

**REPORT AND RECOMMENDATION  
OF THE  
PRESIDENT  
TO THE  
BOARD OF DIRECTORS  
ON A  
PROPOSED LOAN  
AND ASIAN TSUNAMI FUND GRANT  
TO  
INDIA  
FOR THE  
TSUNAMI EMERGENCY ASSISTANCE (SECTOR) PROJECT**

**April 2005**

## CURRENCY EQUIVALENTS

(as of 06 April 2005)

Currency Unit	–	rupee/s (Re/Rs)
Re1.00	=	\$0.0229
\$1.00	=	Rs43.65

## ABBREVIATIONS

ADB	–	Asian Development Bank
ATF	–	Asian Tsunami Fund
DDM	–	Department of Disaster Management
DMO	–	disaster management organization
EA	–	executing agency
EC	–	Empowered Committee
GDP	–	gross domestic product
GOK	–	Government of Kerala
GOTN	–	Government of Tamil Nadu
GSDP	–	gross state domestic product
IEE	–	initial environmental examination
IA	–	implementing agency
INRM	–	India Resident Mission
IRP	–	Involuntary Resettlement Policy
JAM	–	Joint Assessment Mission
LGI	–	local government institution
LIBOR	–	London interbank offered rate
NGO	–	nongovernment organization
NPRR	–	National Policy on Resettlement and Rehabilitation
OCR	–	ordinary capital resources
O&M	–	operation and maintenance
PIU	–	project implementation unit
PMU	–	project management unit
RADMMMD	–	Revenue Administration, Disaster Management and Mitigation Department
RF	–	resettlement framework
RP	–	resettlement plan
SDMA	–	State Disaster Management Authority (Tamil Nadu)
SDMC	–	State Disaster Management Committee (Kerala)
SGIA	–	second generation imprest account
SHG	–	self-help group
SLSC	–	state level steering committee
TA	–	technical assistance
TEAP	–	Tsunami Emergency Assistance Project
UN	–	United Nations
UNDP	–	United Nations Development Programme
USGS	–	United States Geological Survey

## NOTES

- (i) The fiscal year (FY) of the Government of India, Government of Kerala, and Government of Tamil Nadu ends on 31 March. FY before a calendar year denotes the year in which the FY ends, e.g., FY2005 begins on 1 April 2004 and ends on 31 March 2005.
- (ii) In this report, "\$" refers to US dollars.

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## LOAN, GRANT, AND PROJECT SUMMARY

<b>Borrower</b>	India
<b>Classification</b>	Targeting classification: General intervention Sector: Multisector Subsectors: Roads and highways, ports, waterways and shipping, social protection, water supply and sanitation, and other rural and municipal infrastructure Themes: Sustainable economic growth, inclusive social development Subthemes: Fostering physical infrastructure development, other vulnerable groups
<b>Environment Assessment</b>	Category B. An initial environmental examination was undertaken; the summary is a core appendix.
<b>Project Description</b>	The Tsunami Emergency Assistance (Sector) Project (TEAP) will (i) enable people to resume their normal lives by supporting restoration of livelihoods, and essential services; and (ii) rehabilitate and reconstruct critical public and community-based transportation, and rural and municipal infrastructure damaged or destroyed. The project design is based on the joint damage and needs assessment undertaken in February 2005 by the Asian Development Bank (ADB), United Nations Development Programme (UNDP), and World Bank, in the states of Andhra Pradesh, Kerala, and Tamil Nadu, and the Union Territory of Pondicherry, in close coordination and consultation with the Government of India (the Government), and respective state and union territory governments. The TEAP will focus on support for the tsunami-affected states of Tamil Nadu (the most severely affected) and Kerala.
<b>Rationale</b>	<p>The devastating tsunami of 26 December 2004 caused loss of life; severely damaged infrastructure and other assets; and disrupted economic activity, output, and services, with attendant losses of income streams in Tamil Nadu and Kerala. Based on the joint ADB-UNDP-World Bank damage and needs assessment, the combined damage to output and income amounted to at least \$838 million in Tamil Nadu and \$126 million in Kerala. The impact of this has been particularly acute because the tsunami increased the poverty of already economically vulnerable groups in Tamil Nadu and Kerala in terms of losses due to reduced income opportunities.</p> <p>The Tamil Nadu and Kerala state budgets for FY2004/05 and beyond will reflect the unanticipated expenditures for relief efforts and rehabilitation assistance.</p>

The financing needs in Tamil Nadu are estimated at \$867 million and in Kerala \$153 million. These exceed donations and Government assistance. By providing financing for the most urgently needed components, complementing the assistance of other financiers, the TEAP will enable the Government to help restore the livelihood and economic activities essential for recovery of the affected areas in the two states.

## **Impact and Outcome**

The TEAP is to support efforts of the Government of Tamil Nadu (GOTN) and Government of Kerala (GOK), in the tsunami-affected areas, to restore the livelihood and economic activity of people vulnerable to poverty, and rehabilitate and reconstruct damaged and destroyed public and community-based infrastructure in areas vulnerable to natural disasters. The rehabilitation and reconstruction will be carried out to a pre-tsunami level or a higher, cost-effective, environmentally sustainable standard with design incorporating features critical to disaster prevention. The TEAP will focus on the highest priority areas, identified through consultations with GOTN, GOK, public and private sectors, nongovernment organizations (NGOs), and other civil society stakeholders.

The TEAP will have four components:

### **Part A: Livelihood**

Restoration of livelihoods includes (i) restoring the livelihoods of the affected poor and low-income households already organized into self-help groups (SHGs) and other similar groups recognized by state governments as affected by the tsunami by providing microenterprise training and establishment support, (ii) forming new SHGs (both male and female members) for affected households not yet organized in community-based groups to restore livelihoods through microenterprise training and establishment support, (iii) replacing productive assets (excluding housing) of tsunami-affected households, (iv) upgrading skills, (v) mitigating risk through insurance of all affected households that receive assistance under this component, and (vi) rehabilitating and reconstructing community-based infrastructure.

### **Part B: Transportation**

**Roads and Bridges.** This subcomponent comprises (i) rehabilitating seriously damaged sections of state roads (other than village and municipal roads) including major district roads, other district roads, and state highways in the affected districts of Tamil Nadu and Kerala—which have suffered breaches, damaged shoulders and pavements, and eroded protection works—to pre-tsunami level or to prescribed national standards; (ii) rehabilitating

damaged drainage structures such as minor bridges, culverts, and side drains; (iii) rehabilitating bridges in affected areas; and (iv) constructing bridge connections to replace temporary crossing arrangements; unbridged crossings, or for inoperable river-crossing ferries as evacuation routes from a disaster prevention perspective.

**Ports and Harbors.** Rehabilitation and reconstruction of ports and harbors includes (i) dredging ports, harbor basins, and approach channels; (ii) rehabilitating breakwaters for ports and fishing harbors; (iii) rehabilitating fishing harbor facilities like compound walls; (iv) rehabilitating damaged roads and port facilities like electrification systems, wharfs, and piers; and (v) procuring equipment such as a destroyed dredger and navigation aids.

### **Part C: Rural and Municipal Infrastructure**

**Water Supply and Sanitation.** This subcomponent includes (i) restoring and upgrading damaged existing water supply systems, (ii) upgrading affected water supply systems into multivillage systems with more reliable source development, (iii) rehabilitating/upgrading sanitary complex and solid waste management facilities, and (iv) conducting sanitation and environmental awareness campaigns.

**Other Rural and Municipal Infrastructure.** This subcomponent includes rehabilitating and upgrading (i) village and municipal roads; (ii) drainage canals; (iii) public buildings such as small-scale common fish-landing, processing, and marketing facilities, community centers, and *panchayat* (local body) offices; and (iv) damaged electricity line network and distribution transformers.

### **Part D: Capacity Building and Implementation Assistance**

This component will support (i) detailed assessment and verification of damage in each sector/subsector; (ii) prioritization of subprojects; (iii) preparation of subproject appraisal reports in accordance with Government and ADB requirements and selection criteria; (iv) incorporation of disaster resistance into the rapid planning, design, and implementation of the works; (v) supervision and monitoring of works to ensure quality control and transparency among contractors and communities carrying out smaller works; (vi) technical and institutional support for specialized studies such as aquifer and hydrology study, and community participation; (vii) oversight of works in each sector/subsector and provision of detailed accounting, auditing, and reporting to the project implementation units (PIUs), project management units (PMUs), and ADB; and (viii) incremental administrative costs.

**Cost Estimates**

The total project cost is estimated at \$218.6 million equivalent, including taxes and duties, of which \$63.5 million (29.1%) represents foreign exchange costs, including \$7.0 million of interest during construction and other charges, and \$155.0 million equivalent (70.9%) represents local currency costs.

**Financing Plan**

(\$ million)				
<b>Source</b>	<b>Foreign Exchange</b>	<b>Local Currency</b>	<b>Total</b>	<b>%</b>
Asian Tsunami Fund	11.4	88.6	100.0	<b>45.7</b>
Asian Development Bank Loan	45.1	54.9	100.0	<b>45.7</b>
Government of India/State Governments	7.0	11.6	18.6	<b>8.5</b>
<b>Total</b>	<b>63.5</b>	<b>155.0</b>	<b>218.6</b>	<b>100.0</b>

Source: Asian Development Bank estimates.

**Loan and Grant Amount and Terms**

A loan of \$100 million from the ordinary capital resources of ADB will be provided under ADB's London interbank offered rate (LIBOR)-based lending facility. In accordance with ADB's *Disaster and Emergency Assistance Policy*, the loan will have a 32-year term, including a grace period of 8 years, an interest rate to be determined in accordance with ADB's LIBOR-based lending facility, a commitment charge of 0.75% per annum, and such other terms and conditions as are set forth in the draft financing and project agreements. A grant of \$100 million will be provided from ADB's Asian Tsunami Fund (ATF) in accordance with the ATF Paper (R65-05) dated 11 February 2005, and on the basis of a proposed request for waiver of the pro-rata provisions in para. 11 of the ATF Paper. The loan and grant will cover the foreign exchange cost of \$56.5 million and \$143.5 million equivalent of local currency costs.

**Period of Utilization**

Until 31 October 2008

**Estimated Project Completion Date**

Until 30 April 2008

**Executing Agency**

The Executing Agency (EA) in Tamil Nadu will be the Revenue Administration Disaster Management and Mitigation Department (RADMMMD); and in Kerala, the Department of Disaster Management Department (DDM).

## Implementation Arrangements

The State Level Steering Committee (SLSC) in Tamil Nadu and Kerala will act as project steering committees. The SLSC will act as a policy making body which will provide overall advice and guidance to the EA associated with the Project. In addition, an Empowered Committee will be established, chaired by the respective state chief secretaries, that will (i) authorize government orders needed for project reconstruction works; and (ii) provide for all approvals and sanctions required for the Project, including subproject approvals. RADMMD in Tamil Nadu and DMD in Kerala will be delegated with all necessary powers to undertake their respective responsibilities as EAs.

DDM and RADMMD will each establish a PMU. The PMUs will be responsible for (i) providing day-to-day assistance and guidance to project implementing agencies (IAs); (ii) reviewing subprojects to satisfy ADB due diligence requirements, and approving subproject proposals submitted by line departments and IAs; (iii) managing and disbursing funds; (iv) consolidating and submitting progress reports to Empowered Committee and ADB; (v) disbursing funds and accounting against a review of financial reports provided by the IAs; and (vi) reviewing compliance with specifications and plans, and quality control and transparency requirements by bodies undertaking reconstruction works.

The TEAP will have strengthened governance measures, including strict financial management and monitoring, performance auditing, and random spot checks through delegated project administration by ADB's India Resident Mission operating through extended mission offices in Tamil Nadu and Kerala.

An IA will be appointed for each of the key sectors included under the TEAP and will report to its respective PMU. The IAs will have PIUs for field monitoring and implementation of subprojects.

GOTN line departments to act as IAs are (i) Highways Department for roads and bridges; (ii) Maritime Board for ports; (iii) Department of Fisheries for harbors; (iv) Tamil Nadu Electricity Board for public lighting and damaged distribution lines; (v) Rural Development Department for rural infrastructure, sanitation, livelihoods, and concerned municipality for municipal sanitation; (vi) Tamil Nadu Water Supply and Drainage Board and concerned municipality for water supply; and (vii) Municipal Administration Department and concerned municipality for municipal infrastructure. GOK line departments to act as IAs are (i) Public Works Department for roads and bridges, and rural and municipal infrastructure other than public lighting and power distribution; (ii) Kerala Water Authority for water supply and sanitation; (iii) Harbor Engineering Department for ports and harbors; (iv) Kerala State

Electricity Board for public lighting and power distribution; and (v) Fisheries Department/Kudumbashree using the expertise of accredited technical institutions or NGO service providers for livelihood.

The IAs will be responsible for (i) prioritizing and preparing subproject technical proposals for sectors included under the TEAP; (ii) reporting on the TEAP to RADMMMD and DDM; (iii) implementing day-to-day reconstruction works and activities; (iv) conducting detailed assessments, surveys, and planning of reconstruction, including public consultation and input from recipient local entities and beneficiaries; (v) prioritizing works and preparing detailed designs, specifications, schedule of quantity, bidding documents, contracts, and related documentation; (vi) preparing regular progress reports for the project steering committee and ADB through RADMMMD and DDM; and (vii) supervising construction, conducting quality control, approving progress payments to contractors, and maintaining up-to-date records and accounts for the TEAP and making these available to ADB and/or auditors for inspection.

The Government will establish two imprest accounts (one for loan proceeds and another for grant proceeds) operated by the comptroller of aid accounts and audit. Initial deposits into the imprest accounts will not exceed 5% of the loan and grant amount. Thereafter, the aggregate drawdown into the two imprest accounts will not exceed the lesser of the equivalent of 3 months of current project expenditure or 5% of the total loan and grant amount respectively. The imprest accounts will be operated in accordance with the ADB *Loan Disbursement Handbook* (January 2001), *Interim Guidelines for Disbursement Operations for LIBOR-Based Loan Products*, and *Asian Tsunami Fund*.

## **Procurement**

Procurement of goods, services, and works will be carried out in accordance with ADB *Guidelines for Procurement* (2004) and the contemplated implementation schedule. ADB procedures for providing reconstruction assistance after disasters provide for substantial flexibility so that project activities can be started promptly. Local competitive bidding procedures will be the preferred mode of procurement. The local procurement procedures of the state governments are acceptable, with some minor amendments. Prior review by ADB of bidding documents and awards will be conducted for procurement under international competitive bidding procedures and for the first two (PIU) contracts. In other cases, post-facto approval procedures will be followed. However, if at a later stage, ADB does not approve the award or terms of the contract, the Government may not use the loan or grant proceeds, or may need to refund any such loan and grant proceeds used.

**Consulting Services**

Consulting services will be required for purposes detailed under Part D of the TEAP to assist the IAs and PMUs. The TEAP will require a total of 645 person-months of domestic consulting as individual consultants or from consulting firms for Kerala and Tamil Nadu. All consultants will be engaged in accordance with *ADB Guidelines on the Use of Consultants* and other arrangements satisfactory to ADB for the engagement of domestic consultants. Since the TEAP will be completed within 36 months, expeditious selection and fielding of consultants will be necessary. Streamlined procedures under *ADB Assistance for Tsunami-Affected Developing Member Countries (2005)* are applicable.

**Project Benefits and Beneficiaries**

The TEAP primarily focuses on rehabilitating and reconstructing damaged or destroyed infrastructure, and restoring livelihoods of those affected directly or indirectly by the tsunami. Project interventions will therefore result in restoring productivity of the targeted assets, restoring livelihoods, creating productive livelihood alternatives for beneficiaries, reducing poverty vulnerability of newly vulnerable groups, increasing labor opportunities for wage-dependent households, and increasing physical security and community bonds for affected households through disaster-resistant infrastructure. Furthermore, within the targeted sectors, the IAs will need to prioritize rehabilitation and reconstruction interventions to maximize the returns from the limited project resources. In addition, the principle of least cost will be applied without compromising the quality assurance of the assets created, to ensure maximum utility from resource use.

**Risks and Assumptions**

To mitigate any lack of adequately strong commitment in implementing the TEAP in an efficient and timely manner so that the livelihood of intended beneficiaries is restored and the tsunami-damaged or destroyed infrastructure is rehabilitated and reconstructed, GOTN and GOK will provide high level steering committees and Empowered Committees which are chaired by the respective state's chief secretary.

Implementation risks related to capacity for timely delivery of quality subprojects in the various project sectors will be mitigated in several ways. First, in terms of implementation procedures, subproject selection criteria will include general and detailed criteria. Second, in terms of implementation mechanisms, specific monitoring mechanisms will include regular financial audits as well as regular design and construction supervision, and performance audits through random audits and special postcompletion audits. To undertake such supervision and performance auditing, the PMUs will draw on adequate consultant support and be supported by close monitoring by the ADB extended mission and random spot checks during TEAP implementation.

The national and concerned state governments have a strong governance framework that will help combat corruption risks with attendant potential of leakage of funds and ensure that the assistance reaches the intended tsunami victims. These include (i) state commitment to ensure equitable and transparent distribution of rehabilitation assistance, including through publicizing a computerized list of affected people; (ii) transparency in tender legislation; (iii) transparent beneficiary identification through community participation where applicable; (iv) field monitoring through mechanisms like district coordination committees, which will encompass consultative processes with panchayati raj institutions and NGOs; and (v) financial controls mechanism which build on the financial management capacity of GOTN and GOK. The India integrity framework will be further supported by close monitoring through the ADB extended missions, including spot checks.



## I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed loan and a proposed grant to India for the Tsunami Emergency Assistance (Sector) Project (TEAP), in the states of Kerala and Tamil Nadu. The design and monitoring framework is in Appendix 1.

## II. RATIONALE: SECTOR PERFORMANCE, PROBLEMS, AND OPPORTUNITIES

### A. The 26 December 2004 Tsunami

2. **The Tsunami.** For the first time in half a century, India experienced the devastating effects of a tsunami, caused by a series of earthquakes in the Bay of Bengal.<sup>1</sup> The first and strongest earthquake was off the west coast of northern Sumatra, Indonesia, at 0629 hours, Indian Standard Time on 26 December 2004 (magnitude and intensity 9.0 United States Geological Survey [USGS]), followed by one 81 kilometers (km) west of Pulo Kunji, Great Nicobar, India (7.3 USGS) some 3 hours later. One hundred and fifteen aftershocks were reported; the magnitude of 103 tremors was between 5.0 and 6.0 USGS and 12 were over 6.0 on the Richter scale. The earthquakes set off giant tsunami tidal waves of 3 to 10 meters (m) in height, which hit the southern and eastern coastal areas of India and penetrated inland up to 3 km, causing extensive damage in the Union Territory of the Andaman and Nicobar islands, and the coastal districts of Andhra Pradesh, Kerala, and Tamil Nadu states and the Union Territory of Pondicherry. Approximately 2,260 km of the coastal area in addition to the Andaman and Nicobar islands were affected.

