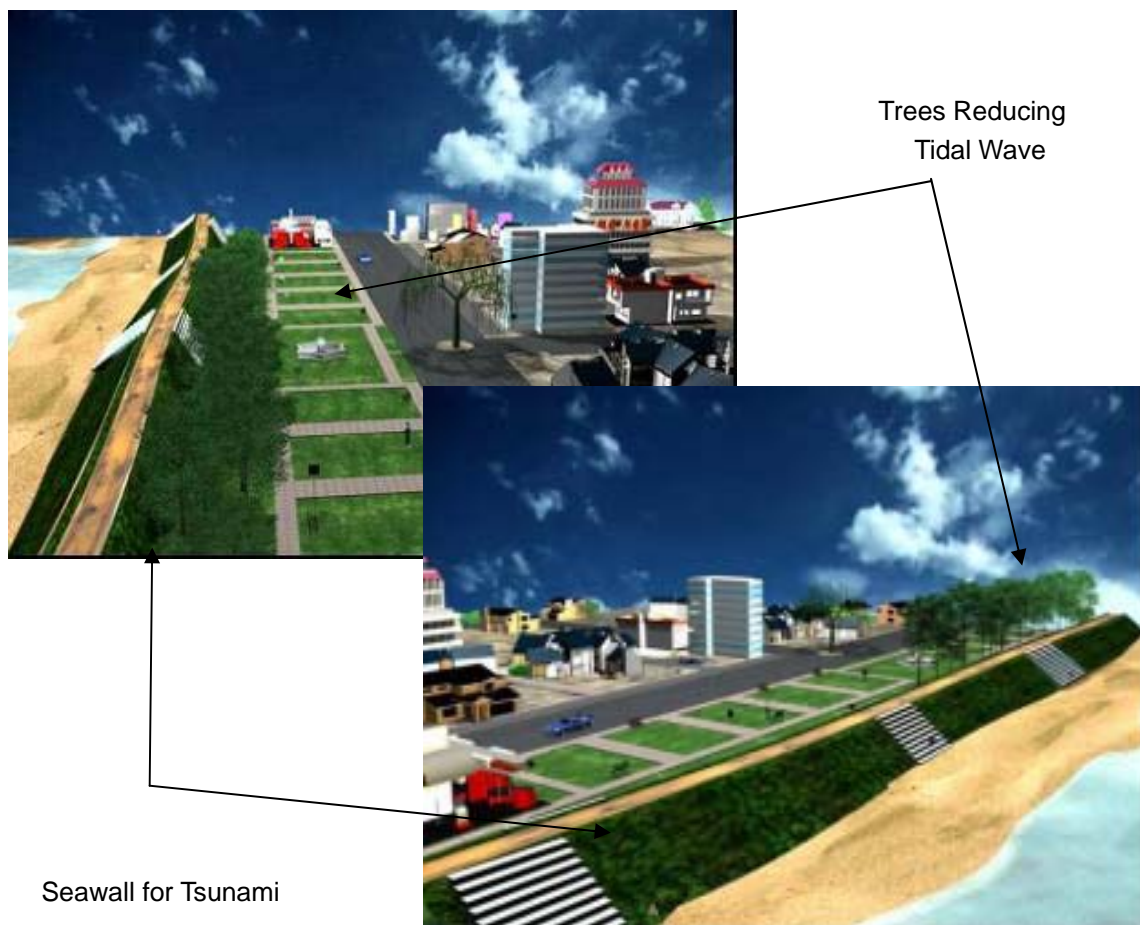
- Infrastructure:

- Construction of seawall and trees preventing tidal wave; and
- Construction of riverbank.