3. **Human Toll.**<sup>2</sup> According to Government reports 10,749 people in India died, 5,640<sup>3</sup> are reported missing, and 6,913 injured. In Tamil Nadu, over 7,983 deaths were reported. Of the 12 coastal districts<sup>4</sup> affected in Tamil Nadu, Nagapattinam, where 6,051 people died, was the worst affected. Over 824 died in Kanyakumari, and 612 were reported dead in Cuddalore district. In Kerala, 171 deaths were reported. Of the four affected districts of Alappuzha, Ernakulam, Kollam, and Kannur in Kerala,<sup>5</sup> Kollam accounted for the highest death toll of 131 followed by Alappuzha with 35 and Ernakulam with 5.

4. **Relief.** Although the Government of India (the Government) and state governments were caught unaware by the tsunami, they responded quickly to launch effective relief operations. As part of a coordinated effort, nongovernment organizations (NGOs)/civil society played an important role as did the United Nations (UN), with the private sector responding with generous donations of funds and relief material.

5. **Joint Needs Assessment.** As part of the process of accelerating the transition from relief to reconstruction, the Government asked the Asian Development Bank (ADB), United Nations Development Programme (UNDP), and World Bank on 10 January 2005, or soon thereafter, to undertake emergency assistance for rehabilitation, reconstruction, and restoration

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<sup>1</sup> The last time a tsunami hit the coast of India was in 1945. The other Asian countries affected are Indonesia, Maldives, Myanmar, Sri Lanka, and Thailand. Several countries in East Africa were also affected.

<sup>2</sup> This human toll data for Andhra Pradesh, Kerala, Pondicherry, and Tamil Nadu is taken from the United Nations Disaster Management Team Situation Report, 1 February 2005, which is based on Government reports.

<sup>3</sup> The most recent reports indicate that 2,812 people of the 5,641 reported missing are dead.

<sup>4</sup> The affected districts are listed in the joint assessment mission report of the ADB, UNDP and World Bank. The state government relief response in Tamil Nadu in the aftermath of the tsunami extended to Chennai, Cuddalore, Kancheepuram, Kanyakumari, Nagapattinam, Pudukkotai, Ramanathapuram, Thanjavur, Thiruvallur, Thothukudi, Tirunelveli, Tiruvarur, and Viluppuram.

<sup>5</sup> The state government relief response in Kerala in the aftermath of the tsunami extended to Alappuzha, Ernakulam, Kannur, Kasaragod, Kollam, Kozhikode, Malappuram, Thiruvananthapuram, and Thrissur.

in the aftermath of the tsunami. In consultation with the Government, ADB, UNDP, and World Bank formed a joint assessment mission (JAM) team to estimate damage, losses, and rehabilitation and reconstruction needs in Andhra Pradesh, Kerala, Pondicherry, and Tamil Nadu. The assessment commenced on 1 February 2005 and concluded on 15 February 2005. The JAM report was submitted to the Government on 8 March 2005. Pursuant to that report and discussions with the Government and other donors, ADB was requested based on comparative strength and engagement of different multilateral institutions, to support restoration of livelihood, and rehabilitation and reconstruction of transportation and rural and municipal infrastructure in Tamil Nadu and Kerala. A copy of the JAM summary report is attached as Appendix 2; a detailed report is available in Supplementary Appendix A.

## **B. Analysis of Key Problems and Opportunities**

### **1. Sector Damage and Losses**

6. **Overview.** The JAM assessed the total damage and losses suffered by the states of Tamil Nadu and Kerala at \$964 million. Tamil Nadu was considered to be more severely affected with total damage and losses assessed at approximately \$838 million; Kerala's damage and losses amounted to approximately \$125 million. While the largest proportion of the damage was concentrated in fisheries (approximately 29.78%), housing (11.22%), and infrastructure, material private asset damage related to coastal fisheries, agriculture and microenterprises, whose replacement is critical to livelihoods, were included in the various sectors. A sector and state breakdown of damage and losses is in Appendix 2.

7. **Livelihood.** The tsunami has wreaked widespread havoc on the livelihoods of families in the affected areas of Tamil Nadu and Kerala as a result of loss of human life; personal injuries; destruction of houses, property, and assets; and destruction of essential social and transport infrastructure. The livelihoods of about 485,000 families have been directly or indirectly affected in Tamil Nadu (400,000 families) and Kerala (85,000). About one third of the affected families in Tamil Nadu and one half of the affected families in Kerala are directly linked to the fisheries sector, about one fourth to microenterprises.

8. The tsunami's human toll, displacement, and damage in terms of critical assets have undermined the capacity of affected families to restore their livelihood. The tsunami disaster has hit those who were already vulnerable to poverty, and working as informal traders or landless laborers, or engaged in microenterprises. Despite the favorable human development indicators of both states, the poverty impact of the tsunami in Tamil Nadu and Kerala is marked because poverty levels are disproportionately high among social groups like traditional fishers, marginal farmers, agricultural and urban labor, scheduled castes and tribes, and people in traditional industries like coir, cashew, hand looming, and stone crushing. Poverty among tsunami-affected coastal communities is less visible, geographically interstitial (fragmented and intermittent), and socially differentiated. The coastal poor are socioeconomically and environmentally vulnerable due to low coverage and quality of water and sanitation services, and health and education infrastructure. Poverty levels are further compounded by the high income seasonality and informal livelihoods amid climatic variations, and frequent disasters, which compromise the coping ability of coastal communities. Given the multisector livelihood linkages in the coastal economies, a large number of informal microenterprises<sup>6</sup> have been particularly adversely affected by disruptions in supplies and markets, loss of income-generating assets and equipment, and losses of shops and trading.

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<sup>6</sup> Include a broad range of activities requiring small investments primarily in the range of Rs5,000–Rs250,000.

9. **Roads and Bridges.** The tsunami-induced damage on roads and bridges of affected districts is constraining connectivity in Tamil Nadu and Kerala. In 7 of the 12 coastal districts in Tamil Nadu, and in particular in Cuddalore, Kanyakumari, and Nagapattinam districts, tsunami damage to state roads has undermined the connectivity needed for the livelihood of communities given that roads and bridges represent the dominant mode of transport.<sup>7</sup> Tourism and related businesses in the coastal districts have also been affected as roads leading to beaches have been damaged. In Tamil Nadu, two bridge structures in the severely affected districts of Cuddalore and Kanyakumari were seriously damaged or had collapsed and several weaknesses in connectivity were revealed. The tsunami left some of the roads severely breached; berms, shoulders, and protection works eroded; and the road structure exposed. Pavements were washed away and cross-drainage structures damaged. The impact of the tsunami waves was so severe that some bridge structures were damaged due to boats hitting the substructures and decks.

10. A majority of the tsunami-damaged state roads in Kerala<sup>8</sup> provide significant connectivity and have a catalytic effect on the livelihood of local community, trade and tourism. In the districts of Alappuzha, Ernakulam, and Kollam, the narrow major district roads running along the sea at an average distance of approximately 50 m from the seacoast suffered severe damage, including to minor bridges and culverts. A large number of lives were lost due to lack of bridges connecting the main land across the backwaters; this highlights the need to maximize disaster prevention resilience in the rehabilitation and reconstruction of such infrastructure facilities.

11. **Ports and Harbors.** Minor ports<sup>9</sup> were damaged in Tamil Nadu (i.e., Nagapattinam Port located along the Kaduvaiyar River; and Cuddalore Port located at the confluence of the Gadilam and Paravanar rivers sharing channel with fishing harbors) and in Kerala (i.e., Azhikkal, Bepore, Neendakara and Vizhinjam). This has resulted in a loss of crucial port services. Consequently, maritime cargo must be transported at higher cost and loss of port-related services such as fuel and water supply and increased unemployment of the labor force due to limited or suspended port operation. The tsunami damage to three fishing harbors in Tamil Nadu and eight in Kerala, which were damaged or destroyed, has adverse effects on revitalizing coastal livelihoods and maritime safety.

12. **Water Supply and Sanitation.** The limited quantity and quality of water and sanitation from supply systems was critically compromised by tsunami damage in the form of salinization of wells, and destruction of pipes and sanitation systems. Water supply and sanitation infrastructure and related services provided for the tsunami-affected communities in 7 districts of Tamil Nadu and 3 in Kerala has been affected. In Tamil Nadu this affects a total population of 329,000 in 6 towns (affected population 68,400) and 74 village panchayats (affected population 260,600); and in Kerala, a total population of 192,000 in one town (affected population 11,000) and 36 village panchayats (affected population 181,000).

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<sup>7</sup> The total road length in Tamil Nadu is 151,137 km comprising 60,628 km of primary road network and the remaining 90,509 km of panchayat, panchayat union, municipal, forest, Tamil Nadu Electricity Board, and other local body roads. The primary road network includes 3,865 km of national highways, 7,136 km state highways, 7,408 km major district roads, 42,219 km other district roads and sugarcane roads. Road transport in the state accounts for 80% of freight and passenger trips.

<sup>8</sup> The total road length in Kerala is 138,196 km comprising 22,991 km of primary road network and the remaining 115,205 km of panchayat, municipal, forest, irrigation, and other local body roads. The primary road network includes 1,524 km national highways, 3,785 km state highways, 11,711 km major district roads, 5,316 km other district roads, and 656 km of other roads. Average road density in Kerala is 3.56 km/square km while the same for India is 0.91 km/square km.

<sup>9</sup> Major ports are managed by port trusts under the regulation of the Tariff Authority of Major Ports. Minor ports are under state government control.

13. **Other Rural and Municipal Infrastructure.** The tsunami critically damaged minor infrastructure that provides the basis for community livelihoods, such as village and panchayat roads, including minor bridges and culverts, drainage canals, and other community-based facilities (such as common fish landing, processing, and storage facilities, community centers, panchayat buildings, and electricity including public lighting).

## 2. Impacts of the Tsunami

14. **Fiscal Impact.** Despite these tsunami-related damages and losses, the tsunami is not expected to have much impact on India's gross domestic product or the gross state domestic product of Tamil Nadu and Kerala.<sup>10</sup> Foreign exchange receipts may be marginally impacted to the extent that shrimp exports are hit along with coastal tourism. The states' gross domestic product is affected only to a limited extent because economic activities along the coastline contribute little to their income. Although fisheries, agriculture, microenterprises, and small businesses have been adversely affected, this will not have any discernible impact on the states' growth rates as the tsunami impact was localized, and for the states as a whole these activities contribute little to their revenues. However, the tsunami is projected to have a material impact on the state fiscal deficits due to additional expenditures. The additional state expenditures can be divided into two categories: (i) immediate and temporary relief, and (ii) short- and medium-term reconstruction costs over 2–3 years.

15. For Tamil Nadu and Kerala, the strain of tsunami-related expenditures and the consequent impact of higher interest burdens due to increased debt stock is estimated to result in a deterioration of the ratio of fiscal deficit to gross state domestic product in fiscal year (FY) 2004/05 and FY2005/06 in Tamil Nadu and lack of improvement in that ratio in FY2004/05 and FY2005/06 in Kerala, as projected in the macroeconomic analysis in Appendix 3.

16. **Interlinked Social and Infrastructure Impact.** Although affected communities have demonstrated considerable resilience in terms of emergency response efforts immediately after the tsunami disaster, the livelihood capacity of such already fragile communities has been impaired as a result of deaths, the need to replace assets, and absence of seed capital. In addition, due consideration needs to be given in livelihood restoration to the preponderance of those with special vulnerability in the affected communities (women, widows and orphans, marginalized groups who are physically or mentally challenged, or socially disadvantaged groups due to caste) whose livelihood and income-generating work has been impaired by the tsunami. Community mobilization represents a cornerstone of demand-driven local recovery efforts and a means of overcoming the income shock of especially vulnerable segments of the community such as households headed by women. Consequently, community-based livelihood restoration modalities, such as through self-help group (SHG), will be particularly critical when designing and implementing post-tsunami reconstruction programs.

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<sup>10</sup> The primary sector comprising of agriculture, fisheries and allied activities in the two worst affected districts of Tamil Nadu, namely Cuddalore and Nagapattinam contribute only 1.02% and 0.69% to the aggregate state domestic product of Tamil Nadu, respectively. Thus, a 2%–3% reduction in the growth rate of the primary sector in these two districts will lead to a reduction in the aggregate growth rate of the state by 0.03%–0.05% respectively. Similarly, the primary sector of the two worst affected districts in Kerala, namely Alappuzha and Kollam, together contribute only 2.6% to the aggregate state domestic product. Consequently, even a 2%–3% reduction in the growth rate of the primary sector in those two districts will only result in a negligible reduction in the aggregate growth rate of the state. The International Monetary Fund (IMF) assessment also indicates that the impact of the tsunami on national growth is expected to be minor (IMF. 2005. *Preliminary Assessment of the Macroeconomic Impact of the Tsunami Disaster on Affected Countries and of Associated Needs*).

17. Yet the nature of the tsunami-affected communities in Tamil Nadu and Kerala is such that they are particularly dependent for their livelihood on the restoration of certain infrastructure. Thus the badly affected coastal fisheries communities will be dependent on the restoration of key public infrastructure like ports and fishing harbors. Consequently, the required repairs for ports and fishing harbors, in terms of approximately 8,000 m of compound walls and restoration of breakwaters, and 1,600,000 cubic m of dredging to remove tsunami-inflicted siltation of harbor basins and approach channels in 20 ports, fishing harbors, and landing channels is a critical parallel intervention to restore coastal livelihoods. The importance of the rehabilitation of damaged fishing harbors for livelihood restoration is evident from the fact that a fishing harbor located on the river, upstream of Nagapattinam port in Tamil Nadu, previously had a fish throughput of 30,000 tons, is currently damaged and largely inoperative.

18. The impact of the tsunami on other families whose livelihood is linked to fishing communities most directly affected also needs to be taken into account, including their dependence on public infrastructure like rural roads, water supply, community toilets, and community buildings. These would also represent opportunities for transitional employment. These are small labor intensive works scattered over a large area and provide valuable rural employment to a segment of tsunami-affected people when it is most needed, i.e., during the recovery process. Being low-skill, low-technology, small-scale works, they sustain the skilled and semiskilled local people in the short term. In the long term, such minor infrastructure will restore their livelihood by creating employment opportunities for local people by rebuilding productive and supportive resources for coastal industries, as well as employment for operation and maintenance of such minor infrastructure. Consequently, there is a critical need to (i) contribute to restoring and rebuilding the livelihood of the affected communities, by rehabilitating essential minor village and municipal infrastructure; (ii) specifically contribute to reducing transportation time and resources for goods and services, in particular, fishery and associated products; and (iii) provide improved drainage and public facilities with disaster resistant standards for rehabilitation of public buildings and improved practices in community participation where necessary for project planning and implementation to lead to enhanced operation and maintenance, while delivering essential employment opportunities to the affected communities.

19. In addition, for sustainable revival of livelihood, in the following are urgently needed (i) provide improved drinking water supplies in terms of quality and quantity at least to the level of or beyond pre-tsunami conditions given same standard pre-tsunami replacement costs and local post-tsunami upgrade requirements; (ii) contribute to reducing time and resources for providing or collecting water, and for maintaining existing poorly performing systems; (iii) contribute to protecting public health from potential waterborne diseases, and reducing pressure on the fragile coastal aquifer and natural environment; and (iv) provide institutional support for improved practices in community participation in project planning and implementation, and sound technical design and quality control, along with increased involvement of local government institutions and beneficiaries in operation and maintenance of completed schemes.

20. Consequently, recovery from the impacts of the tsunami for Tamil Nadu and Kerala coastal communities requires simultaneous restoration of livelihood, and rehabilitation and reconstruction of physical infrastructure. While community-based microenterprise initiatives, such as through SHGs, enhance economic capacity, restoring damaged community and public infrastructure is equally critical if livelihood restoration is to successfully occur. Certain infrastructure may be community built, owned, and managed, such as those related to tsunami-damaged water bodies, and other infrastructure may require more inputs in the nature of public works but both represent an integral part of critical infrastructure rehabilitation support for livelihood restoration.

21. **Environmental Impact.** The tsunami has affected the natural environment in several ways with consequences for production systems. Salinization of groundwater and fresh water systems has affected coastal communities whose daily water requirement and livelihoods depend on these systems. The impact has been particularly severe on the poor who have no access to piped water supply schemes. Around 8,000 hectare (ha) of agricultural lands are affected by siltation and salinization. Around 2,500 ha of shelterbelt, mangroves, and teak plantations were damaged in Tamil Nadu alone. Fishery stocks that depend on mangroves and coastal wetlands for spawning are likely to be affected; however the impact on fishery stocks at large is not clear. Consequently, a combination of livelihood restoration interventions that revive fish production systems and public infrastructure interventions that provide water quality and containment of ports-related environmental damage is urgently required to address the varied environmental impacts.

22. **Disaster Risk Management Policy and Institutional Framework.** Although the Government undertook effective relief efforts, the magnitude of the tsunami impact has led to a particular focus on a systematic approach to disaster risk management that goes beyond relief and aims to reduce the vulnerability of the country to disaster risk in the future. In response to the historical-scale disasters experienced by the country in recent years, such as cyclone (Orissa in 1999), earthquake (Gujarat in 2001), floods (Ganges-Brahmaputra in 1998 and 2004), and the recent tsunami, the Government is progressively strengthening its policy and institutional framework to manage the risk against a range of natural disasters. The recently prepared and comprehensive national disaster management framework provides strategic guidelines for institutional mechanisms, disaster prevention, early warning systems, mitigation, preparedness and response, and human resource development. To formalize the framework, the Government is now finalizing a national disaster management authority policy and bill, which aim at promoting and operating a disaster risk management strategy to reduce the country's vulnerability to such risk. Establishment of a similar state policy, bill, and authority are also envisaged.<sup>11</sup>

23. The Government is participating in regional efforts to establish an effective tsunami warning system, to be integrated with the existing national system of cyclone forecasting and warning. In addition, the Ministry of Home Affairs is implementing the Disaster Risk Management Program with multidonor support to (i) set up national, state, and district centers for multihazard emergency operations; (ii) establish district, block, and village plans for disaster management; (iii) undertake disaster management and mitigation awareness; (iv) support disaster-resistant technologies; and (v) promote legal and policy frameworks for disaster management and systems to ensure their compliance. This provides a platform for development in Tamil Nadu and Kerala for (i) local and community-based capacity building at all levels, linking the development of early warning through public awareness and communication to the use of evacuation infrastructure; and (ii) improving the resilience of public and private structures against multihazard risks. The inclusion of disaster resilience standards for reconstruction of infrastructure is a particularly crucial requirement in a multihazard context, as the affected states are prone to a range of hazards that occur with much greater frequency than tsunamis.

### 3. Donor Coordination

24. **Donor Coordination on State and Sectoral Allocations.** The magnitude and multitude of the tsunami impacts has generated the need for the proposed ADB emergency assistance, which will complement the contributions of other donors. On 22 February 2005, following the

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<sup>11</sup> The Government of Tamil Nadu has drafted a state disaster management policy and established the State Disaster Management Authority. The Government of Kerala has also drafted a bill for disaster management.

JAM, the Government held joint discussions with ADB, UN, and World Bank to establish an in-principle understanding of state and sector allocations between the multilateral institutions. Bearing in mind respective resource envelopes and comparative expertise, the group agreed that (i) ADB would focus principally on livelihood restoration, transportation, and rural and municipal infrastructure in Tamil Nadu and Kerala; (ii) the World Bank would be principally assigned sectors like housing, fisheries, and agriculture; and (iii) the UN would principally focus on disaster risk management.

**25. Development Partners' Response to Rehabilitation and Reconstruction Needs.** The UN system's assistance, as coordinated by UNDP, is expected to be \$38.6 million for areas such as psychosocial support; health and nutrition; education; rebuilding livelihoods;<sup>12</sup> water supply, sanitation, and hygiene; and information technology and communications.

26. The World Bank is currently preparing its emergency post-tsunami support with the Government, with Board approval expected in May 2005. The assistance is expected in the form of approximately \$460 million of International Development Association credit, of which the majority will come from loan cancellations and savings. The World Bank also expects to provide a grant of \$2.5 million.

#### 4. Lessons Learned

**27. Lessons Learned in Disaster Response.** The tsunami impact issues that constrain the recovery of affected states confirm the importance of lessons drawn from previous experience of ADB emergency assistance and ADB policies. ADB disaster emergency assistance to India in the aftermath of the Gujarat earthquake provides some India-related lessons. Although this is only the fifth project developed under the ADB *Disaster and Emergency Assistance Policy* (May 2004),<sup>13</sup> some general lessons can be learned from the past experience with postdisaster loans to other developing member countries.

28. The lessons learned are (i) prepare projects as quickly as possible; (ii) focus projects on restoring livelihood, and rehabilitation and reconstruction of key facilities; (iii) complete reconstruction works to the extent possible within 2–3 years; (iv) provide strong implementation assistance and ADB supervision as implementation will place a heavy burden on executing agency (EA) staff; (v) ensure the government can take quick action to match ADB's rapid response to disasters; (vi) because beneficiary participation is key, increase the role of beneficiaries in project preparation, implementation, and maintenance of facilities; (vii) consider environment and social aspects during project implementation, even though the need for a rapid response may not permit detailed examination of these issues prior to approval of the assistance; (viii) provide arrangements for disbursements, including retroactive financing and the use of imprest accounts, to give EAs quick and simple access to funds; (ix) carefully define project objectives and scope; (x) ensure criteria for subproject selection permit simple

<sup>12</sup> In addition livelihood activity in areas not covered by ADB would be supported by the International Fund for Agricultural Development which is due to provide approximately \$30 million in additional funding.

<sup>13</sup> ADB. 2004. *Disaster and Emergency Assistance Policy*. Manila. The other projects are ADB. 2005. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan and Technical Assistance Grants to the People's Republic of Bangladesh for the Emergency Flood Damage Rehabilitation Project*. Manila; ADB. 2005. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan and Grant to the Republic of Maldives for the Tsunami Emergency Assistance Project*. Manila; ADB. 2005. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Democratic Socialist Republic for Sri Lanka For the Tsunami and Conflict Affected Areas Rebuilding Project*. Manila. *Report and Recommendation of the President to the Board of Directors on Proposed Grants to Indonesia for the Earthquake and Tsunami Emergency Support Project and Contribution to the Multidonor Trust Fund*. Manila; ADB. 2005.

prioritization of subprojects and short implementation periods; and (xi) address anticorruption measures, even for emergency projects.<sup>14</sup> These lessons are incorporated in the TEAP design.

29. **ADB's Rehabilitation and Reconstruction Strategy.** Since the Gujarat earthquake emergency assistance, ADB strategy has been to support the national and state governments and other stakeholders to overcome exogenous shocks caused by calamities. This is to enable early restoration of economic and social activity in affected areas, especially for the poor. The strategy is designed to ensure that emergency assistance projects provide a bridging function to ameliorate the impacts of the disaster and dovetail into the development process selecting the highest priority needs for emergency assistance in consultation with the Government, state governments, civil society, and other stakeholders, including other donors.

30. Based on the JAM report (para. 5), the TEAP identifies specific sectors in particular affected states. The TEAP therefore seeks to (i) build on the immediate relief provided in the tsunami-affected states by Government and development partners; (ii) contribute to coordinated rehabilitation and reconstruction in sectors by different development partners guided by the JAM report and the Government; (iii) specifically address sustainable recovery priorities by way of support for direct livelihood restoration complemented by indirect livelihood support through public infrastructure rehabilitation and reconstruction, which generates public employment and underpins the restoration of livelihood activities by providing roads, public buildings and lighting, sanitation, and the like; (iv) support disaster prevention by linking national and regional development of rapid early warning systems through community-based public awareness to core public infrastructure such as key bridges, which provide for evacuation; and (v) provide a platform through short- and medium-term reconstruction for longer term development of disaster prevention such as coastal erosion projects.<sup>15</sup> In doing so, TEAP design draws on ADB experience in delivering emergency assistance acquired in different developing member countries over the past 2 decades, and complements relief and other rehabilitation and reconstruction assistance provided by the Government, UN agencies, NGOs, bilateral development partners, and the World Bank. By meeting the tsunami reconstruction needs of the next 3 years, the TEAP is consistent with ADB *Policy on Disaster and Emergency Assistance* 2004 and the *Asian Tsunami Fund* (ATF) Paper 2005.<sup>16</sup> The TEAP also provides a platform consistent with longer term development plans of the Government in the 10th Five-Year Plan (2002–2007) as reflected in the ADB country strategy and program for India, the recommendations of the Twelfth Finance Commission as adopted by the Government in 2005, and state development plans.

### III. THE PROPOSED PROJECT

#### A. Impact and Outcome

31. The TEAP will support efforts of the Government of Tamil Nadu (GOTN) and Government of Kerala (GOK) to (i) restore the livelihood and economic activities of the affected population, (ii) accelerate poverty alleviation in the tsunami-affected areas who are vulnerable to high incidence of poverty, and (iii) rehabilitate and reconstruct public and community-based infrastructure that are vulnerable to natural disasters.

<sup>14</sup> ADB. 2004. *Disaster and Emergency Assistance Policy*. Manila. Appendix 3.

<sup>15</sup> The JAM report highlighted the damage to coastal protection structures including seawalls and flood banks adjacent to mouths of rivers, and to mangroves and other coastal vegetation. In this respect, ADB and the Government have agreed to undertake a small-scale TA in 2005, with the objective of formulating a comprehensive program of "hard" (such as dikes/seawalls) and "soft" options (coastal vegetation/habitat enrichment) on integrated coastal zone management. The importance of this initiative has been heightened following the tsunami.

<sup>16</sup> ADB. 2005. *Asian Tsunami Fund*. Manila (R65-05).

## B. Outputs

32. The TEAP comprises four components: (i) livelihoods, (ii) transportation, (iii) rural and municipal infrastructure, and (iv) capacity building and implementation assistance. These components are designed to operate in a mutually supportive fashion to achieve the overall objective of mitigating the tsunami loss to the affected communities in terms of livelihoods, assets, productivity, and improved disaster resilience.

### 1. Part A: Livelihoods

33. This component<sup>17</sup> includes (i) providing microenterprise training and establishment support to restore the livelihoods of the directly and indirectly affected poor and low-income households, already organized into SHGs and other similar groups recognized by state governments as affected by the tsunami;<sup>18</sup> (ii) forming new SHGs (both male and female members) for affected households not yet organized in community-based groups to restore livelihoods through microenterprise training and establishment support; (iii) replacing productive assets (excluding housing) of tsunami-affected households; (iv) upgrading skills;<sup>19</sup> (v) mitigating risks through insurance of all affected households that receive assistance under this component;<sup>20</sup> and (vi) restoring community-based infrastructure affected by the tsunami (Appendix 4).

### 2. Part B: Transportation

34. **Roads and Bridges.** Considering that the urgent need in Tamil Nadu and Kerala to restore connections and to build disaster resilience and prevention is key for transportation infrastructure, this subcomponent will comprise (i) rehabilitating tsunami-damaged sections of state roads (other than village and municipal roads), such as major district roads, other district roads, and state highways in the affected districts of Tamil Nadu and Kerala—which have suffered breaches, damaged shoulders and pavements, and eroded protection works—to pre-tsunami level or to prescribed national standards;<sup>21</sup> (ii) rehabilitating damaged drainage structures such as minor bridges, culverts, and side drains; (iii) rehabilitating bridges in affected areas (for Cuddalore and Kanyakumari districts of Tamil Nadu); and (iv) creating bridge connections to replace temporary crossing arrangements, for unbridged crossings or for river crossing ferries from a disaster prevention perspective (Appendix 5).

35. **Ports and Harbors.** Given the consequences for fishing communities as a result of damage to harbors and minor ports, the ports and harbors subcomponent includes (i) providing priority dredging for ports, harbor basins, and approach channels; (ii) rehabilitating breakwaters for ports and fishing harbors; (iii) rehabilitating fishing harbor facilities such as compound walls; (iv) rehabilitating damaged roads and ports facilities, such as electrification systems, wharfs,

<sup>17</sup> The scope excludes sector issues relating to fisheries, agriculture, and livelihoods including their asset replacement expected to be funded from other sources. Livelihood restoration relating to these segments (SHG formation, skills development, and microenterprise establishment support) is covered in view of the inextricable linkages in the coastal economies as well as the need for coordinated implementation for cost-efficient service delivery.

<sup>18</sup> Establishment support includes provision of seed capital to SHGs.

<sup>19</sup> Skills development intervention is kept generic to ensure participation of community groups as well as individuals. This could include fisheries and allied activities undertaken by poor and low-income households.

<sup>20</sup> At this stage, insurance products covered by Swarnajayanthi Grama Swarozgar Yojana (SGSY) are envisaged. However, any innovative schemes will also be available for ADB support.

<sup>21</sup> Rehabilitation will also entail regular road safety audits to ensure that road rehabilitation is accompanied by due regard to road safety.

and piers; and (v) procuring equipment such as a destroyed dredger and navigation aids (Appendix 6).

### **3. Part C: Rural and Municipal Infrastructure**

36. **Water Supply and Sanitation.** Given the serious effects of the tsunami on water supply and public hygiene, this subcomponent will include (i) restoring and upgrading damaged water supply systems,<sup>22</sup> (ii) upgrading affected water supply systems into multivillage systems with more reliable source development, (iii) rehabilitating/upgrading sanitary complex and solid waste management facilities, and (iv) providing a sanitation and environmental awareness campaign<sup>23</sup> (Appendix 7).

37. **Other Rural and Municipal Infrastructure.** Given the importance to community livelihoods of tsunami-damaged minor village and municipal infrastructure, this subcomponent will include rehabilitating and upgrading (i) village and municipal roads; (ii) drainage canals; (iii) public buildings such as small-scale common fish-landing, processing, and marketing facilities; community centers; and panchayat offices; and (iv) damaged electricity line network and distribution transformers. Rehabilitation of public buildings will consider disaster-resistant design, and relocation to safer environment as appropriate (Appendix 8).

### **4. Part D: Capacity Building and Implementation Assistance**

38. Given the tight implementation schedule and the incremental burdens on EAs and implementing agencies (IAs), additional technical support will be needed. Under the PMU's direction, this component will therefore support (i) detailed assessment and verification of damage in each sector/subsector; (ii) prioritization of subprojects; (iii) preparation of subproject appraisal reports in accordance with Government and ADB requirements and selection criteria; (iv) incorporation of disaster resistance into the rapid planning, design, and implementation of the works; (v) supervision and monitoring of works to ensure quality control and transparency among contractors and communities carrying out smaller works; (vi) institutional support for aquifer and hydrology study and community participation; and (vii) oversight of works in each sector/subsector and provision of detailed accounting, auditing, and reporting to the project implementation units (PIUs), and project management units (PMUs). Given incremental burdens on the EAs and IAs, this component will also support incremental administration costs, on conveyance, furniture, communication and equipment, but not including salaries and allowances.

### **C. Special Features**

39. **Integrated Restoration of Livelihoods and Infrastructure.** The TEAP will seek a grant from the ATF (footnote 15), established to pool and channel emergency grant financing for tsunami-related rehabilitation activities, in proportionate combination to a loan from ADB's ordinary capital resources (OCR). This provides a mixed loan-term commensurate with the needs of the tsunami-affected coastal communities, which were already poor and vulnerable to external shocks, to mitigate their substantial losses and return them to a higher growth path through an integrated approach. Specifically, this enables the delivery of an effective recovery package, comprising the most appropriate mix of restoring livelihood through direct support to

<sup>22</sup> This includes provision of tankers for regular supply given water shortages.

<sup>23</sup> The TEAP will link with the Government's total sanitation program to implement this activity, institutionalized following the United Nations Children's Fund (UNICEF) TA. The existing program will be extended in the concerned subproject area, using projects funds as necessary.

SHGs and replacement of assets, restoration of essential water supply and sanitation services for critical drinking water and hygiene for vulnerable communities, and reconstruction of community and other productive infrastructure, thereby accelerating the recovery process.

40. **Donor Collaboration.** Building on the JAM report, the TEAP design takes into account proposed interventions by the UN and World Bank in other sectors. Such a collaborative approach will maximize resources, provide a synergy of skills, and facilitate harmonized implementation with other donors. Input from NGOs is integral given the TEAP's thrust to establish livelihoods and community-based infrastructure.

41. **Implementation Flexibility and Delegation.** Given the community-based substance of many of the TEAP components, project design also focuses on expeditious implementation arrangements according to the ADB *Disaster and Emergency Policy 2004*, and the ATF, in terms of procurement and consulting services. This is complemented by supervision and monitoring by and delegation to an ADB extended mission with offices in Tamil Nadu and Kerala, and by community-based and field-level dispute resolution mechanisms such as village and district level monitoring committees.<sup>24</sup>

42. **Quality Control with Effective Process and Output Management.** While the TEAP aims to restore the community livelihood and supporting infrastructure in a most expeditious manner, it will also operate effective results-based management within its implementation framework. Specifically, each subproject proposal, prepared in consultation with the concerned local government institutions and beneficiaries, will set out specific process and output indicators. Implementation progress will be recorded and reported through the IAs' field offices, and monitored and audited by PMU consultants. Information will also be reported to the village and district level monitoring committees.

#### D. Cost Estimates

43. The total project cost is estimated at \$218.6 million equivalent, including taxes and duties, of which \$63.5 million (29.1%) represents foreign exchange costs, including \$7.0 million of interest during construction and other charges, and \$155.0 million equivalent (70.9%) represents local currency costs (Table 1, details in Appendix 9).

**Table 1: Cost Estimates**  
(\$ million)

Component	Tamil Nadu			Kerala			Total Cost		
	FX	Local	Total	FX	Local	Total	FX	Local	Total
Component A: Livelihoods	0.1	49.9	50.0	0.1	8.8	8.9	0.2	58.7	58.8
Component B: Transportation	9.1	17.7	26.8	11.1	12.8	23.9	20.2	30.5	50.7
Component C: Rural and Municipal Infrastructure	25.9	37.9	63.8	10.3	11.3	21.6	36.2	49.1	85.3
Component D: Capacity Building and Implementation Assistance	0.0	3.2	3.2	0.0	2.0	2.0	0.0	5.2	5.2
Land Acquisition, Rehabilitation, and Resettlement	0.0	0.4	0.4	0.0	0.4	0.4	0.0	0.8	0.8

<sup>24</sup> In Tamil Nadu and Kerala, village level committees function as first information and grievance redress tier whose work will be facilitated by NGOs. A second tier will operate at the district level.

Component	Tamil Nadu			Kerala			Total Cost		
	FX	Local	Total	FX	Local	Total	FX	Local	Total
Interest during Construction and Commitment Charges <sup>a</sup>	5.0	0.0	5.0	2.0	0.0	2.0	7.0	0.0	7.0
Taxes and Duties	0.0	7.5	7.5	0.0	3.3	3.3	0.0	10.8	10.8
<b>Total</b>	<b>40.1</b>	<b>116.5</b>	<b>156.7</b>	<b>23.4</b>	<b>38.5</b>	<b>61.9</b>	<b>63.5</b>	<b>155.0</b>	<b>218.6</b>

FX = foreign exchange, Local = local currency

Note: The figures beyond the decimal point may not add up due to rounding.

<sup>a</sup> Interest during construction was computed based on a fixed swap rate for 3 years together with the lending spread for the Asian Development Bank.

Source: Asian Development Bank estimates.

## E. Financing Plan

44. The Government has requested a loan of \$100 million from ADB's OCR and a grant of \$100 million from the ATF to help finance the TEAP. The loan will have a 32-year term including a grace period of 8 years,<sup>25</sup> an interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility, a commitment charge of 0.75% per annum, and such other terms and conditions set forth in the draft financing and project agreements. The Government has provided ADB with (i) the reasons for its decision to borrow under ADB's LIBOR-based lending facility on the basis of these terms and conditions, and (ii) an undertaking that these choices were its own independent decision and not made in reliance on communication or advice from ADB. The proposed ADB grant to the Government is for \$100 million from the ATF (footnote 16).

45. The ADB loan and grant will cover \$56.5 million of the foreign exchange cost and \$143.5 million of local currency cost. The Government will cover the foreign exchange cost of \$7.0 million for interest and commitment charges, and the foreign exchange risk for the TEAP. The national and state governments will bear the local currency cost of \$11.6 million equivalent for taxes and duties, land acquisition, rehabilitation, and resettlement (Table 2).

**Table 2: Financing Plan**  
(\$ million)

Source	Foreign Exchange	Local Currency	Total	%
Asian Tsunami Fund Grant	11.4	88.6	100.0	<b>45.7</b>
Asian Development Bank Loan	45.1	54.9	100.0	<b>45.7</b>
Government of India/State Governments	7.0	11.6	18.6	<b>8.5</b>
<b>Total</b>	<b>63.5</b>	<b>155.0</b>	<b>218.6</b>	<b>100.0</b>

Note: The figures beyond the decimal point may not add up due to rounding.

Source: Asian Development Bank estimates.

46. **State Allocations.** Tamil Nadu will be allocated \$143.75 million. Kerala will be allocated \$56.25 million. Corresponding to the TEAP financing plan, the components to be financed by grant and by OCR have been identified according to the Government's preference for the use of

<sup>25</sup> This is being recommended as an outer limit under ADB's *Disaster and Emergency Assistance Policy* 2004, paragraph 90.

grant and loans for tsunami-related reconstruction. Accordingly, the grants are assigned to Part A (livelihoods) and the water supply and sanitation subcomponent under Part C. Grant assistance will facilitate restoration of livelihoods of affected households and critical drinking water and sanitation systems with associated support for public hygiene and health for vulnerable affected communities required for expeditious and sustained livelihood restoration. Part D on capacity building and implementation assistance (other than incremental administration) will also be grant funded. The complementary and integrated nature of these components aims to accrue benefits to the poor and low-income households. Considering the varying pattern of tsunami-related damage in Tamil Nadu and Kerala, the sector-based application of grant funds implies differential allocations. Details are provided in Appendix 9.