Source: Project Team

Figure 16 Proposed Seawall in the Fort Area

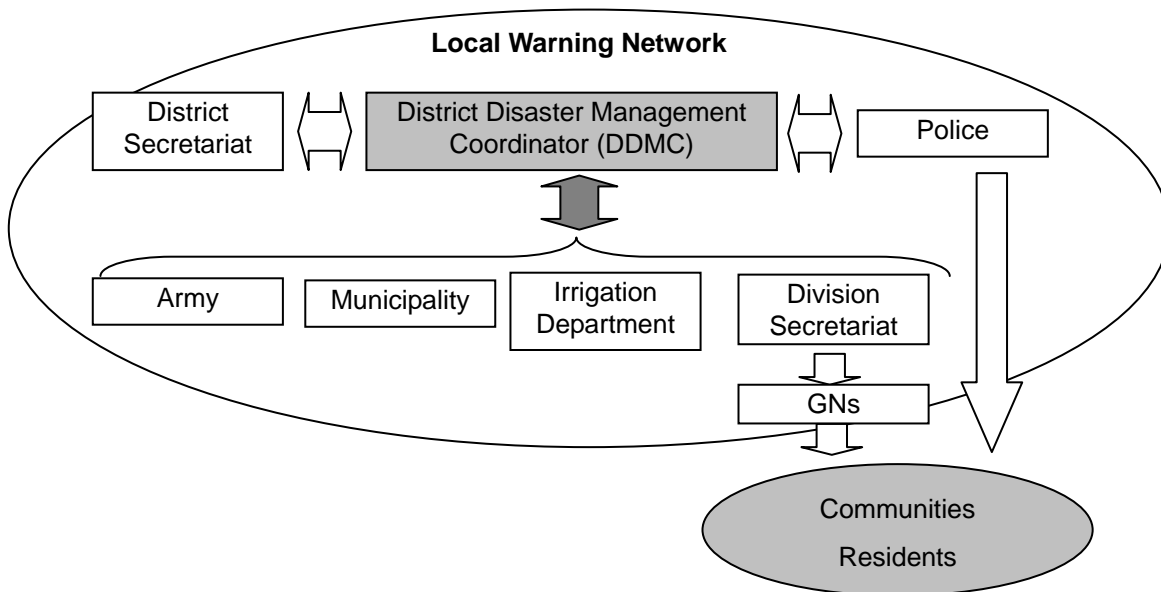


Source: Project Team

Figure 17 Preliminary Landscape for Seaside Park with Seawall and Trees to Reduce Tidal Waves