## **F. Implementation Arrangements**

### **1. Project Management**

47. **Planning Commission Core Group.** After the tsunami, the Government established a multi-disciplinary core group within the Planning Commission to plan and coordinate the post-tsunami rehabilitation and reconstruction program in the affected states and union territories. This core group, headed by a chief coordinator, will consist of an office of the chief coordinator and program management consultants. The core group will function as an interdepartmental coordination mechanism for collecting data on damages, losses, and rehabilitation and reconstruction needs and outlays for all tsunami-affected areas in India. As part of the establishment of a medium-term recovery and reconstruction framework going forward a National Disaster Management Framework has been established by the Ministry of Home Affairs of the Government.

48. **Project Steering Committees.** GOTN and GOK will establish a State Level Steering Committee in the respective states. The SLSC will act as a policy making body which will provide overall advice and guidance to the state EAs associated with the Project. An Empowered Committee of Tamil Nadu and Kerala will be established and will be chaired by the respective state's chief secretary and will (i) provide policy guidance to the PMUs; and (ii) sanction and approval of subprojects and project approvals.

49. **Executing Agencies.** RADMMMD, the EA in Tamil Nadu and DDM in Kerala, will respectively ensure that it engages adequate permanent or fixed-term required staff to implement the TEAP. The EAs will be delegated with all necessary powers to undertake responsibilities as EAs. RADMMMD and DDM will respectively establish a PMU, headed by a project director and supported by a team of consultants specialized in project management, technical aspects, and environmental and social issues as required. The PMU will be responsible for (i) providing day-to-day assistance and guidance to the project IAs; (ii) reviewing subprojects to satisfy ADB's due diligence requirements and approving subproject proposals submitted by line departments and IAs; (iii) managing and disbursing funds; (iv) consolidating and submitting progress reports to the Empowered Committee and ADB; (v) disbursing funds and accounting against a review of financial reports provided by the IAs; and (vi) reviewing compliance with specifications and plans, and quality control and transparency requirements by bodies undertaking reconstruction works.

50. **Implementing Agencies.** The concerned GOTN line departments will act as IAs: (i) Highways Department for the roads and bridges; (ii) Maritime Board for ports; (iii) Department of Fisheries for harbors; (iv) Tamil Nadu Electricity Board for public lighting and damaged distribution lines; (v) Rural Development Department and concerned municipality for rural

infrastructure, sanitation, and the livelihood component;<sup>26</sup> (vi) Tamil Nadu Water Supply and Drainage Board and concerned municipality for water supply; and (vii) Municipal and Administration Department and concerned municipality for municipal infrastructure. For Kerala, the concerned line departments to act as IAs are (i) Public Works Department for roads and bridges, and other rural and municipal infrastructure other than public lighting and power distribution; (ii) Kerala Water Authority for water supply and sanitation; (iii) Ports/Harbor Engineering Department for ports and harbors; (iv) Kerala State Electricity Board for public lighting and power distribution; and (v) Fisheries Department/Kudumbashree using the expertise of accredited technical institutions, NGO service providers or specialized agencies for the livelihood component. The IAs will have PIUs for subproject monitoring and implementation of subprojects. Details on the PIUs are in the sector-specific appendixes.

51. The IAs are responsible for (i) prioritizing and preparing subproject technical proposals for the sectors included under the TEAP; (ii) reporting to RADMMMD and DDM; (iii) implementing reconstruction works and activities; (iv) conducting detailed assessments, surveys, and planning of reconstruction including public consultation and input from recipient local entities and beneficiaries as required; (v) prioritizing works, and preparing detailed designs, specifications, schedule of quantity, bidding documents, contracts, and related documentation; (vi) preparing regular progress reports for the SLSC and ADB through RADMMMD and DDM; and (vii) supervising construction, conducting quality control, approving progress payments to contractors, and maintaining records and accounts on an up-to-date basis and making these available to ADB, its missions, or auditors for inspection. The project organization structures for Tamil Nadu and Kerala are in Appendix 10.

52. **ADB Extended Mission.** To ensure timely implementation, the responsibility for project administration will be delegated to India Resident Mission in New Delhi. ADB will also establish an extended mission with two extended mission offices; one in Chennai and the other in Thiruvananthapuram<sup>27</sup> for the duration of project implementation to closely monitor compliance with ADB requirements. The extended mission offices will ensure quality control, speedy implementation of subprojects, and rapid assistance to RADMMMD and DDM and IAs on any project implementation matters. They will carry out random spot checks on procurement and project accounts of subprojects, and inspect project facilities for quality control and proper financial management. The extended mission offices will be headed by India Resident Mission staff under the direct supervision of the resident mission.

## 2. Subproject Selection Criteria and Approval

53. The IAs will formulate and propose a list of subprojects through the PMUs. The PMUs will conduct initial screening of the proposals and submit these to the Empowered Committee in Tamil Nadu and Kerala for final selection and approval in accordance with general selection criteria for purposes of eligibility and sector-specific criteria for each project component. The general eligibility and sector-specific criteria are listed in Appendix 11.

54. The first two subprojects to be carried out by each IA will be subject to prior review and approval by ADB before commencement. Any subsequent subproject exceeding \$500,000 but less than \$3 million will be sent to the PMU and ADB for information only, while subprojects exceeding \$3 million equivalent will require prior review and approval by ADB. Subprojects estimated to cost \$500,000 equivalent or less will be subject to approval by the respective PMU

<sup>26</sup> The department may use the services of accredited technical institutions and NGO service providers.

<sup>27</sup> Chennai is the administrative capital of Tamil Nadu. Thiruvananthapuram is the administrative capital of Kerala.

and random audit and checks by ADB to ensure compliance with requirements of subproject selection criteria and implementation arrangement.

### **3. Implementation Period**

55. As the TEAP is for emergency assistance, implementation will start immediately after approval and be completed within 36 months.<sup>28</sup> A detailed implementation schedule is in Appendix 12.

### **4. Procurement**

56. Procurement of goods, services, and works will be carried out in accordance with ADB *Guidelines for Procurement* (2004) and the contemplated implementation schedule. ADB's procedure for providing reconstruction assistance after disasters allows for flexibility so that project activities can start promptly. Local competitive bidding procedures will be the preferred mode of procurement. The local procurement procedures of the state governments are acceptable, with some minor amendments such as ADB's disapproval of disclosure of the budget for the package and invitation of bids on a percentage rate basis.

57. Procurement of goods and related services estimated at more than \$1,000,000 will be procured following international competitive bidding procedures. International shopping procedures will be followed for procurement of goods and related services estimated at between \$100,000 and \$1,000,000. For small, specialized equipment and materials contracts valued less than \$100,000, direct procurement procedures acceptable to ADB will be followed.

58. Civil works contracts over \$10 million will be procured through international competitive bidding, and those estimated to cost \$10 million or less will be procured through local competitive bidding procedures acceptable to ADB. Postqualification with single- or two-envelope procedures and usage of the existing contractor registration system is acceptable. ADB will conduct prior review of bidding documents and award recommendations for all packages estimated to cost \$1,000,000 and above. For contracts estimated to cost less than \$1,000,000, ADB will review and approve the first two contracts for each IA. Once ADB is satisfied with the EA's procurement procedures, post-facto approval procedures will be followed. However, at a later stage, if ADB determines that its guidelines were not followed, ADB may not approve the award or terms of the contract and the Government cannot use loan or grant proceeds to finance the contract. If the loan or grant proceeds are already used to finance such contracts at the time of such determination, the Government will refund to ADB any such expenditure incurred. Rebidding and extension of bid validity will be subject to ADB prior approval. Community participation in procurement of small works of a simple nature is encouraged.<sup>29</sup>

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<sup>28</sup> Given the implementation challenges in certain sectors, a 36-month implementation schedule under the ADB *Disaster and Emergency Assistance Policy* is considered appropriate.

<sup>29</sup> To encourage community participation and use of indigenous materials, methods to incorporate community participation in procurement may be used for rural and municipal infrastructure. Small works contract with an estimated cost of \$20,000 or less in each case may be awarded to community organizations in accordance with practices and procedures acceptable to ADB.

## 5. Consulting Services

59. The TEAP will require a total of 645 person-months of domestic consulting.<sup>30</sup> The outline terms of reference for the consultants are in Supplementary Appendix B.

60. All consultants<sup>31</sup> will be engaged in accordance with ADB *Guidelines on the Use of Consultants* and other arrangements satisfactory to ADB for the engagement of domestic consultants. The consulting services will be provided through quality- and cost-based selection of one or more consulting firms using simplified technical proposals or through individual consultants. Since the TEAP will be completed within 36 months, selection and fielding of consultants must be expeditious. Streamlined procedures for consultant recruitment under ADB *Assistance for Tsunami-Affected Developing Member Countries* (15 February 2005) will apply.

## 6. Advance Action

61. Given the urgency of the TEAP, advance action was approved for the procurement of goods, services, and civil works, and recruitment of consultants. The Government has been advised that ADB's approval of such advance action does not commit ADB to finance the TEAP.

## 7. Disbursement Arrangements

62. In accordance with the ADB *Disaster and Emergency Assistance Policy*, quick disbursement is key to effective and timely emergency assistance. Given the emergency nature of the Project and the financial management in both Tamil Nadu and Kerala,<sup>32</sup> the disbursement arrangements of the state governments are considered appropriate. Immediately after the loan and grant are effective, the Government will establish two imprest accounts (one for loan proceeds and one for grant proceeds) operated by the comptroller of aid accounts and audit. The proceeds of the imprest advance will be released to the EAs when requested as reimbursement of the expenditure already incurred under the project.

63. The initial deposits into each of the imprest accounts will not exceed 5% of the loan and grant amount. This amount will be disbursed to the SGIAs: \$7 million for the Tamil Nadu account and \$3 million for Kerala. Thereafter the aggregate drawdowns into the two imprest accounts will not exceed the lesser of the equivalent of 3 months of current project expenditures or 5% of the total loan and grant amount for the respective imprest accounts, and will be estimated based on actual disbursements expected under contracts over the upcoming months. Procedures under ADB's *Loan Disbursement Handbook* dated January 2001, as amended from time to time, and detailed arrangements agreed upon between the Government and ADB, including the statement of expenditures (SOE) procedure, will be adopted for reimbursing and liquidating eligible expenditures. Any individual payment which is to be reimbursed or liquidated under the SOE procedure should not exceed \$100,000 per payment, except as ADB may otherwise agree during project implementation. The imprest accounts will be operated by the comptroller of aid accounts and audit, in accordance with the ADB *Loan Disbursement Handbook (January 2001)* and *Interim Guidelines for Disbursement Operations for LIBOR-Based Loan Products*.

<sup>30</sup> Tamil Nadu is allocated 227 person-months and Kerala 418 person-months. These will be provided by consulting services contracts for each state.

<sup>31</sup> Consultant activity will be under part D of the TEAP.

<sup>32</sup> The World Bank has undertaken a financial management assessment for Tamil Nadu; financial management related reforms in Kerala have been supported under ADB's *Modernizing Government and Fiscal Reform in Kerala Program* dated 27 November 2002.

64. As agreed in donor coordination discussions guided by the Government, ADB has been requested to provide a resource envelope of \$200 million, comprising \$100 million of ATF grants and a \$100 million OCR loan, for tsunami emergency assistance in the two states across three sectors. Some parts of these sectors were considered to be more suitable for grant financing, whereas others were considered to be more appropriate for OCR financing. All of this has resulted in technical and operational complexities under the proposed TEAP which could not have been anticipated at the time the ATF Paper was considered by the Board in February 2005. Thus, project components identified for ATF grant financing would be expected to move at a different implementation speed than those Project components identified for OCR financing.<sup>33</sup> For example, infrastructure components financed by OCR will require competitive bidding procedures which would impose their own timelines. This would make pro rata drawdowns impractical and untenable for purposes of implementation of the Project. Consequently, a waiver of the pro rata provisions of paragraph 11 of the ATF Paper is required. However, while the technical form of the pro rata drawdown provision in paragraph 11 of the ATF Paper cannot be met by the Project's component wise disbursement pattern<sup>34</sup> and waiver of that provision is therefore necessary for the effective implementation of the Project, the substantive intent of a blended facility for India through the ATF is satisfied by the Government's assurance and state governments' commitment to fully utilize the entire resource envelope of OCR and grant resources for the Project. Such intent is underpinned by the magnitude of the demand for tsunami rehabilitation and reconstruction for the states of Tamil Nadu and Kerala<sup>35</sup> which exceeds expenditure available through domestic financing, and by the priority accorded by Government to rehabilitation and reconstruction of infrastructure which has been specifically identified for ADB's OCR financing.

65. The Government has agreed that the state governments will receive the loan and grant proceeds on a back-to-back basis as of 1 April 2005 (in line with recommendations of the 12<sup>th</sup> Finance Commission of India), and that the IAs will receive the ADB financing proceeds as grants from GOTN and GOK for all the components. The IAs will be required to maintain subproject accounts for each component to reflect the use of loan and grant proceeds.

## **8. Retroactive Financing**

66. ADB has agreed to the provision of retroactive financing of up to 20% of Loan and Grant proceeds, provided that expenditures are incurred in accordance with agreed procedures. The provision of retroactive financing does not commit ADB to finance the Project.

## **9. Accounting, Auditing, and Reporting**

### **a. Reports**

67. RADMMMD and DDM will establish a reporting system for quarterly progress reports on performance monitoring, issues resolution, and action plans. These will serve as management feedback to update and improve procedures, and provide the basis for a quarterly report to ADB. A consolidated annual report on subprojects financed will be submitted by ADB to the Board. The action plans will incorporate quantitative and time-bound implementation targets and budget requirements. The action plans will be approved by the, IAs, PMUs, and ADB. Within 3

<sup>33</sup> See paragraph 46 of the RRP.

<sup>34</sup> Supplementary Appendix C provides details on indicative disbursement schedules for grant-financed and OCR-financed Project components.

<sup>35</sup> See paragraph 6 and Appendix 2, Table A2.2.

months of physical completion of the Project, GOTN and GOK will provide ADB, through RADMMMD and DDM, with an overall project completion report providing detailed evaluation of project design, costs, contractor and consultant performance, social and economic impact, and other details requested by ADB.

68. Regular field review will be carried out by the staff from ADB's extended mission offices in conjunction with the PMUs to monitor physical progress of subprojects and compliance with other ADB requirements such as procurement, quality control, accounting, beneficiary participation, and NGO consultation as applicable. A midterm review, to be conducted in September 2006, will assess the need for changes needed in the implementation arrangements to achieve overall project objectives.

#### **b. Accounts and Audit**

69. The Government will maintain separate records and accounts for the Loan and Grant Imprest Accounts. The state governments operating through their respective PMUs and PIUs will establish and maintain separate records for subprojects, works, goods, and services financed out of loan and grant proceeds. They will also maintain separate project accounts in accordance with generally accepted accounting principles for all expenditures incurred on the TEAP and subprojects, both from loan and grant proceeds.

70. Detailed consolidated annual project accounts, as maintained by the PMUs, will be audited by independent auditors whose qualifications, experience, and terms of reference are acceptable to ADB and will be submitted to ADB within 6 months of the end of the fiscal year. The annual audit report will include the audit of the imprest accounts, and statement of expenditure procedure, and will specifically include a separate audit opinion on the use of loan and grant proceeds through the imprest accounts, and compliance with statement of expenditure procedures. RADMMMD and DDM have been made aware of ADB's policy on delayed submission, and requirements for satisfactory and acceptable quality of the audited accounts.

71. In addition to financial audits, the PMUs will monitor quality of delivery of assistance to beneficiaries, through performance audits<sup>36</sup> focusing on governance, financial accountability, and transparency done on a random basis and postcompletion audits.

#### **c. Project Performance Monitoring and Evaluation**

72. The PMUs will carry out the necessary arrangement for a systematic project performance monitoring system. A set of performance monitoring indicators to be collected during implementation will be identified, and baseline data established for each of the selected indicators. Appendix 4 sets out sector-specific performance indicators for the livelihood component. The project performance monitoring system will include performance monitoring indicators needed for preparing ensuing projects in water supply and sanitation, rural and municipal infrastructure, and transport rehabilitation and reconstruction.

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<sup>36</sup> Performance audits are a systematic examination of management systems and procedures to facilitate economy, efficiency, and effectiveness in using resources and strengthening good governance. They include assessment of accounting, internal control systems, and compliance with process standards for timely payments.

## IV. PROJECT BENEFITS, IMPACTS, AND RISKS

### A. Social and Livelihood Impacts

73. Rehabilitation and reconstruction of essential rural and municipal infrastructure will mitigate the short- and medium-term increases in the incidence and severity of poverty. Restored water supply and improved sanitation coverage will reduce the chronic water poverty and vulnerability<sup>37</sup> levels among the perennially water-stressed coastal communities. The TEAP will reduce morbidity from potential waterborne diseases and improve the environmental quality and public health in the coastal districts. It will reduce the burden of collection and storage of water, and accrue improved health, health care, and productivity benefits to the communities. The educational activities will increase awareness of water conservation, water quality, sanitation, and hygiene issues among the coastal communities. Rehabilitation and reconstruction of the village and panchayat and municipal roads will improve local access to essential services, and support local livelihoods through labor opportunities during the implementation.

74. The livelihoods component will restore incomes, upgrade skills, and improve productivity and livelihood options among the fishing, farming, wage labor, and local microenterprise sectors, especially focusing on coastal women and other internally displaced and newly vulnerable social groups. Risk mitigation measures, such as insurance and targeted social transfers, will reduce the vulnerability of the newly created vulnerable groups (widows, orphans, sick, and disabled).

75. Transport connectivity will enable the affected population to resume their social and economic activities, and access essential social, emergency, and other government welfare and relief services. This will also support livelihood restoration by facilitating improved physical access to local fishing and commodities markets, wage labor, and other alternative livelihood opportunities. An immediate benefit for wage-dependent households will be in terms of labor opportunities in construction work. Access to evacuation routes, emergency relief measures, and disaster shelters will increase a sense of physical security among the people. Increased familial and community interaction will reduce the vulnerability of affected households, and provide a sense of social security. Improvements in maritime infrastructure will protect fishing vessels, restore flow of goods and access to markets, and improve people's income coming from fishing and port operations. Benefits will also accrue in terms of improved disaster mitigation capacity and improved safety in maritime transport and fishing. These, along with disaster-resistant rehabilitation of public buildings, will support improved productivity and quality of life. Restored transport connectivity will also stimulate investments in microenterprises and public infrastructure.

76. Finally, the TEAP will result in increased community participation during project implementation, especially given the social mobilization through livelihood and community infrastructure components. It will rebuild the damaged social capital and community networks in project areas, and reduce the vulnerability of affected communities to livelihood shocks and natural disasters. A summary poverty reduction and social strategy is attached in Appendix 13.

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<sup>37</sup> Water supply in coastal areas suffers from low per capita supply and high content of fluoride, sodium, and iron, with shallow wells facing high levels of salinity in dry seasons.

## **B. Land Acquisition and Resettlement Impacts**

77. In both states, land acquisition and resettlement impacts are envisaged. In Tamil Nadu, the bridge in Kannyakumari, if it cannot be rebuilt on the original alignment, will have to be realigned. In Kerala, the construction of three emergency evacuation bridges in Allapuzha and Kollam districts might require land acquisition and cause resettlement impacts. For all project components, most rehabilitation work will be carried out within the original right-of-way, while upgrading them to current engineering standards might require the acquisition of narrow strips of land. For the rehabilitation of rural and municipal infrastructure, power transmission lines, ports and harbors, and street lighting, no land acquisition or resettlement impacts are envisaged. Rehabilitation and construction of new public buildings such as community centers, panchayat offices and *anganwadi* centers might require small-scale land acquisition, if government land is not available for such buildings at suitable locations. Resettlement frameworks for Tamil Nadu and Kerala (Appendixes 14 and 15) have been formulated to provide guidance in preparing resettlement plans, if required for any project component. They outline the policy and legal framework, procedures, and institutional requirements for resettlement during project implementation. If any unanticipated impacts are identified during project implementation, appropriate entitlements will be incorporated in resettlement plans to ensure they are adequately addressed.

## **C. Indigenous People**

78. The proportion of the tribal population is significantly lower, both in Tamil Nadu (1%) and Kerala (0.44%), than the national average of 8%. The tribal population is concentrated mostly along the hilly areas in both states, which were not affected by the tsunami. The schedule tribe households in the coastal areas in both states earn their livelihoods primarily through wage earning as agricultural labor and are involved in allied agricultural activities. They are also active members in SHGs supported by ongoing government programs. With regard to the provision of emergency assistance to tsunami-affected people, the TEAP ensures that all benefits will be provided on an equitable basis, with no differential impact on scheduled tribe households. While scheduled tribe populations are among those affected, the initial needs assessment did not identify any likely adverse effects arising from their status. The TEAP will have no impacts on their tribal or cultural identity, or on their social and economic institutions. However, if any impacts are identified during TEAP implementation, such impacts will be addressed through specific actions to be formulated according to the approved resettlement frameworks.

## **D. Environmental Impacts**

79. The TEAP primarily aims to rehabilitate and reconstruct infrastructure damaged or destroyed by the tsunami and to restore livelihoods of affected people. The environmental impacts of these activities will be largely limited to the construction phase since the structures already exist. Given the scale of individual subprojects, these impacts are not likely to be significant. In the long term, infrastructure that is upgraded will result in certain positive environmental impacts due to improved designs and facilities. The TEAP will also support the expansion of certain existing facilities and construction of some new structures. These activities are considered to be small- to medium-scale works and are not considered likely to create significant environmental impacts. Therefore, the TEAP is classified as category B in terms of overall environmental impact.

80. The TEAP is considered sector-like in that detailed subproject designs will be undertaken during implementation. Consequently, the detailed environmental assessments of subprojects can also be conducted only during implementation. Therefore, an environmental

assessment and review procedure framework was prepared to outline specific environmental assessment and monitoring procedures that must be adopted when preparing and implementing subprojects. These procedures are described in Supplementary Appendix D and are summarized in the summary initial environmental examination report (Appendix 16). The initial environmental examination is provided in Supplementary Appendix E. Each subproject will initially be subject to a rapid environmental assessment, based on which the appropriate follow-on assessment requirements will be determined. Given the nature and scale of subprojects, they are unlikely to require a more detailed assessment than an initial environmental examination. However, as an added precaution, the environmental assessment and review procedure framework does cover the procedures to be followed in the event that a subproject requires an environmental impact assessment.

## **E. Overall Project Benefits**

81. The TEAP primarily focuses on rehabilitating and reconstructing damaged or destroyed infrastructure, and restoring livelihoods of those affected by the tsunami. Project interventions will therefore result in restoring productivity of the targeted assets, restoring livelihoods, creating productive livelihood alternatives for beneficiaries, reducing poverty vulnerability of newly vulnerable groups, increasing labor opportunities for wage-dependent households, and increasing physical security and community bonds for affected households through disaster-resistant infrastructure. Furthermore, within the targeted sectors, the IAs will need to prioritize rehabilitation and reconstruction interventions to maximize the returns from the limited project resources. In addition, the principle of least cost will be applied without compromising the quality assurance of the assets created, to ensure maximum utility from resource use.

## **F. Risks**

82. To mitigate any lack of adequately strong commitment in implementing the TEAP in an efficient and timely manner, so that the livelihood of intended beneficiaries is resolved and the tsunami-damaged or -destroyed infrastructure is rehabilitated and reconstructed, GOTN and GOK have both committed to provide a high level state steering committee and an Empowered Committee which is chaired by the respective state's chief secretary for Project monitoring and approvals.

83. Implementation risks related to capacity for timely delivery of quality subprojects in the various project sectors will be mitigated in several ways. First, in terms of implementation procedures, detailed subproject criteria will be developed in addition to general subproject selection criteria. Second, in terms of implementation mechanisms, specific monitoring mechanisms will include regular financial audits as well as regular design and construction supervision and performance audits through random audits and special postcompletion audits. To undertake such supervision and performance auditing, RADMMMD and DDM will be supported by dedicated PMUs and specialized consulting inputs.<sup>38</sup>

84. The national and state governments (GOTN and GOK) have a strong governance framework that will help combat corruption risks with attendant potential of leakage of funds and ensure that the assistance reaches the intended victims of the tsunami. These include (i) state to ensure equitable and transparent distribution of rehabilitation, including by publishing a computerized list of affected people; (ii) transparency in tender legislation;<sup>39</sup> (iii) transparent

<sup>38</sup> RADMMMD in Tamil Nadu, for example, intends to employ an experienced outside auditing consultant as chief accounts officer for tsunami-related projects.

<sup>39</sup> For example, Tamil Nadu's Transparency in Tenders Act 1998, and Transparency in Tenders Rules 2000.

beneficiary identification through community participation;<sup>40</sup> (iv) field monitoring through mechanisms like district committees, which will encompass consultative processes with panchayati raj institutions and NGOs; and (v) financial control mechanisms will build on the financial management capacity of GOTN<sup>41</sup> and GOK.<sup>42</sup> The robust Indian integrity framework will be further supported by close monitoring by ADB extended mission offices, which will undertake random spot checks during TEAP implementation.

## V. ASSURANCES

85. In addition to the standard assurances, the national Government, GOTN, and GOK have given the following assurances, which are incorporated in the legal documents:

86. **Implementation Arrangements.** GOTN and GOK will set up the SLSCs, Empowered Committees, PMUs (including the project directors) and PIUs within not more than 1 month from project effectiveness.

87. GOTN and GOK will delegate RADMMD and DDM and the respective IAs with all necessary powers, and provide them with adequate competent and qualified personnel for effective execution of the Project.

88. GOTN and GOK will ensure that all subprojects follow the agreed processing and selection criteria and implementation arrangements, and that all subprojects are properly monitored as agreed with ADB. Any subproject that does not follow such agreed requirements will not be eligible for ADB financing under the Project.

89. **Social and Environmental Safeguards.** GOTN and GOK will ensure that the Project, including the subprojects, is undertaken in compliance with applicable national and state laws, including Coastal Regulation Zone requirements and ADB *Environment Policy, 2002*. As applicable, subprojects will be prepared in accordance with requirements of the environmental assessment and review procedure framework as agreed with ADB, including any revisions required on account of detailed designs. Subprojects that do not satisfy the selection criteria under the environmental assessment and review procedure framework will not be included under the Project, and for those that require an initial environmental examination, the examination and related environment management and monitoring plan will be prepared for further design and implementation. All applicable national and state clearances will be obtained for the subproject prior to award of contracts under the subproject. In the exceptional cases of subprojects that require an environmental impact assessment, the environmental impact assessment will be prepared according to the procedures specified in the Environmental Assessment and Review Procedures Framework and approved by GOTN and GOK and ADB prior to approval of the subproject.

90. Land acquisition and resettlement under the Project will be (i) minimized and limited to unencumbered public lands to the extent possible that is not squatted upon and (ii) carried out in accordance with applicable national and state laws, and ADB *Policy on Involuntary*

<sup>40</sup> For example, Kudumbashree has a series of indicators for identifying poor beneficiaries related to land, housing, and the like.

<sup>41</sup> The World Bank assessed the financial management capacity of GOTN as part of its tsunami emergency assistance, which is due to be considered by the World Bank's Board of Directors in April 2005.

<sup>42</sup> The financial management capacity of GOK has been strengthened as a result of ADB's 2002 *Modernizing Government and Fiscal Reform in Kerala Program*. See ADB. 2005. *Modernizing Government and Fiscal Reform in Kerala Program Loan 1974-IND: Progress Report—Release of Second Tranche and Major Change in Scope*. Manila (R80-05, 2 March 2005).

*Resettlement*, 1995. Any subproject involving resettlement under the ADB policy will require preparation and implementation of a resettlement plan in accordance with the resettlement framework as agreed with ADB. Such resettlement plan (including any revisions on account of detailed designs) will be subject to ADB approval prior to award of civil works contract under the subproject.

91. In case of impacts to indigenous peoples (including scheduled tribes) under any subproject, the requirements of the ADB *Indigenous Peoples' Policy*, 1998 will be followed, including preparation of specific actions as set out in the resettlement frameworks as agreed with ADB.

92. **Participation.** GOTN and GOK will ensure that RADMMMD, DDM, and the IAs seek the participation of government and nongovernment organizations and communities, particularly women, in the selection, design, implementation, and monitoring of rehabilitation and reconstruction of rural infrastructure and other activities under the livelihood components under the project. Community based dispute resolution mechanisms will be established to address disputes if any under the project, including between people in the tsunami-affected areas. The NGOs and communities will maintain proper records and information about their activities and use of funds under the project and will be subject to audit by the respective EA for the state.

93. GOTN and GOK will ensure that installments of assistance (including cash) provided to SHGs and individual beneficiaries under livelihoods will be against suitable identification, records, verifications and certifications; and ensure that all SHGs and beneficiaries assisted under the Project comprise overall 50% women and 3% disabled.

94. GOTN and GOK, through RADMMMD and DDM, will undertake periodic reviews (with due participation of NGOs and community-based organizations) to evaluate the scope, implementation arrangements, benefit monitoring in accordance with the project performance monitoring system, and progress and achievement of the project objectives.

95. **Disbursements, Accounts, and Audit.** The Government will upon receipt of the advances from ADB into the two imprest accounts, ensure immediate and full transfers of such advances to GOTN and GOK as and when requested.

96. GOTN and GOK will ensure that proper accounting and audit procedures are in place to ensure efficient and economic use of the ADB financing proceeds. Accounts and financial statements in relation to the Project and the subprojects will be maintained and certified by independent auditors acceptable to ADB. RADMMMD and DDM, through GOTN and GOK, will provide such accounts and financial statements to ADB on a quarterly basis within 45 days of the close of each such quarter. The independent auditor will assist the operations of the project's financial management systems in each state, including review of internal control mechanisms and prompt identification of problems, timely corrective actions and systematic recommendations for enhanced accountability and transparency.

97. The Government, GOTN, and GOK will allow ADB representatives to carry out spot or random checks on the flow of funds through the imprest accounts.

98. The Government, GOTN, and GOK will allow independent auditors acceptable to ADB to undertake performance audits on a random basis and post completion audits.

99. **Quality Control.** GOTN and GOK will ensure that the rehabilitation and reconstruction of affected infrastructure under the project includes strengthened seismic, high wind (cyclone),

storm surges, earthquake, tsunami and flood resistance provisions as feasible, and road safety audits to be undertaken for roads rehabilitated or reconstructed as well as monitor and ensure quality control of materials used in rehabilitation and reconstruction under the project.

100. **ADB Extended Mission.** The provisions of the *Agreement between the Government of India and ADB regarding the Resident Office of the Asian Development Bank* dated 18 November 1992 will apply to the ADB extended mission offices in Tamil Nadu and Kerala, to be operative for the duration of project implementation.

101. The Government, GOTN, and GOK will, as required, extend full cooperation to the ADB extended mission offices in Tamil Nadu and Kerala in their activities, particularly in monitoring and random and spot checks on the procurement and accounts of the Project and subprojects and inspection of the project facilities for quality control.

## VI. RECOMMENDATION

102. I am satisfied that the proposed loan and grant would comply with the Articles of Agreement of the Asian Development Bank (ADB) and, acting in the absence of the President, under the provisions of Article 35.1 of the Articles of Agreement of ADB, I recommend that the Board approve

- (i) the grant of \$100,000,000 to India from ADB's Asian Tsunami Fund, provided that any withdrawal in excess of \$50,000,000 shall be subject to the availability of the Asian Tsunami Fund resources, for the Tsunami Emergency Assistance (Sector) Project, on terms and conditions as are substantially in accordance with those set forth in the draft Financing and Project Agreements presented to the Board, and on the basis that the pro-rata provisions of paragraph 11 of the Asian Tsunami Fund Paper are waived; and
- (ii) the loan of \$100,000,000 to India for the Tsunami Emergency Assistance (Sector) Project from ADB's ordinary capital resources, with interest to be determined in accordance with ADB's LIBOR-based lending facility; a term of 32 years, including a grace period of 8 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft Financing and Project Agreements presented to the Board.

Joseph B. Eichenberger  
Vice President

07 April 2005

## DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Indicators/Targets	Data Sources/Reporting Mechanisms	Assumptions and Risks
<p><b>Impact</b></p> <p>Accelerate restoration of economic and social infrastructure in tsunami affected areas that have high incidence of poverty and are vulnerable to natural disasters.</p>	<p>Poverty incidence and human development index (HDI) in affected communities recover at least to pre-tsunami level and start improving by March 2011</p> <p>Gross domestic product of affected districts and local government institutions (LGIs) return to pre-tsunami level and start growing at par with state average rate by March 2011</p> <p>Disaster management at state, district, and LGI improved with better community awareness and networking by March 2011</p>	<p>State and district statistics on incomes, and HDI</p> <p>Benefit monitoring and evaluation reports</p> <p>National and state disaster management database</p>	<p><b>Assumptions</b></p> <p>Project implementing agencies (IAs) are willing to support disaster management organizations (DMOs) to coordinate holistic activities.</p> <p>Various government and external agency assisted programs are effectively coordinated from holistic disaster management perspective.</p> <p>Project infrastructure is operated and maintained in a sustainable manner.</p> <p><b>Risks</b></p> <p>Damage from future natural disaster is not manageable or rehabilitated in a timely manner.</p>
<p><b>Outcome</b></p> <p>Mitigate the immediate tsunami-loss to the affected communities in terms of livelihoods, assets, capacity and productivity with improved disaster resilience.</p>	<p>Following results achieved in subproject areas by April 2008, with individual subproject targets fixed at proposal stage and monitored:</p> <ul style="list-style-type: none"> <li>• Income and HDIs of targeted self-help groups (SHGs) exceed pre-tsunami level by designated targets</li> <li>• Vehicles and vessels using roads and ports exceed pre-tsunami level</li> <li>• Water supply restored with standard (70 liters per day per capita in rural and 135 in urban areas) covering 521,000 people</li> <li>• Vector and water borne diseases contained at lower than pre-tsunami level</li> <li>• Damaged rural/municipal infrastructure fully restored with upgrades as needed</li> </ul>	<p>State statistics</p> <p>Project progress and completion reports</p> <p>Consultants' reports</p> <p>State, district, and Project websites</p> <p>India Resident Mission (INRM) review missions and regular reports of the Extended Mission offices in Chennai and Thiruvananthapuram</p>	

Design Summary	Performance Indicators/Targets	Data Sources/ Reporting Mechanisms	Assumptions and Risks
	Employment opportunities provided as targeted during subproject proposal stage		
<p><b>Outputs</b></p> <p><b>1. Livelihood</b></p> <p>1.1. Micro enterprise of existing SHGs restored and improved</p> <p>1.2. Micro enterprise of new SHGs initiated</p> <p>1.3. Damaged productive assets replaced</p> <p>1.4. Skills upgraded through training</p> <p>1.5. Risk mitigation through insurance</p> <p>1.6. Community-based infrastructure restored</p>	<p>About 8,000 existing and 4,000 new SHGs provided with service, and continue activities after the Project</p> <p>Skill levels of SHGs improved as demonstrated by increased income fixed at subproject proposal stage</p> <p>Insurance provided to 130,000 beneficiaries</p> <p>Specific number of structures fixed at inception restored</p>	<p>State statistics</p> <p>Data collected by IAs</p> <p>Project progress and completion reports</p> <p>Consultants' reports</p> <p>Field monitoring report</p> <p>Asian Development Bank (ADB) review missions</p>	<p><b>Assumptions</b> Participatory processes are duly followed by all.</p> <p>Monitoring and quality control ensure due and efficient service delivery.</p> <p>SHGs maintain their income generation and development activities.</p> <p><b>Risks</b> Coordination with other programs and donors is not effective.</p>
<p><b>2. Transport</b></p> <p><b>A. Roads and Bridges</b></p> <p>2.1. Reconstruction of state roads, culverts and drainage</p> <p>2.2. Reconstruction and/or placement of damaged bridges and those essential for disaster evacuation</p> <p><b>B. Ports and Fishing Harbors</b></p> <p>2.3. Rehabilitated infrastructure of ports and fishing harbors</p>	<p>All damaged facilities meet selection criteria, to be specified at proposal stage, rehabilitated and/or upgraded</p> <p>Damaged bridges restored and new bridges built for connectivity and evacuation, subject to selection criteria</p> <p>6 minor ports, and 14 fishing harbors and landing centers restored with dredging and restoration of breakwater and other facilities</p>	<p>State statistics</p> <p>Data collected by IAs</p> <p>Project progress and completion reports</p> <p>Consultants' reports</p> <p>Field monitoring report</p> <p>ADB review missions</p> <p>Bathymetric Surveys</p>	<p><b>Assumptions</b> Monitoring and quality control are effective.</p> <p>Adequate preparation and implementation.</p> <p>Coordination with other external agency programs is effective.</p> <p>IA provides sufficient regular maintenance budget and works.</p> <p><b>Risks</b> Timely procurement and execution of civil works by contractors with adequate performance.</p>