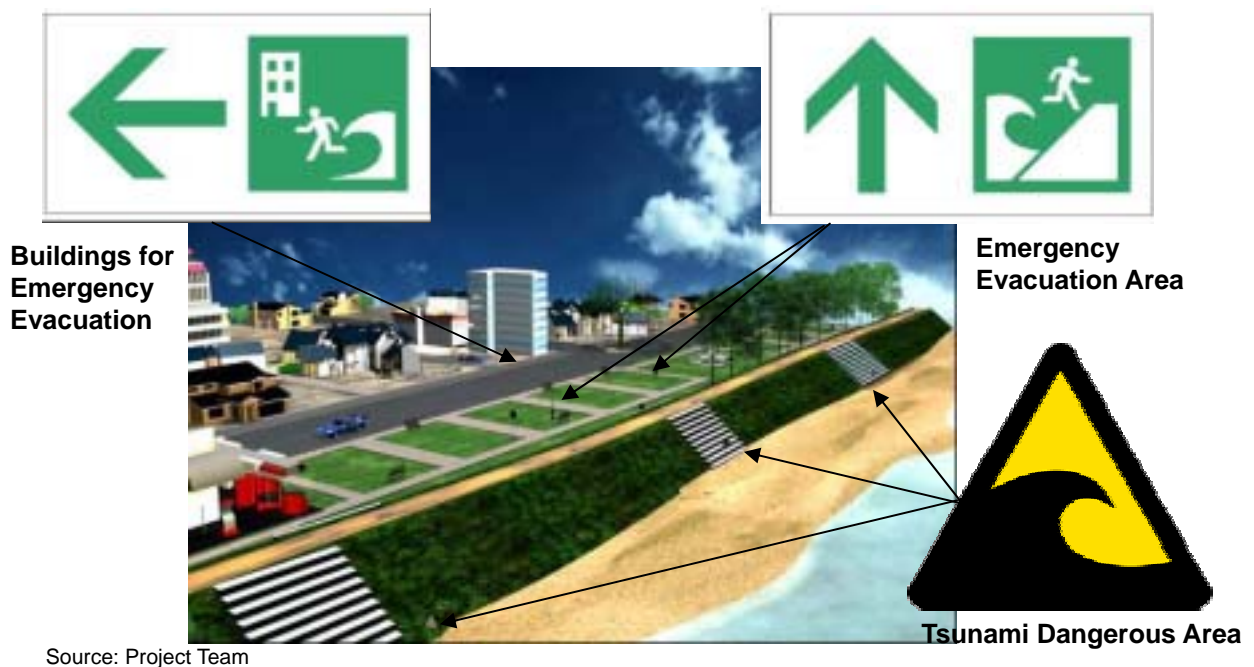
2) Emergency Preparation and Response

- Development of early warning system for local government authorities and for the communities
- Preparation of emergency evacuation and assistance plan, including identification of: hazard areas, emergency evacuation areas, emergency evacuation route, emergency transportation route, and evacuation information
- Preparation of hazard map and disaster map for identification of hazard areas and disaster awareness
- Enhancement of emergency preparation and response for local authorities and residents through emergency drills and workshops
- Promotion of disaster awareness through public relations, a memorial dedicated to the disaster, and multiple school programs



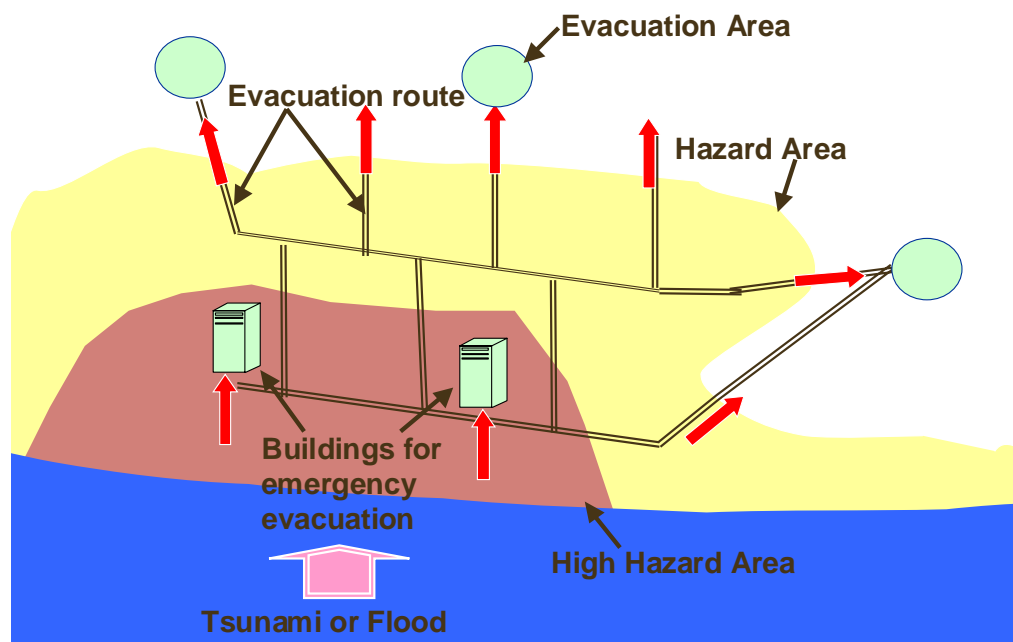
Source: Project Team

Figure 18 Proposed Warning Network for Local Government Authorities



Source: Project Team

Figure 19 Proposed Signboards for Tsunami Evacuation



Source: Project Team

Figure 20 Basic Concept of Emergency Evacuation

3) Proposed Implementation Scheme

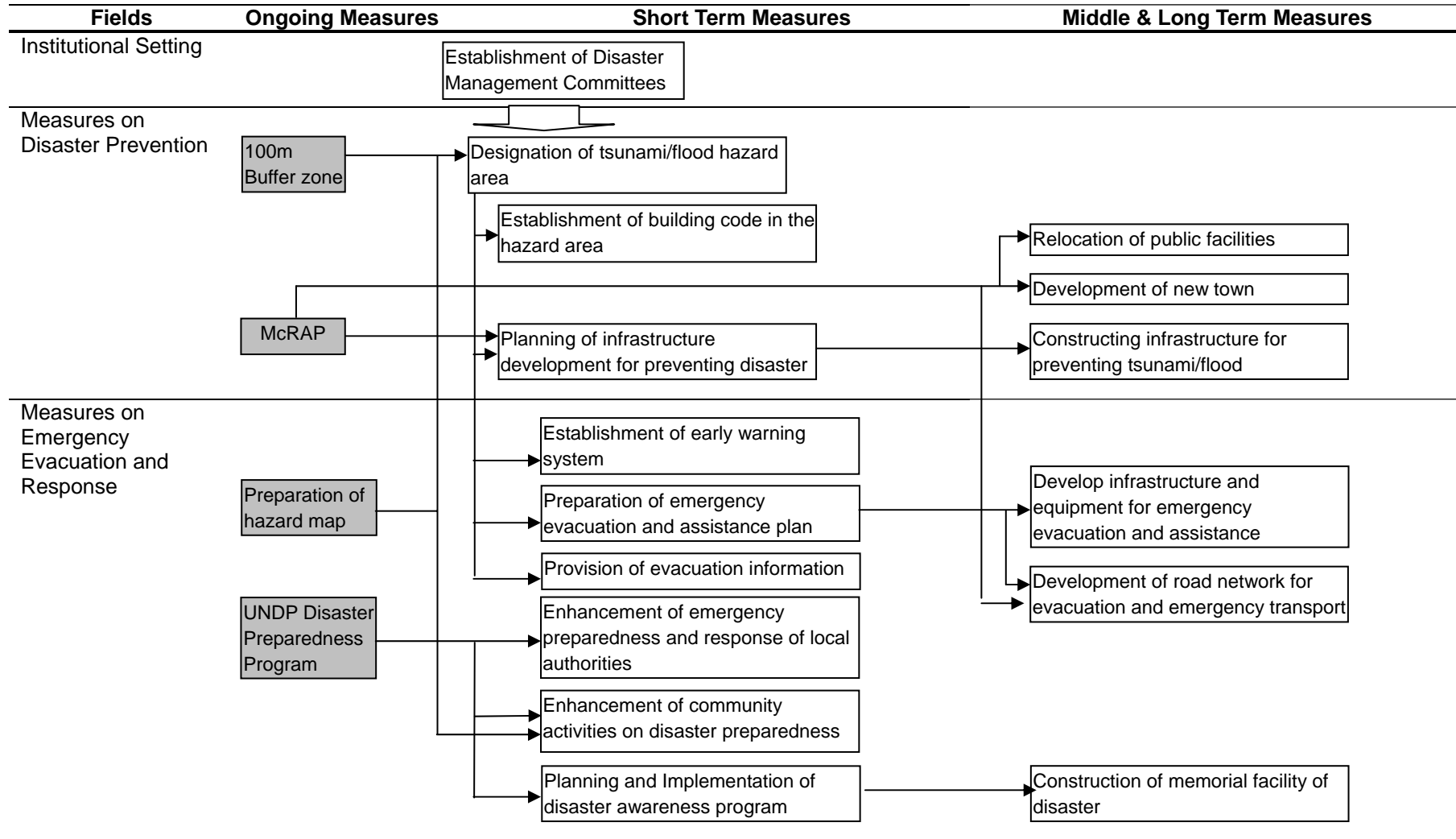
- Institutional Arrangement for Implementation

Since strong coordination is a key for successful disaster management, it is recommended to establish a disaster management committee in the Matara District, which will coordinate the related local authorities in Matara. The disaster management committee will need to cover all related authorities and hold regular meetings on various measures.

- Suggestion for Implementation Schedule

Table 4 summarizes recommended measures and the implementation schedule.