Design Summary	Performance Indicators/Targets	Data Sources/ Reporting Mechanisms	Assumptions and Risks
<p><b>3. Rural and Municipal Infrastructure</b></p> <p><b>A. Water Supply and Sanitation</b></p> <p>3.1. Restoration and/or upgrade of damaged and low-capacity water supply systems</p> <p>3.2. Upgrading of affected systems into combined systems with more reliable sources</p> <p>3.3. Rehabilitation of sanitary complex and solid waste management</p> <p>3.4. Sanitation and environmental awareness campaign</p>	<p>Existing single and multi-village/ municipal systems for 7 towns and 101 village <i>panchayats</i> restored/improved</p> <p>5 and 3 combined village/ municipal systems developed in Tamil Nadu and Kerala</p> <p>Full rehabilitation of damaged sanitary facilities with some expansion as necessary</p> <p>Above program delivered with sanitation campaign</p>	<p>State statistics</p> <p>Data collected by IAs</p> <p>Project progress and completion reports</p> <p>Consultants' reports</p> <p>Field monitoring report</p> <p>ADB review missions</p> <p>Bathymetric Surveys</p>	<p><b>Assumptions</b> Monitoring and quality control are effective.</p> <p>Adequate environment management and monitoring plan preparation and implementation.</p> <p>Coordination with other external agency programs is effective.</p> <p>The IAs provide sufficient and regular works, maintenance, and budget.</p> <p>Sufficient regular operation and maintenance (O&amp;M) is provided by the IA or concerned LGIs/ communities.</p> <p><b>Risks</b> Timely procurement and execution of civil works by contractors with adequate performance.</p>
<p><b>B. Other Rural and Municipal Infrastructure</b></p> <p>Restoration and/or upgrade of</p> <p>3.5. Internal and interconnecting village/ municipal roads and drainage</p> <p>3.6. Public buildings and facilities to support economic activities and quality of life values</p> <p>3.7. Electricity distribution and street lights</p>	<p>Achievement of targets to be specified for each LGI at proposal stage, totaling:</p> <p>Approximately 775 kilometers (km) and 70 km of roads rehabilitated/ upgraded in Tamil Nadu and Kerala</p> <p>Approximately 450 public buildings and facilities restored in Tamil Nadu</p> <p>Full restoration of damaged power lines and transformers</p>	<p>State statistics</p> <p>Data collected by IAs</p> <p>Project progress and completion reports</p> <p>Consultants' reports</p> <p>Field monitoring report</p> <p>ADB review missions</p> <p>Bathymetric Surveys</p>	<p><b>Assumptions</b> Monitoring and quality control are effective.</p> <p>Adequate preparation and implementation.</p> <p>Coordination with other external agency programs is effective.</p> <p>IA provides sufficient and regular works and maintenance and budget.</p> <p>Sufficient regular operation and maintenance is provided by the IA or concerned LGIs/ communities.</p> <p><b>Risks</b> Timely procurement and execution of civil works by contractors with adequate performance.</p>

Design Summary	Performance Indicators/Targets	Data Sources/ Reporting Mechanisms	Assumptions and Risks
<p><b>4. Capacity Building and Implementation Assistance</b></p> <p>Support for Executing Agencies (EAs) and IAs as to</p> <p>4.1. ADB procedures and arrangements</p> <p>4.2. Timely processing of subprojects and funds</p> <p>4.3. Disaster resilient design of infrastructure</p> <p>4.4. Monitoring and quality control</p> <p>4.5. Coordination among externally funded programs at state, district and field levels</p>	<p>EAs and IAs improve capacity with 3-5 core staff in each IA for subproject appraisal, implementation, safeguards, and beneficiary consultation</p> <p>Disaster resilient design guideline followed by the IAs</p> <p>Regular coordination among external agency programs operational</p> <p>State policy and bill for disaster management finalized</p>	<p>Project progress and completion reports</p> <p>Consultants' reports</p> <p>Regular reports by state DMO, and district disaster management committees</p> <p>State, district, and project websites</p> <p>ADB review missions</p>	<p><b>Assumptions</b></p> <p>Assignment of project staff and recruitment of consultants are timely.</p> <p>Consultants effectively assist EAs and IAs.</p> <p>ADB and extended mission monitoring and support for the performance of EAs, IAs, and consultants are effective.</p> <p>Coordination among external agency programs for disaster management is well maintained.</p> <p><b>Risks</b></p> <p>Political and institutional support is sufficient.</p>
<p><b>Inputs</b></p> <p><b>Activities with Milestones</b></p> <p><b>1. By Government</b></p> <p>1.1. Operate project institutions and implement the Project by April 2008</p> <p>1.2. Strengthen project institutions with experts by April 2008</p>			<p><b>Assumption</b></p> <p>Provision of staff, operating, and other implementation expenses (Mobilization of counterpart fund)</p> <p style="text-align: right;"><b>\$18.59 million</b></p>
<p><b>2. By Consultants and Implementation Support</b></p> <p>Implementation support, as of May 2005 until April 2008 in order to assist in</p> <p>2.1. Training on ADB procedures including safeguards</p> <p>2.2. Damage assessment and benefit monitoring and evaluation</p> <p>2.3. Subproject appraisal</p> <p>2.4. Disaster resilient design</p> <p>2.5. Procurement</p> <p>2.6. Quality control with project performance monitoring system</p>			<p>645 person-months of domestic consulting.</p> <p style="text-align: right;"><b>\$5.16 million</b></p>



## SUMMARY OF JOINT ASSESSMENT MISSION REPORT

1. At the request of the Government of India, the Asian Development Bank (ADB), United Nations, and World Bank put together a joint assessment mission (JAM) to assess the socioeconomic and environmental impacts of the 26 December 2004 tsunami in the states of Andhra Pradesh, Kerala, and Tamil Nadu and the Union Territory of Pondicherry. As advised by the Government, the JAM did not include assessment of the impact and losses sustained in the Union Territory of Andaman and Nicobar Islands.

2. A group of experts and specialists from different sectors and disciplines analyzed the damage and losses as well as the needs expressed by the relevant state authorities and Union Territory administration, made field visits to the most affected districts, and undertook—on a sample basis—consultations with local experts, members of civil society, and nongovernment organizations (NGOs). The damage and losses presented (Table A2.1) reflect the available information compiled during the JAM (1–15 February 2005). This is not a final assessment since a number of surveys and specialist sector analyses are ongoing.

**Table A2.1: Summary of Damages and Losses**  
(\$ million)

Item	Damage and losses			Effects on Livelihoods
	Damage	Losses	Total	
Andhra Pradesh	31.82	16.68	48.50	35.58
Kerala	68.17	57.62	125.79	82.55
Tamil Nadu	510.62	327.70	838.32	332.80
Pondicherry	48.18	8.20	56.38	30.44
<b>Total (by sector)</b>	<b>658.79</b>	<b>410.20</b>	<b>1,068.99</b>	<b>481.37</b>
Housing	193.49	35.19	228.68	
Health and Education	13.68	9.98	23.66	
Agriculture and Livestock	15.13	22.39	37.52	42.05
Fisheries	320.06	304.24	624.30	383.16
Microenterprises and Other	19.72	36.45	56.17	56.16
Rural and Municipal Infrastructure	27.99	1.63	29.62	
Transportation	35.15	0.32	35.47	
Coastal Protection	33.56	0.00	33.56	
Relief <sup>a</sup>		200.69	200.69	

<sup>a</sup> Relief provided by the local, state, and national governments.

Sources: Mission estimates on the basis of information made available by the governments and direct observation.

3. Overall damage is estimated to be approximately \$660 million and losses are estimated to be approximately \$410 million. While the largest proportion of the damage is concentrated in fisheries, housing and infrastructure, material private asset damages related to coastal fisheries, agriculture, and microenterprises have been incorporated into the respective sectors. Losses related to livelihoods in these sectors are of particular significance because they accentuate the existing vulnerability to poverty of the coastal fisheries communities, agriculture, and microenterprises.

4. These quantifications of damage and losses neither supersede nor disregard assessments of damage and needs made locally. They present a consolidated view, on the basis of relevant information received and the expertise of the multi-institutional and interdisciplinary JAM team. These lead to certain observations on damages and losses suffered:

- (i) The disaster is having a significant impact on the states' livelihoods (about 38% of the total damage and losses imposes negative consequences on livelihoods) in the coastal environment and the local economy. In particular, this report provides a measure of the economic impact of the tsunami on the fisheries sector and related livelihood in coastal communities of the affected states and Union Territory of Pondicherry. The report attempts to highlight some social issues relevant for the reconstruction process, in the context of the states' and national development strategies.
- (ii) At this juncture, the affected areas have already moved from relief to reconstruction—although for some sectors and groups of affected people relief will still continue for several months. During this transition, the protection of the most vulnerable segments of the displaced population and the improvement of their living conditions in temporary shelters over the coming months deserves special attention.
- (iii) The JAM recommends that national and state authorities pursue a risk mitigating reconstruction process in the face of damage resulting from specific recurrent hazards that the tsunami has just put in clearer perspective: Disaster is a wake up call to face vulnerability and better manage risk.
- (iv) The need for such a risk-mitigating reconstruction process reduces vulnerability in the medium term; increases resilience to specific local multihazards; and inserts itself in the larger district, state, and national development strategies: Disaster is an opportunity to upscale and accelerate the development process.
- (v) Given the damage to housing and infrastructure, the provision of permanent solutions to housing and restoration of infrastructure are an immediate priority and require commitment of resources that may not be delayed. Investment in these and location of the new infrastructure (in terms of relocation of housing, restoration, or construction of urban and rural infrastructure and resilience-increasing measures such as locally adapted and environmentally sound coastal protection) are tied to overarching policy decisions in terms of appropriate coastal regulation and risk management, some of which have significant costs and social and financial implications in the districts and states affected.
- (vi) The impact of the disaster varies from state to state both in absolute terms and in terms of the relative weight it has on each of the local economies.

5. The needs (Table A2.2) reflect the short-term (within 1 year) and medium-term (up to 3 years) requirements. This table does not include longer term reconstruction needs which are significant in areas such as housing, rural and municipal infrastructure, transportation, and coastal protection. Assessment of long-term needs can only be reliably undertaken after further detailed studies.

**Table A2.2: Post-Tsunami Reconstruction Needs**  
(\$ million)

Item	Reconstruction Needs		
	Short-Term Reconstruction	Medium-Term Reconstruction	Total
Andhra Pradesh	26.20	46.19	72.39
Kerala	83.45	69.67	153.12
Tamil Nadu	247.65	619.49	867.14
Pondicherry	42.06	77.97	120.03
<b>Total (by sector)</b>	<b>399.37</b>	<b>813.31</b>	<b>1,212.68</b>
Housing	160.00	328.81	488.81
Health and education	13.92	2.71	16.63
Agriculture and livestock	8.36	13.23	21.59
Fisheries	54.07	231.48	285.54
Microenterprises and others <sup>a</sup>	69.95	108.68	178.63
Rural and municipal infrastructure	23.49	73.99	97.48
Transportation	41.47	27.65	69.12
Coastal protection	19.54	18.62	38.16
Hazard and risk management	8.57	8.15	16.72

<sup>a</sup> Wage laborers having seasonal employment or engaged in intermittent subsistence activities during lean periods.  
Sources: JAM estimates on the basis of states' statements and memoranda.

6. Overall rehabilitation and reconstruction needs are estimated at \$1.2 billion, over the short- to medium-term. The estimates take into account that damaged assets need to be replaced with new ones, not only of equal value, but with upgrades to services and infrastructure in order to reduce the previous inherent vulnerability.

7. The tsunami has highlighted underlying vulnerabilities to recurrent hazards and the major negative social consequences of such disasters on the livelihood of groups of the population already in the lower levels of the development process. Its consequences for the livelihood of the worst affected productive sectors (fisheries and, to a lesser extent, agriculture) spill over to the livelihood of the rest of the community, beyond the actually physically affected areas.

8. The systemic analysis undertaken highlights the cross-cutting nature of the disaster's impact, and thus the multisectoral, interinstitutional, and multidisciplinary approach needed for the reconstruction process. The disaster points out the need to undertake cross-cutting interventions, with a participatory, equitable, flexible, decentralized, and transparent approach beyond livelihood restoration. Better management of the coastal environment and reinforced risk reduction should be seen as part of the overall social and economic strategy, resulting in adoption of realistic, attainable goals in the short- and medium-term.

9. Beyond the immediate response from the national and state governments—in terms of the allocation of calamity resources and providing the affected population with material and monetary relief—the reduction of hazard risk involves the participation of the affected population and civil society. Effective hazard risk management in the future should be less dependent on relief and assistance, which draws valuable resources from other development goals. Instead, the community participation needs to be promoted in risk transfer insurance, and community risk management and disaster prevention, while giving assistance to those affected.

## MACROECONOMIC IMPACT

### A. Macroeconomic Impact

1. The tsunami, one of the worst humanitarian tragedies in the coastal history of southern India, has had only a localized economic impact. It has had little impact on the gross domestic product of India or the affected states, as economic activities along the coastline contribute little to their income. Foreign exchange receipts may be marginally impacted to the extent that shrimp exports are affected along with coastal tourism.

### B. Fiscal Impact

2. However, the impact of the tsunami on states' finances will be much more noticeable. The impact will primarily be transmitted through the expenditure side—both due to higher relief expenditure in fiscal year (FY) 2004/05 as well as rehabilitation and reconstruction expenditure over the short- and medium-term. States' revenues are not impacted because the affected economic activities along the coastline were largely in the informal and unorganized sectors. To analyze the impact of this additional expenditure on the finances of Tamil Nadu and Kerala, the states' existing medium-term fiscal plans are used as the baseline scenario. In contrast, an alternative scenario is presented that reflects the likely impact on the short- and medium-term reconstruction activities to be spread over 3 years beginning in FY2005/06. The effect of the tsunami can be estimated as the difference between the fiscal deficit to gross state domestic product (GSDP) ratio under these two scenarios. The fiscal costs can be divided into two categories: (i) direct impact due to additional tsunami-related expenditures; and (ii) indirect impact due to higher interest burden resulting from increases in debt stock caused by tsunami-related expenditures. Thus, the spiral effect of debt-deficit dynamics through higher interest burden will spill over beyond the period in which the actual expenditures are incurred.

3. **Expenditure.** Average total expenditure as a percentage of GSDP will rise by 0.7% in Tamil Nadu during FY2005/06 to FY2007/08 in the alternative scenario. This rise is more than the tsunami-related additional expenditure because of the debt-deficit dynamics explained in para. 2. Similarly in Kerala, the expenditure to GSDP ratio will rise by 0.2% on average during the same period.

4. **Fiscal Deficit.** In the case of Tamil Nadu, the rehabilitation and reconstruction costs will lead to a widening of the deficit during FY2005/06 to FY2007/08 by more than the tsunami-related expenditure. Thus, total fiscal cost, both direct and indirect, is estimated to be 0.8%, 0.6%, and 0.7% of GSDP in FY2005/06, 2006/07, and 2007/08 (Table A3.1). Although the full cost of rehabilitation is assumed to be fully met by FY2007/08 under the alternative scenario, the ratio of fiscal deficit to GSDP continues to be higher than the baseline scenario beyond FY2007/08 reflecting the debt dynamics. Total fiscal cost is estimated to be 0.2% of GSDP on an annual basis during the same period in Kerala (Table A3.2).

5. **Debt Stock.** The fiscal cost of the tsunami will lead to higher debt stock in Tamil Nadu and Kerala in the period of analysis. Thus, the debt to GSDP ratio in Tamil Nadu reaches 33.1% by FY2007/08 as against 31% in the baseline. Similarly, in Kerala, the debt to GSDP ratio at 40.1% in FY2007/08 exceeds the corresponding ratio in the baseline scenario by one half percentage point of GSDP.

**Table A3.1: Fiscal Cost of the Tsunami for Tamil Nadu**  
(% of gross state domestic product)

Base Line (Status Quo)	FY2003/04	FY2004/05	FY2005/06	FY2006/07	FY2007/08
		Budget Estimate	Projections	Projections	Projections
A. Revenues	13.6	13.7	13.7	13.7	13.7
B.1. Current Expenditure	15.7	15.4	15.2	14.5	14.1
B.2. Interest	2.8	2.9	3.0	3.0	3.0
C. Capital Outlay	1.4	1.9	1.7	1.8	2.0
D. Total Expenditure (B+C)	17.1	17.3	16.8	16.3	16.1
E. Net Lending	0.1	0.1	0.1	0.2	0.1
F. Fiscal Deficit (D+E-A)	3.7	3.8	3.3	2.8	2.5
G. Debt Stock	28.5	30.1	31.0	31.2	31.0
<b>Alternative Scenario</b>					
H. Revenues	13.6	13.7	13.7	13.7	13.7
I.1. Current Expenditure	15.7	15.4	15.2	14.6	14.3
I.2. Interest	2.8	2.9	3.0	3.1	3.2
J. Capital Outlay	1.4	1.9	1.7	1.8	2.0
K. Tsunami-Related Expenditure		0.2	0.8	0.5	0.5
L. Total Expenditure (I+J+K)	17.1	17.5	17.7	16.9	16.8
M. Net Lending	0.1	0.1	0.1	0.2	0.1
N. Fiscal Deficit (L+M-H)	3.7	4.0	4.1	3.4	3.2
O. Debt Stock	28.5	30.3	32.1	32.8	33.1
<b>Impact of Tsunami</b>					
Fiscal Deficit (N-F)		0.2	0.8	0.6	0.7
Debt Stock (O-G)		0.2	1.0	1.6	2.1

Notes: Total short- and medium-term reconstruction expenditure (\$867 million) is spread over 3 years from FY2005/06 to FY2007/08 in the ratio of 40:30:30. Total rehabilitation and reconstruction expenditure figure is taken from the Joint Assessment Mission (JAM) Report.

Source: Government of Tamil Nadu Medium-Term Fiscal Plan (2004/2005) and staff estimates.

**Table A3.2: Fiscal Cost of the Tsunami for Kerala**  
(% of gross state domestic product)

Base Line (Status Quo)	FY2003/04	FY2004/05	FY2005/06	FY2006/07	FY2007/08
		Revised Estimate	Projections	Projections	Projections
A. Revenues	13.1	14.3	14.8	15.5	16.1
B.1. Current Expenditure	17.2	18.8	18.4	18.0	17.2
B.2. Interest	3.7	3.6	3.5	3.4	3.3
C. Capital Outlay	0.7	0.6	1.0	1.0	1.0
D. Total Expenditure (B+C)	17.9	19.4	19.4	19.0	18.2
E. Net Lending	1.4	0.1	0.0	0.2	0.2
F. Fiscal Deficit (D+E-A)	6.1	5.3	4.6	3.8	2.4
G. Debt Stock	41.5	42.6	42.6	41.9	39.6
<b>Alternative Scenario</b>					
H. Revenues	13.1	14.3	14.8	15.5	16.1
I.1. Current Expenditure	17.2	18.8	18.4	18.0	17.3
I.2. Interest	3.7	3.6	3.5	3.5	3.3
J. Capital Outlay	0.7	0.6	1.0	1.0	1.0
K. Tsunami-Related Expenditure			0.2	0.2	0.1
L. Total Expenditure (I+J+K)	17.9	19.4	19.6	19.2	18.4
M. Net Lending	1.4	0.1	0.0	0.2	0.2
N. Fiscal Deficit (L+M-H)	6.1	5.3	4.8	4.0	2.5
O. Debt Stock	41.5	42.6	42.9	42.2	40.1
<b>Impact of Tsunami</b>					
Fiscal Deficit (N-F)			0.2	0.2	0.2
Debt Stock (O-G)			0.2	0.4	0.5

Notes: Total short- and medium-term reconstruction expenditure (\$153 million) is spread over 3 years from FY2005/06 to FY2007/08 in the ratio of 40:30:30. Unlike Tamil Nadu, total relief expenditure in Kerala in FY2004/05 is almost fully met by central assistance. Total rehabilitation and reconstruction expenditure figure is taken from the Joint Assessment Mission (JAM) Report.

Source: Government of Kerala Medium-Term Fiscal Plan (2004/05) and staff estimates.

## LIVELIHOODS

### A. Damage

1. The extent of damage to livelihoods<sup>1</sup> either directly or indirectly<sup>2</sup> extends much beyond damage to physical infrastructure. Loss of lives; injuries; destruction of houses and productive assets; and damage to social, physical, and transport infrastructure compounded damage to livelihoods. The tsunami hit the livelihoods of those who were already poor<sup>3</sup> the hardest and accentuated their deep-seated vulnerability due to the socioeconomic structure of the affected areas, land-holding patterns, ownership of economic assets, and lack of skills to benefit from economic opportunities. Seasonal income patterns; climatic variations; and low coverage and quality of water, sanitation, health, and education worsened the adverse impact.

2. The damage suffered by fisherfolks affected a broad range of microenterprises<sup>4</sup> due to marked interdependency in coastal economies (Table A4.1). The vulnerability of microenterprises to disruptions in sources of supplies and markets led to loss of employment, especially for women. Microenterprises cater to local markets and the lower income segments of the population both for inputs and outputs. The damage to agriculture and livestock, though not significant, has also affected the livelihoods of vulnerable coastal communities, including scheduled castes, scheduled tribes, and women. In addition, salinity of land and groundwater will have long-term impacts on productivity and profitability of microenterprises especially those relating to agriculture and horticulture. Landless and other casual laborers engaged in seasonal employment and other intermittent activities for subsistence have suffered loss of employment opportunities and consequently wages.

**Table A4.1: Estimated Breakup of Affected Livelihoods, Damages, and Wage Losses**

Item	Livelihoods	Kerala			Tamil Nadu			Total
		Number	(\$ million)	%	Number	(\$ million)	%	
<b>I. Affected Livelihoods</b>	Fisherfolk	42,723		50	120,000		34	162,723
	Microenterprises	15,000		18	90,000		22	105,000
	Agriculture and Livestock	6,500		8	29,000		7	35,500
	Others <sup>5</sup>	20,777		24	161,000		37	181,777
	<b>Total</b>	<b>85,000</b>			<b>400,000</b>			<b>485,000</b>
<b>II. Damage (assets)</b>	Fisherfolk		18.60	64	259.07		85	277.67
	Microenterprises		2.09	7	12.56		4	14.65
	Agriculture and Livestock		3.40	12	9.30		4	12.70
	<b>Total</b>		<b>24.09</b>		<b>280.93</b>			<b>305.02</b>
<b>III. Wage Loss (per month)</b>	Fisherfolk		3.46	12	8.15		3.6	11.61
	Microenterprises		0.48	2	2.86		1	3.34
	Agriculture and Livestock		0.21	1	0.92		0.4	1.13
	Others		0.66	2	5.11		2	5.77
<b>Total</b>		<b>4.81</b>		<b>17.04</b>			<b>21.85</b>	

Source: Joint Assessment Mission (JAM) Report.

<sup>1</sup> Reference is to activities undertaken by poor and low-income households including fisheries, agriculture, livestock, microenterprises, and wage employment. Large enterprises and tourism sectors are excluded.

<sup>2</sup> For every person who goes out to the sea, approximately up to four people are estimated to be employed in allied land-based activities. International Fund for Agricultural Development. 2003. *India: Rural Poverty among Coastal Fisheries: Profile and Possible Interventions, Report No. 1447*, October, p.39.

<sup>3</sup> While poverty incidence in Tamil Nadu and Kerala, at 21% and 13% respectively, are below the national average of 26%, poverty among the coastal communities varies.

<sup>4</sup> Group or individual enterprises requiring investments in the range of Rs5,000 to Rs250,000. Microenterprise encompasses all small income-generating activities. The JAM report segregated fisherfolks, agriculture, and livestock to facilitate separate sector discussions.

<sup>5</sup> Wage laborers having seasonal employment or engaged in intermittent subsistence activities during lean periods.

## B. Livelihood Restoration Strategy and Initiatives

3. Livelihoods are in the private domain with a broad range of activities<sup>6</sup> including fishing spread over a large number of poor and low-income households. Considering the lessons learned in emergency rehabilitation interventions, the strategy for restoration of livelihoods<sup>7</sup> include (i) priority for the poor and low-income families because of their inability to regain their livelihoods without targeted interventions; (ii) empowering the poor by enabling them to reflect their priorities through group-based mechanisms, primarily self-help groups (SHGs), which are well represented in the affected areas; (iii) building and strengthening SHGs for sustained impact, cost-effective service delivery, and adequate gender representation; and (iv) special interventions for vulnerable groups that cannot immediately engage in economic activities.

4. Pooling of development efforts of the government, private sector, and nongovernment organizations (NGOs) will be required to restore and develop livelihoods. In addition, the active participation of affected people (including scheduled castes and scheduled tribes) to ensure effective utilization of funds, timely delivery, effective targeting, and transparency are essential. Expedient service delivery, outreach, and continuity will be essential for convergence with ongoing initiatives with established implementation mechanisms. Both Tamil Nadu, with the most damage, and Kerala<sup>8</sup> are promoting social and economic empowerment of the poor and low-income households through organization of SHGs and supporting them through revolving funds, part financing of group or individual economic enterprises, linkages to institutional credit, skills development, and insurance.<sup>9</sup> While Tamil Nadu and Kerala are in the forefront of the SHG movement in India, the coverage of coastal communities and microenterprises development through SHGs remains limited.<sup>10</sup>

## C. Scope and Components

5. The magnitude of the poverty impact of damaged livelihoods requires a substantial response to restore income flows, reduce dependence on relief, and revive local economies. Accordingly, in consultation with state governments this component<sup>11</sup> includes (i) restoring livelihoods of the affected poor and low-income households already organized into SHGs and other similar groups recognized by state governments as affected by the tsunami through microenterprise training and establishment support; (ii) formation of new SHGs, for both men and women, from affected households not yet organized in community-based groups for restoring livelihoods through microenterprise training and establishment support; (iii) replacement of productive assets (i.e., excluding housing) of tsunami-affected households; (iv) skills upgrading;<sup>12</sup> (v) risk mitigation through insurance of all affected households that receive assistance under this component, through available life and property insurance schemes; (vi)

<sup>6</sup> State governments identified 23 microenterprises other than fisherfolk affected by tsunami.

<sup>7</sup> Restoring livelihoods covers support for economic enterprises, upgrading skills and technology, and community-based microinfrastructure to enable the poor to actively engage in economic activities.

<sup>8</sup> Mahalir Thittam (Tamil Nadu) with 80,000 and Kudumbashree (Kerala) with 150,000 SHGs are flagship programs.

<sup>9</sup> Implementation of this framework is financed under the Swarnajayanti Grama Swarozgar Yojana (SGSY) in the ratio of 75:25 by the state governments and Government of India. In addition to back-ended subsidies, linkages are established with financing institutions. Generally, the rural development departments implement SGSY. So far 24,000 SHGs in Tamil Nadu and 15,000 SHGs in Kerala are under various stages of support under SGSY.

<sup>10</sup> Only 7,500 SHGs in Tamil Nadu and approximately 1,500 in Kerala are in coastal communities.

<sup>11</sup> The scope excludes fisheries and agriculture sectors, including associated asset replacement expected to be funded from other sources. However, livelihood restoration relating to these segments (SHG formation, skills development, and microenterprise development support) are part of the scope in view of the inextricable linkages in local economies and the need for coordinated implementation for cost-efficient service delivery.

<sup>12</sup> Skills development intervention is kept generic to ensure participation of SHGs, and other affected community groups and individuals. The scope includes fisheries and allied activities of poor and low income households.

restoring community-based infrastructure affected by the tsunami; and (vii) technical support for implementation, monitoring, and impact assessment of this component.

#### **D. Cost Estimates and Financing Plan**

6. The total cost of this component is \$60.16 million equivalent. Of the total cost, \$51.15 million equivalent is for Tamil Nadu and \$9.02 million equivalent is for Kerala. The Asian Development Bank (ADB) will finance the entire foreign exchange cost of \$0.19 million equivalent and \$58.84 million equivalent of local currency cost or about 98% of the total cost. The Government will finance the remaining local currency cost of \$1.32 million equivalent, which includes taxes and duties. Cost estimates and the financing plan are in Appendix 9.

#### **E. Implementation Arrangements**

##### **1. Project Management**

7. The Revenue Administration, Disaster Management and Mitigation Department (RADMMMD) in Tamil Nadu and the Department of Disaster Management (DDM) in Kerala will be the executing agencies (EAs). The EAs will establish project management units (PMUs) with representation of line agencies. The PMUs will work closely with the ADB extended missions to facilitate implementation and exercise monitoring and control.

8. Within this framework, the Rural Development Department in Tamil Nadu and Kerala Fisheries Department<sup>13</sup> will be implementing agencies (IAs). For state coordination, both IAs will be represented in the PMUs. Project implementation units (PIUs) will be established within the Rural Development Department and Kerala Fisheries Department. Project implementation will be undertaken by field functionaries with emphasis on participation of local bodies, communities, and NGOs similar to the Swarnajayanthi Grama Swarozgar Yojana framework with adaptations required for expediting outreach without compromising core principles. Key activities will be outsourced to specialized agencies such as Kudumbashree in Kerala, Tamil Nadu Corporation for Women Development Limited, Enterprise Development Institute in Ahmedabad, and other accredited training establishments and NGO service providers. Successful SHGs will be encouraged as service providers to mainstream good governance in community-based development interventions.

##### **2. Implementation Schedule**

9. The Project will be implemented over 3 years, commencing in the second quarter of 2005. The concerned state governments will establish the PMUs and PIUs. The following start-up activities will be completed within the first 3 months (i) service provider eligibility criteria and (ii) processing of retroactive financing, if any.

##### **3. Procurement**

10. Procurement, wherever required will be in accordance with *ADB Guidelines for Procurement*.

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<sup>13</sup>The Government of Kerala prefers livelihood restoration to be implemented by the Fisheries Department to realize the unexplored synergies between fisheries and other livelihood sources. Implementation in close coordination with Kudumbashree (responsible for SGSY implementation) will ensure realization of the project objective.

#### 4. Consulting Services

11. Domestic consultants (community microenterprise development specialists) will be required in Kerala and in Tamil Nadu to provide technical support to equip the line departments to restore livelihoods in the aftermath of the disaster, mainstream best practices in community-based microenterprise development, emphasize outreach to women and other vulnerable groups, pool the development efforts of stakeholders, monitor progress, and measure impact.

#### 5. Monitoring

12. The PIUs will maintain a project performance monitoring system that will generate semiannual and annual reports. The information system will include (i) the number of SHGs formed and assisted, including membership by poverty classification, vulnerability, and gender; (ii) capacity and skills training imparted; (iii) the number of enterprises supported and their financial and efficiency ratios; (iv) repayment performance; (v) asset replacement and risk mitigation; and (vi) quantitative and qualitative progress of community-based microinfrastructure projects.<sup>14</sup> Specific monitoring indicators will be applied to monitor whether the affected scheduled castes and scheduled tribe community members receive the above assistance. The IAs will periodically commission independent impact assessment to measure poverty outreach and poverty reduction through changes in income, asset holding, and employment status. The IAs will maintain proper records and identification of SHGs and individual beneficiaries receiving assistance including cash assistance under the Project. Likewise proper accounts and reports will be maintained by the IAs and provided periodically to the EAs.

#### F. Benefits and Risks

13. The Project represents a focused approach to restoring livelihoods of affected households through extension of ongoing interventions with appropriate adaptations for income expansion, employment generation, and poverty reduction. The Project is expected to support 12,000 SHGs with nearly 130,000 members including their capacity building and skills development. At least 50% of those assisted will be women and at least 3% will be from among the disabled. About 130,000<sup>15</sup> livelihoods will either be restored or started. In total, 350,000 livelihoods are likely to receive asset replacement and risk reduction support. Simultaneous interventions especially for infrastructure restoration through National Calamity Contingency Fund, state governments, private sector, and multilateral and bilateral agencies will facilitate forward and backward linkages, which will help enhance the rate of return on investments in microenterprises.

14. Major risks relate to ambitious targets inducing compromise on core principles of sustainability and community participation. This has been mitigated by setting goals that can be realistically achieved within the context of a limited duration Project.<sup>16</sup> In addition, due caution will be taken in selecting and promoting enterprises. The covariance risk of establishing a large number of similar microenterprises in limited geographic areas has been reduced through a demand-driven approach where communities realistically assess their skill and abilities. A community-based approach will enhance effective targeting.

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<sup>14</sup> Operation and maintenance costs will be borne by local bodies.

<sup>15</sup> Assuming group-based economic enterprises.

<sup>16</sup> The size of this component factors implementation capacity and the time required to achieve expected outputs.

## ROADS AND BRIDGES

### A. Introduction

1. Tamil Nadu has a well-developed transport system comprising land, sea, and air transport modes. Road transport accounts for about 80% of freight and passenger trips and catalyses interstate and intrastate trade. The total road length in Tamil Nadu is 151,137 kilometers (km) comprising 60,628 km of primary road network managed by the Highways Department, and the remaining 90,509 km of *Panchayat*/Union/Municipal/Forest/other roads managed by local bodies and other agencies. The primary road network in the state includes 3,865 km of national highways, 7,136 km of state highways, 7,408 km of major district roads, and 42,219 km of other district roads.

2. Kerala—one of the smaller states in terms of area—is ranked fourth in the country in infrastructure penetration, a parameter based on transport, communication, and energy-related variables. The transport system of Kerala comprises a hierarchy of roads, railways, domestic and international airlines, inland waterways, and coastal and international shipping. The total road length is 138,196 km comprising 22,991 km of primary road network managed by the Public Works Department and the remaining 115,204 km of *Panchayat*/Municipal/Forest/Irrigation/other roads managed by local bodies and other agencies. The primary road network includes 1,523 km of national highways, 3,785 km of state highways, 11,711 km of major district roads, 5,315 km of other district roads, and 655 km of other roads.

### B. Damage and Impact of the Tsunami

3. In Tamil Nadu, the impact of tsunami on roads and bridges extended to 12 affected coastal districts, with particular severity in Cuddalore, Kanyakumari, and Nagapattinam,. While some lengths of a national highway (NH45A) suffered minor damage, the state road network in the coastal districts was affected the most.

4. In Kerala, the impact of the tsunami on roads and bridges extended mainly to three coastal districts, Alappuzha, Ernakulam, and Kollam, out of the districts affected by the tsunami. While no national highways or state highways were damaged, major district roads and other district roads, including structures were damaged in the coastal belt between the seacoast and the backwaters (Travancore-Shornur Canal). In the districts of Alappuzha, Ernakulam, and Kollam, the narrow major district roads running along the sea at an average distance of approximately 50 meters from the seacoast suffered severe damage, including to minor bridges and culverts.

5. The tsunami left some bridges totally damaged; roads severely breached; berms, shoulders and protection works eroded; and the road structure exposed. Pavements were washed away and cross-drainage structures damaged. The impact of the tsunami waves was so severe that some bridge structures were damaged due to boats hitting the substructures and decks. Many lives were lost due to lack of bridges connecting the mainland across the backwaters/rivers. The Joint Assessment Mission's report estimated reconstruction needs for road and bridges at \$15 million in Tamil Nadu and \$10.5 million in Kerala.

### C. Government Response to the Tsunami

6. The Highways Department of Tamil Nadu and Public Works Department of Kerala immediately mobilized their resources and reestablished connectivity by carrying out temporary

rehabilitation works on road links critical for relief operations. The Highways Department, Tamil Nadu has incurred expenditures of about \$1.5 million on temporary restoration works. In Kerala, the expenditure incurred by Public Works Department is being consolidated.

#### **D. Scope**

7. This component comprises (i) rehabilitation and reconstruction<sup>1</sup> of tsunami-damaged state highways, major district roads, and other district roads within Cuddalore, Kanyakumari, Nagapattinam, and other tsunami-affected districts in Tamil Nadu; and Alappuzha, Ernakulam, and Kollam districts in Kerala; and (ii) where technically feasible and justified, the design of disaster prevention work to provide missing bridges on roads constituting potential evacuation routes.

#### **E. Subproject Selection Criteria**

8. Subprojects will meet the general criteria for the Project as outlined in Appendix 11. In addition, the subproject under the roads and bridges subcomponent will also meet the following criteria, as applicable: (i) a tsunami-damaged road at a distance not more than 5 km from the tsunami-affected coast line; (ii) a tsunami-damaged road not more than 5 km along the river or backwater from the coast; (iii) missing bridges on roads or unbridged crossings constituting potential evacuation routes that will considerably reduce the time required for evacuation or provide rescue and relief in case of from future tsunami, storms, and cyclones; and (iv) construction activities on the subproject will commence only after complying with all the statutory environmental requirements including those related to the coastal regulations zone, as applicable, and taking account of road safety requirements which can be duly audited.

#### **F. Cost Estimates**

9. The total cost of this component is \$26.54 million equivalent. Of the total cost, \$9.74 million equivalent is for Tamil Nadu and \$16.80 million equivalent is for Kerala. The Asian Development Bank (ADB) will finance the entire foreign exchange cost of \$16.12 million equivalent and \$8.69 million equivalent of local currency cost or about 94% of the total cost. The Government will finance the remaining local currency cost of \$1.74 million equivalent, which includes taxes and duties. Cost estimates and the financing plan are in Appendix 9.

#### **G. Implementation Arrangements**

##### **1. Project Management**

10. The Revenue Administration, Disaster Management and Mitigation Department (RADMMMD) in Tamil Nadu and the Department of Disaster Management (DDM) in Kerala will be the executing agencies (EAs). The EAs will establish project management units (PMUs) with representation of line agencies. The PMUs will work closely with the ADB extended missions to facilitate implementation and exercise monitoring and control.

11. Within this framework, the Highways Department in Tamil Nadu and Public Works Department in Kerala will be the implementing agencies (IAs). For state coordination, both the

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<sup>1</sup> This part of the Project will cover all repair and rehabilitation/reconstruction of damaged/washed-out roads and bridges to pre-tsunami level or to standards prescribed in the codes of practice/guidelines issued by the Indian Roads Congress.