Table 4 Summary of Proposed Measures on Disaster Management



Source: Project Team

(4) Preparation of a Hazard Map

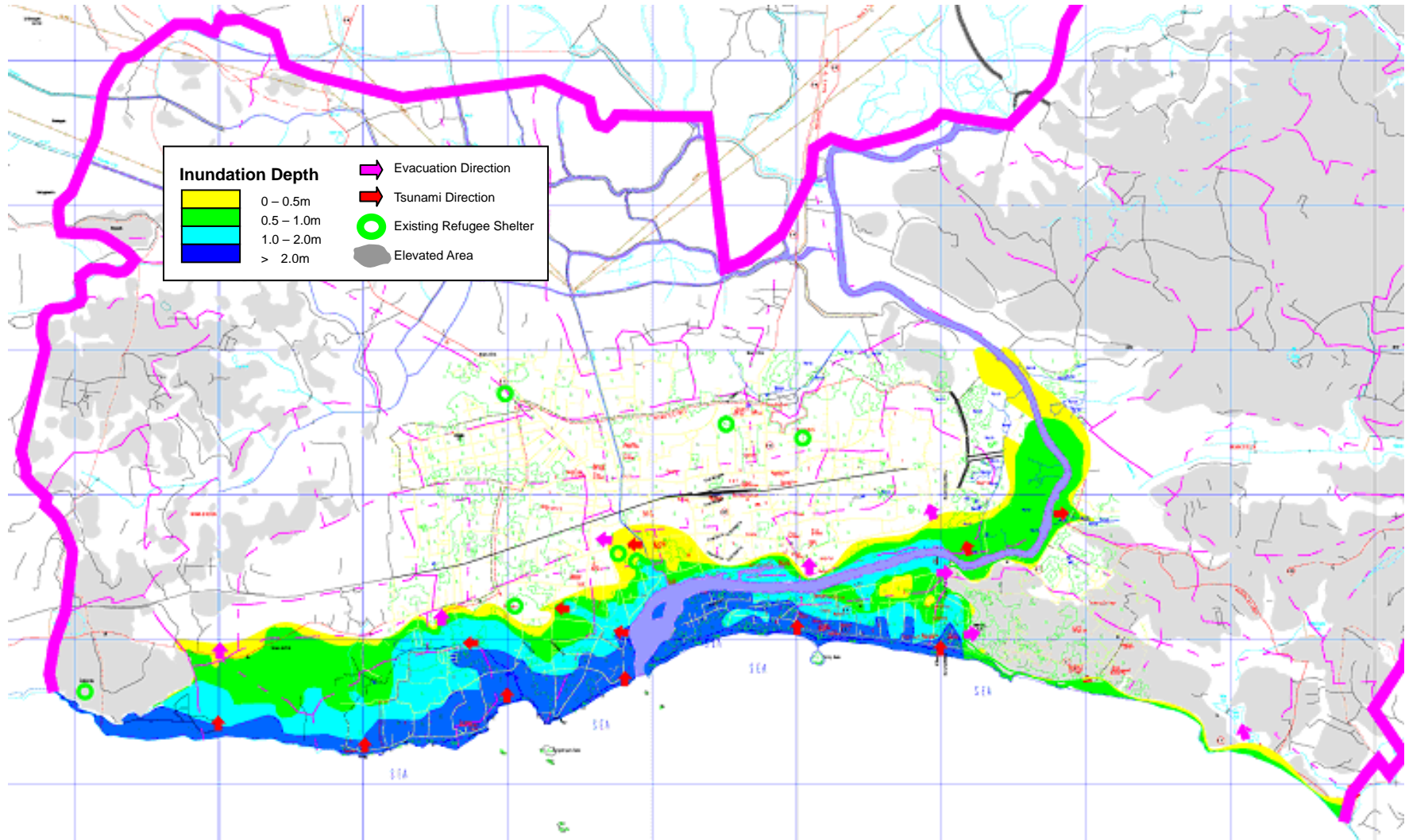
As one of the recommended measures, the JICA Project Team prepared a preliminary tsunami hazard map and tsunami/flood disaster maps. These maps can be used for planning of disaster management and preparedness activities of residents. Table 5 shows the characteristics of these maps.

Table 5 Characteristics of Disaster Map and Preliminary Hazard Map

Information Contained in Map	Disaster Map	Preliminary Tsunami Hazard Map
Target disaster	2003 Flood and 2004 Tsunami	2004 Tsunami
Disaster- prone area	Past results	Simulation results
Hazard level	Past results (inundation depth only)	Simulation results (Inundation depth, arrival time)
Information for disaster reduction activities	Past results (flow direction, evacuation direction)	Simulation results (flow direction and velocity*)

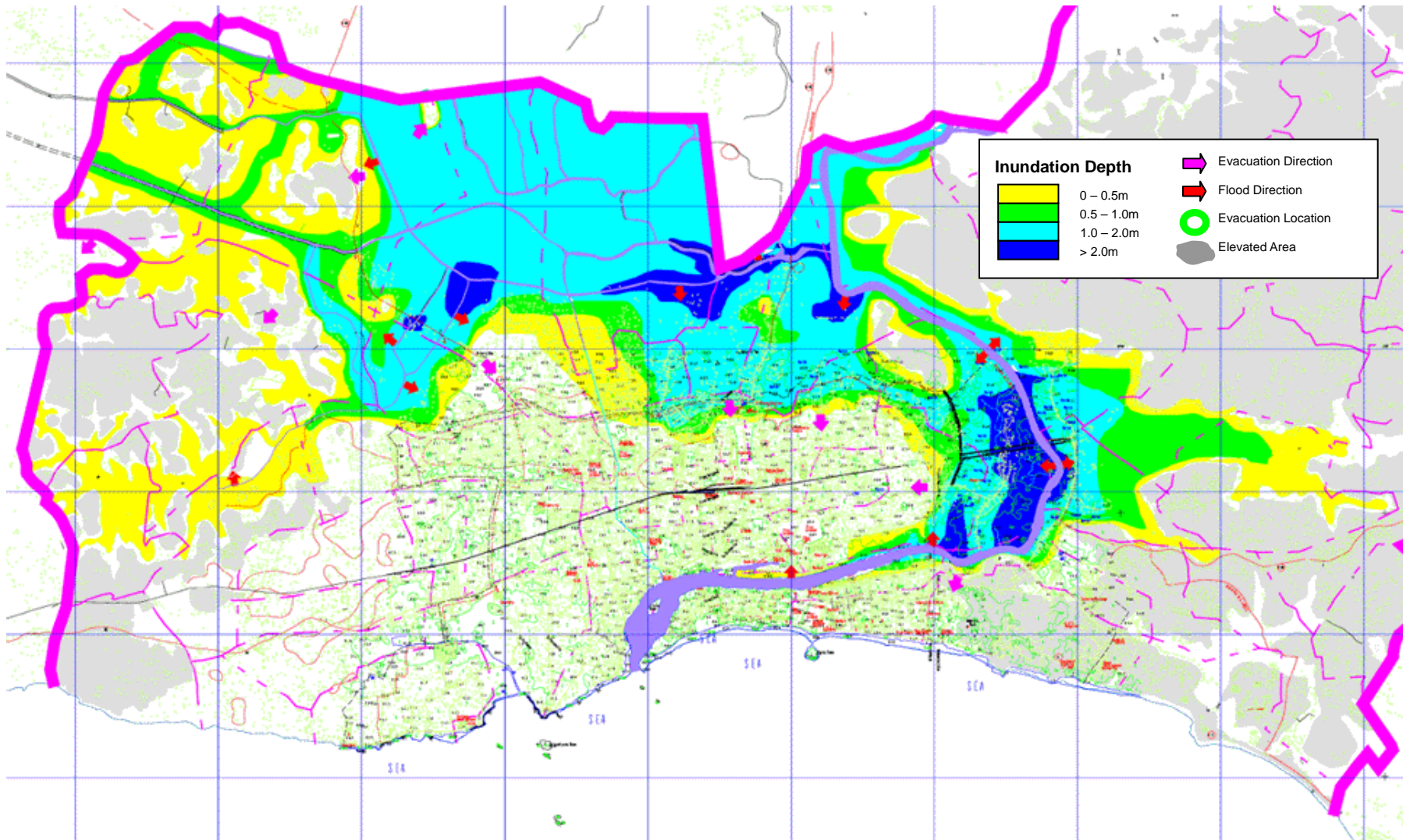
Note: *The evacuation information will be excluded in the preliminary tsunami hazard map because this information should be decided through discussions among the local government and residents.

Source: Project Team



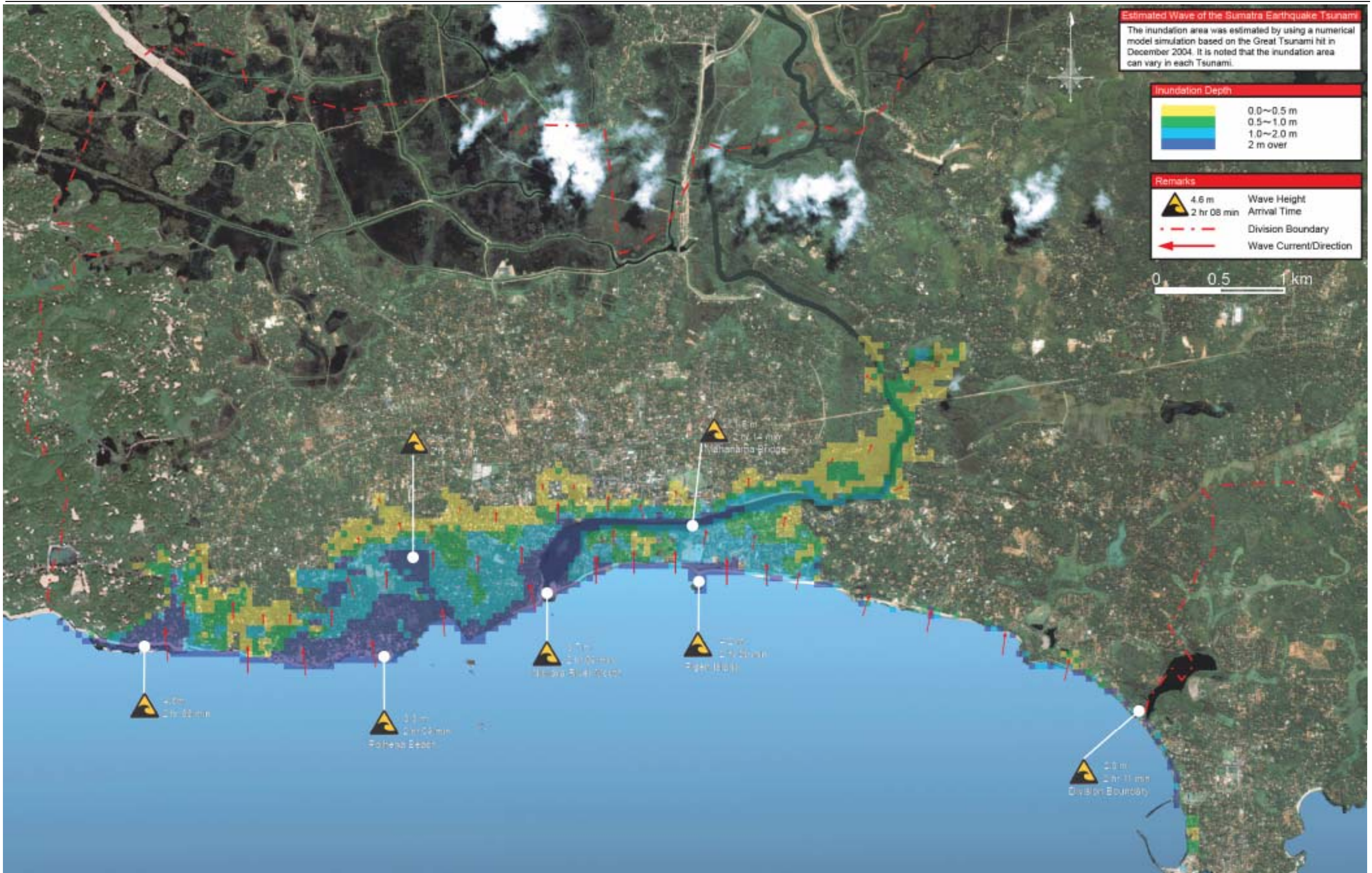
Source: Project Team

Figure 21 2004 Tsunami Disaster Map



Source: Project Team

Figure 22 2003 Flood Disaster Map



Source: Project Team

Figure 23 Preliminary Tsunami Hazard Map

(5) Awareness Program

The JICA Project Team organized two JICA-Net seminars on disaster and rehabilitation in order to facilitate the transfer of knowledge to the local people as follows:

- Community Initiatives in Disaster Management and Rehabilitation; and
- Role of Local Authorities in Disaster Management.

These two seminars were held in December via the JICA-Net system that connects the studio in Colombo with a studio in JICA's Tokyo Headquarters.

In addition, the JICA Project Team has already held seminars on first aid in refugee camps. Furthermore, the JICA Project Team held seminars on disaster management in March 2006, which aim to not only explain the entire project, but also to promote a disaster management plan recommended in the report, as well as to introduce the hazard map.

11. Conclusions

(1) Conclusions

1) Summary of Conclusion

As described above, the JICA Project Team has done various work in the rehabilitation process in the southern region of Sri Lanka. Against the stated objectives of the Project, some conclusions can be drawn as detailed below:

1. The JICA Project Team formulated a set of recommendations for the recovery, rehabilitation, and development of the tsunami-affected area, including strategies for rehabilitation and disaster management, which should be useful in planning and implementation of a disaster-resistant Matara city;
2. The JICA Project Team assisted the implementation of the reconstruction of the Matara Aqueduct Bridge and the rehabilitation of fishery harbors in Galle and Tangalle, which was funded under Japanese Non-project Grant Aid; and
3. The JICA Project Team shared Japanese experiences in disaster management through the implementation of the Project. The bottleneck identification and co-assistance approaches, which were adapted from Japanese experiences, proved quite effective in Sri Lanka as well. However, fine-tuning of the approaches to Sri Lankan realities is needed for the future.

2) Lesson Learned from the Project

- Identification of Bottlenecks

The list of possible bottlenecks, adapted from the one prepared in Japan, was by and large proven quite useful. However, it is strongly recommended that the list be modified to reflect the actual circumstances in Sri Lanka by planners of the regional rehabilitation plan.

- Co-Assistance

The co-assistance approach proved to be quite effective in post-disaster management. There are a number of points that have emerged in the course of implementing the Pilot Projects, such as effect of different backgrounds of community members, enhancement of internal bonding through training and finance schemes, and capacity building through negotiating opportunity with outside agencies (details are shown in section 10 (2) 2)). Consideration of these points would make the approach even more effective.

- Priority Projects for Infrastructure

The activities at the Matara Aqueduct, and the Galle and Tangalle fishery ports were funded by Japanese Non-Project Grant Aid. The JICA Project Team was in a position to assist technical works of these projects. The lesson learned from this implementation scheme was summarized as follows:

- Establishment of the Steering Committee, which included both Sri Lankan and Japanese representatives related to the Non-Project Grant Aid, promoted consensus-building between concerned agencies and enabled the quick identification of projects; and
- Since the JICA Project Team was in charge of drafting tender documents, the documents could be promptly prepared within two months after project commencement, which contributed to quicken implementation of the project.

(2) Recommendations

1) Preparation of a list of lessons and checkpoints on disaster rehabilitation

Through implementation and evaluation of the Project, it became clear that a list of lessons and checkpoints is a useful tool for identifying bottlenecks and necessary activities quickly. However this list needs to be adapted to the situation in Sri Lanka. Thus, the Sri Lankan Government is recommended to collect information on various issues in tsunami rehabilitation and summarize them in a single list. Besides a list for tsunamis, ones for floods and landslides are considered useful for effective disaster rehabilitation.

2) Enhancement of co-assistance activities for community rehabilitation

Through implementation and evaluation of the Pilot Projects, the JICA Project Team concluded that the enhancement of co-assistance activities can promote disaster rehabilitation at the community level. It is recommended that local authorities take the initiative of enhancing co-assistance activities in all affected communities, while closely cooperating with NGOs and donors. Details are shown in section 11. (2). 4).

3) Promotion of regional disaster management

As well as rehabilitation, disaster prevention is quite important at this stage. According to a review of the existing measures, it is clear that disaster management in the Matara region is still insufficient. It is recommended that comprehensive disaster management be introduced in the Matara area as soon as possible.

4) Dissemination of the Project Results

All three recommendations (including a list of lessons and checkpoints, co-assistance, and disaster management), need to be disseminated to central government agencies and local authorities through workshops and seminars. The following three steps to disseminate co-assistance are proposed:

- (i) Survey of existing community-based organizations and their achievements;
- (ii) Policy development at the government level including training on public administration for co-assistance facilitation, training on enhancement of co-assistance activities for tsunami-affected communities, and policy coordination with NGOs; and
- (iii) Dissemination at the community level including group training for community leader, assistance of establishment of community organization, and monitoring of co-assistance activities.

5) Subsequent Follow-up for the Project

Regarding the implementation of recommendations, the following activities are recommended by the Sri Lankan side and JICA in the short-term.

- Sri Lankan side:
 - Dissemination by distributing copies of the report to concerned agencies;
 - Handover of the Pilot Project from the JICA Project Team to government agencies;
 - Continuation of the Pilot Projects by government agencies closely cooperating with Berendina;

- Promotion by the following three steps to disseminate co-assistance: (i) survey of existing community-based organizations and their achievements; (ii) policy development at the government level; and (iii) trainings and seminars;
 - Preparation of lists of lessons and checkpoints (according to rehabilitation phase and disaster type) by a committee specifically formed for the purpose; and
 - Promotion of short-term measures for disaster management, such as the implementation of an awareness program with hazard maps and the establishment of a disaster management committee.
- JICA:
 - Continuation of support for the Pilot Projects (the projects are expected to be implemented by GA and Berendina (an NGO)).