IAs will be represented in the PMUs. Project implementation units (PIUs) will be established within the IAs. Field functionaries of the respective IAs will undertake project implementation. The PIUs will be responsible for selecting and preparing the subprojects, and will carry out the due diligence to ensure compliance with the subproject selection criteria indicated in Appendix 11 and ADB's social, environmental, and resettlement safeguard policies (Appendixes 13, 14, 15, and 16).

## **2. Implementation Schedule**

12. The works under this component will be completed by 30 April 2008. Within the overall project duration of 36 months, the duration of construction for any subproject will not exceed 24 months. The overall implementation schedule is given in Appendix 12.

## **3. Procurement**

13. Civil works contracts and procurement of goods and services will follow local competitive bidding procedures in accordance with ADB *Guidelines for Procurement*.

## **4. Consulting Services**

14. Consulting services will be provided to: (i) carry out all field investigations and surveys; (ii) assess the damage and reconstruction and rehabilitation requirements; (iii) carry out design and project preparation; (iv) prepare cost estimates and provide procurement support, including preparation of tender documents, evaluation, and award of bids; (v) collect, collate, and present the data required for assessment against subproject selection criteria, and social, environmental, and resettlement safeguard policies of ADB; and prepare the relevant checklists/frameworks; (vi) assist the PMUs and PIUs in obtaining necessary clearances from ADB; (vii) supervise construction and ensure quality control; and (viii) report progress and coordinate between the IAs and PMUs.

## PORTS AND HARBORS

### A. Introduction

1. Of the more than 160 ports in India, 12 major ports handle about three fourths of the total traffic of 330 million tons. Major ports of Chennai, Ennore, Tuticorin in Tamil Nadu, and Cochin in Kerala handle 21% of the total throughput of all major ports. Major ports are managed by port trusts under the regulation of the Tariff Authority for Major Ports. Minor ports handle the remaining one fourth of total traffic, and are under state government control. Tamil Nadu has 15 minor ports handling 800,000 tons of cargo and Kerala has 17 minor ports handling 400,000 tons.

2. Apart from four main fishing harbors—Chennai (Tamil Nadu), Kochi (Kerala), Roychowk in Calcutta (West Bengal), and Vishakhapatnam (Andhra Pradesh)—other fishing harbors (hereafter referred to as harbors) and fish-landing centers are designated in each state to provide landing and berthing facilities to fishing crafts in the nation. Tamil Nadu has 7 harbors and 17 landing centers and jetties, and Kerala has 13 harbors and 25 landing centers. Of the national total of fish landings, Tamil Nadu accounts for about 15% and Kerala for 26%.

### B. Damage and Impact of the Tsunami

3. Damage to major ports by the tsunami was relatively minor due to their geographic locations and breakwaters. However, the two minor ports in Tamil Nadu and the four minor ports in Kerala have been damaged. Six harbors in Tamil Nadu and eight harbors in Kerala as well as landing centers in the states were also affected. More than 8,000 m length of harbor/seawalls and breakwaters are reported to have been damaged or destroyed. About 1,600,000 cubic meters (m<sup>3</sup>) of dredging will be required to remove tsunami-inflicted siltation from harbor basins and approach channels in 20 ports, harbors, and landing centers. Based on the Joint Assessment Mission Report and discussions with the relevant line departments of the states the cost of reconstructing ports and harbors is estimated at \$21 million for Tamil Nadu and \$13 million for Kerala.

4. In Tamil Nadu, Nagapattinam Port located along Kaduvaiyar River, was severely damaged by the tsunami. The port had been handling around 80,000 tons a year for importing oil and exporting cement. The fishing harbor located on the river upstream of the port, with fish landing of 30,000 tons, was also badly damaged. The two breakwaters at the mouth of the river were destroyed and one barge carried by the tsunami collided with the coastal protection groin between the sea and river. This led to sand drifting from the sea to the channel and basins, as well as reduction of the calmness of the channel and basins. The tsunami waves came over the seawall of the fishing harbor area destroying parts of wharfs, the fish market, and the auction center. Tsunami waves also destroyed fishing boats and a dredger, and left them along the channel and on the wharfs of the port. As a result of the shallow channel and basins, and broken facilities, the port has suspended operation for more than 2 months. The channel, commonly servicing the fishing harbor on the river upstream, has also prevented fishing boats from plying to and from the fishing harbor. Similarly, in Cuddalore Port, located at the confluence of the Gadilam and Paravanar rivers, the breakwaters and equipment were damaged, and drafts of the basin and the channel have been reduced. Furthermore, six harbors and five landing centers were seriously affected and need urgent dredging and rehabilitation of jetties, retaining walls, auction centers, and facilities.

5. In Kerala, sand drift caused by the tsunami led to serious reduction of the draft in four minor ports (Azhikkal, Beypore, Neendakara, and Vizhinjam) and eight harbors and landing

centers. The waves also damaged some breakwaters, compound walls, approach roads, and other facilities. As a result, some maritime cargo is being transshipped offshore between vessels and small barges that can ply the shallow channels and basins. Other maritime cargo is now being transported by trucks at higher cost. In Beypore port, the ferry service to islands, carrying 25,000 passengers a year, has been diverted to Cochin port after the tsunami. Substantial numbers of the labor force are reported to be unemployed as a result of limited or suspended port operation. Due to the siltation of harbors and landing centers, fishing boats can operate only during high tides, resulting in substantial losses in fisheries production.

6. Both states are concerned that coastal disasters including tsunami, cyclones, and storm surges can cause ocean pollution due to oil and sewerage spill from vessels and fishing boats. To mitigate pollution risk in the event of coastal disasters, ports and harbors need reception facilities for oil and sewerage wastes.

### **C. Scope**

7. To address the immediate need to rehabilitate breakwaters and carry out dredging to allow port and fishing operations to be resumed as soon as possible, this project component for state-owned ports and harbors comprises (i) priority dredging for ports, harbor basins, and approach channels; (ii) rehabilitation of breakwaters for ports and harbors; (iii) rehabilitation of fishing harbor facilities like compound/harbor walls; (iv) rehabilitation of damaged roads and ports facilities like electrification systems, wharfs, and piers; and (v) procurement of equipment such as a destroyed dredger and navigational aids. Rehabilitation works to restore the facilities to the pre-tsunami level, where appropriate, will include upgrading designs to mitigate damage from future natural disasters, including tsunami and cyclones. This component excludes rehabilitation works sanctioned by the Government's National Calamity Contingency Fund.

### **D. Subproject Selection Criteria**

8. Subprojects will meet the general criteria for the Project as outlined in Appendix 11. In addition, subprojects will also meet the following criteria: (i) provide emergency or short-term reestablishment of port and fisheries operation; (ii) contribute significantly to disaster mitigation, including pollution abatement; and (iii) contribute significantly to enhancing safety in maritime transport and fishing.

### **E. Cost Estimates and Financing Plan**

9. The total cost of this component is \$27.65 million equivalent. Of the total cost, \$18.90 million equivalent is for Tamil Nadu and \$8.75 million equivalent is for Kerala. The Asian Development Bank (ADB) will finance the entire foreign exchange cost of \$4.08 million and \$21.82 million equivalent of local currency cost or about 94% of the total cost. The Government will finance the remaining local currency cost of \$1.75 million equivalent, which includes taxes and duties. Cost estimates and the financing plan are in Appendix 9.

### **F. Implementation Arrangements**

#### **1. Institutional Arrangements**

10. The Revenue Administration, Disaster Management and Mitigation Department (RADMMMD) in Tamil Nadu and the Department of Disaster Management (DDM) in Kerala will be the executing agencies (EAs). The EAs will establish project management units (PMUs) with representation of line agencies. The PMUs will work closely with the ADB extended missions to facilitate implementation and exercise monitoring and control.

11. The Maritime Board and Department of Fisheries will be the implementing agencies (IAs) for the ports and harbors components respectively in Tamil Nadu. Ports/Harbor Engineering Departments will be the IA for ports and fishing harbor components in Kerala. For state level coordination, the IAs will be represented in the PMUs. Project implementation units (PIUs) will be established within the IAs. The PIUs will be responsible for the selection and preparation of the subprojects, and will carry out the due diligence to ensure compliance with the subproject selection criteria indicated in Appendix 11 and ADB social, environmental, and resettlement safeguard policies (Appendixes 13, 14, 15, and 16).

## **2. Procurement**

12. Civil works contracts and procurement of goods and services will follow local competitive bidding procedures in accordance with ADB *Guidelines for Procurement*.

## **3. Implementation Schedule**

13. The works under this component will be completed by 30 April 2008. Within the overall project duration of 36 months, the duration of construction for any subproject will not exceed 24 months. The overall implementation schedule is given in Appendix 12.

## **4. Consulting Services**

14. Consultant services will be provided to assist the IAs to (i) review assessments with verification of damages and cost estimates based on unit costs; (ii) prepare a detailed time-bound reconstruction work program; (iii) provide engineering assistance, including survey and design; (iv) manage procurement, including preparation of tender documents, evaluation, and award of bids; (v) assist the IAs to prepare environmental management plan and supervise environmental management; and (vi) report progress of the project and performance monitoring to and coordinate with the PMU. The project performance indicators include bathymetric surveys, cargo throughputs, number of passengers, and volume of fish landing.

## **G. Benefits and Risks**

15. This component will restore port and harbor operations directly benefiting port users and fisherfolk. In addition to shipping companies and ferry operators, ferry passengers who have to take a diverted route will also benefit. Dredging to secure required drafts will enhance maritime safety in ports and harbors.

16. Major risks relating to the component are environmental management and maintenance of rehabilitated infrastructure. Of critical importance, the environmental experts, to be recruited for the PMUs, must prepare environmental management plans for dredging and supervise the implementation. The risk of inadequate maintenance, particularly in dredging, can be mitigated by regular bathymetric surveys and careful layout planning of ports and harbors based on hydraulic research.

## WATER SUPPLY AND SANITATION

### A. Damage and Impact

1. Over 90% of tsunami-affected areas of Tamil Nadu and 60% of Kerala have been covered by piped water supply systems. However, water quantity and quality for most systems in both states are grossly insufficient, with less than half getting 40 liters per day per capita (lpcd), an interim standard adopted by Tamil Nadu (as opposed to the national standard of 70 lpcd for rural areas and 135 lpcd for urban areas). Many schemes also suffer from high content of fluorides, sodium, and iron, with shallow wells facing high levels of salinity in dry seasons. Coverage of sanitation is lagging, with Tamil Nadu having only 15% coverage in coastal villages and slightly over 50% in urban areas. Kerala has had over 50% coverage on average. These unsatisfactory conditions have led to poor health and morbidity, exacerbating the poverty in the affected areas.

2. The tsunami-damaged water supply and sanitation systems along the coastline have resulted in salinization of wells, and destruction of distribution pipes, public stand posts, and individual hand pumps needed to supplement the meager piped water supply. In Tamil Nadu 329,000 people in six municipalities and 74 village *panchayat* are directly affected, and in Kerala, 192,000 in one municipality and 27 village *panchayats*. Large number of household pit latrines, septic tanks, and public toilets were also damaged. The Joint Assessment Mission's preliminary estimate for immediate and medium-term reconstruction needs for Tamil Nadu and Kerala totaled \$38 million, which was further detailed by the mission at \$20 million for Tamil Nadu and \$15 million for Kerala. The reconstruction needs incorporate costs for rebuilding up to a standard that responds to local requirements, including the risk of natural disaster, on top of the same-standard replacement costs.

3. Taking into account the lessons of the emergency rehabilitation interventions and local consultations by the Joint Assessment Mission and the Mission, the sector recovery strategy emphasizes (i) transparent decision making and community participation, including through consultation with local government institutions; (ii) upgrading systems as appropriate in lieu of rehabilitating existing poorly performing systems with due options consideration; (iii) producing an awareness campaign in coastal communities on water conservation, water quality, sanitation, and hygiene issues; (iv) forging good working relationships with concerned departments and capable nongovernment organizations (NGOs); (v) ensuring quality of works in terms of process and products by setting out and monitoring measurable indicators; and (vi) strengthening sustainable operation and maintenance (O&M) capacity of the concerned communities.

### B. Scope

4. This component will rehabilitate/upgrade the water supply and sanitation infrastructure and provide related services for tsunami-affected communities in 9 districts of Tamil Nadu and 4 of Kerala. Rehabilitation works will be carried out to restore facilities to pre-tsunami level or to a higher cost-effective standard. The Project will include (i) restoring and upgrading damaged existing water supply systems including providing tankers; (ii) upgrading affected water supply systems into multivillage systems with more reliable source development; (iii) rehabilitating/upgrading sanitary complex and solid waste management facilities; (iv) providing a

sanitation and environmental awareness campaign;<sup>1</sup> and (v) undertaking technical support for damage assessment surveys, aquifer and hydrology study, disaster resistant design, construction quality control, and community participation.

5. By providing improved drinking water supplies in terms of quantity and quality at least to the level of or beyond the pre-tsunami conditions, the Project will contribute to reducing time and resources for providing or collecting water and for maintaining existing poorly performing systems. This, along with appropriate sanitation and solid waste management practices promoted under the Project, will also contribute to protecting public health from potential waterborne diseases, and reducing pressure on the fragile coastal aquifer and natural environment. The Project's institutional support will lead to improved practices in community participation in project planning and implementation, and sound technical design and quality control, along with increased involvement of local government institutions and beneficiaries in O&M of completed schemes.

### **C. Subproject Selection Criteria**

6. Subprojects to be selected will meet the general criteria outlined in Appendix 11. Rehabilitation/upgrading of water supply systems will be packaged into individual subprojects in combination with the supporting activities, including sanitation and solid waste management as appropriate, and selected and implemented following the specific criteria and format jointly prepared by the consultants and the Government and agreeable to the Asian Development Bank (ADB). These will include (i) consultation with the affected communities, including vulnerable groups, through local government institutions; (ii) confirmation on the aquifer and river water availability and sustainability for schemes seeking new sources; (iii) contribution to improving environmental conditions; and (iv) confirmation of O&M sustainability through preparation of O&M plans with clear stipulation of responsibilities and resource requirements of the concerned parties with their confirmed affordability.

### **D. Cost Estimates and Financing Plan**

7. The total cost of this component is \$38.11 million equivalent. Of the total cost, \$24.38 million equivalent is for Tamil Nadu and \$13.73 million equivalent is for Kerala. ADB will finance the entire foreign exchange cost of \$11.23 million and \$24.77 million equivalent of the local currency cost or about 95% of the total cost. The Government will finance the remaining local currency cost of \$2.11 million equivalent, which includes taxes and duties. Cost estimates and the financing plan are in Appendix 9.

### **E. Implementation Arrangements**

#### **1. Project Management**

8. The Revenue Administration, Disaster Management and Mitigation Department (RADMMMD) in Tamil Nadu and the Department of Disaster Management (DDM) in Kerala will be the executing agencies (EAs). The EAs will establish project management units (PMUs) with representation of line agencies. The PMUs will work closely with the ADB extended missions to facilitate implementation and exercise monitoring and control.

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<sup>1</sup> The Project will link up with the ongoing Total Sanitation Program to implement this activity. The program will be extended in the concerned subproject area, using the project funds as necessary.

9. Within this framework, the Tamil Nadu Water Supply and Drainage Board and Kerala Water Authority will be the implementing agencies (IAs) for the water supply subcomponent in the respective states. The Tamil Nadu Water Supply and Drainage Board and the concerned municipality will be responsible for water supply. Sanitation is implemented by the Rural Development Department and the concerned municipalities in Tamil Nadu, and by the Kerala Water Authority and the concerned *panchayat* in Kerala. For state level coordination, the IAs will be represented in the PMUs. Project implementation units (PIUs) will be established within the IAs. Day-to-day subproject implementation will be undertaken by the concerned district offices of the IAs. The PIUs will be responsible for selecting and preparing the subprojects, and will carry out the due diligence to ensure compliance with the subproject selection criteria indicated in Appendix 11 and ADB social, environmental, and resettlement safeguard policies (Appendixes 13, 14, 15, and 16).

## **2. Implementation Schedule**

10. The Project will be implemented over 3 years, commencing in the second quarter of 2005. The concerned state governments will establish the PMUs and assign relevant staff to the PMUs and PIUs within 1 month of project approval. The start-up activities will be completed within 6 months of loan effectiveness, including (i) recruitment of consultants; (ii) finalization of subproject assessment, prioritization, and selection criteria; (iii) selection of subprojects; and (iv) procurement of immediately required works including processing for retroactive financing, if any.

## **3. Procurement**

11. Civil works contracts and procurement of goods and services will follow local competitive bidding procedures in accordance with ADB *Guidelines for Procurement*.

## **4. Consulting Services**

12. Domestic consulting services are needed, as required, to implement the subcomponent and include water supply specialist, sanitation specialist, environmental specialist, resettlement specialist, construction manager, and field engineers, for (i) overseeing subproject proposal preparation; (ii) advising on technical studies, disaster resistant design, and sanitation campaigns; (iii) providing monitoring and quality control; (iv) fostering public participation; and (v) assisting with reports and other ADB requirements including safeguards.

## **5. Monitoring and Quality Control**

13. For effective management of subproject planning, implementation monitoring and quality control, each subproject, in particular for upgraded water supply systems, will have a subproject implementation plan that sets out distinct processes and outputs, including impact indicators, in their subproject plan. Those indicators will be monitored through a project performance monitoring system for the Project, comprising the systems of effective recording and reporting in the field, and monitoring and auditing at the IA and PMU level with the assistance of PMU consultants. Beneficiaries will also be involved in project monitoring and evaluation, through direct reporting to civil society representative of the district committee and PMU.

## **6. Sustainable Operation and Maintenance**

14. For O&M, the Tamil Nadu Water Supply and Drainage Board is responsible for multivillage water supply schemes, whereas the concerned *panchayat* and municipalities are

responsible for O&M of single village and municipality schemes in Tamil Nadu. The Government has progressively adopted effective reforms including management transfer to local governments, tariff revision every 3 years, and downsizing of the Tamil Nadu Water Supply and Drainage Board, with provision of necessary budget for maintenance.

15. In Kerala, the Kerala Water Authority is responsible for O&M of multivillage and single village schemes supported under the Project. These are all relatively large systems with beneficiary population of more than 3,500. While the Kerala Water Authority currently has a revenue deficit of about \$25 million, it has initiated reforms with external financing support, including upward revision of water tariffs, transfer of smaller schemes to *panchayats*, computerization of water billing and revenue collection for urban schemes, and institutional restructuring.<sup>2</sup> ADB is also supporting this process through an ongoing technical assistance and a proposed Sustainable Urban Development Project for Kerala, which will strengthen the financial and administrative management of the Kerala Water Authority.

16. For the purpose of sustainable O&M of rehabilitated/upgraded systems under the Project, a subproject-specific O&M plan will be developed that set outs the annual O&M arrangements and institutional responsibilities including financial requirements. The O&M plans will be presented and confirmed with the concerned local governments and beneficiaries when finalizing the implementation plan.

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<sup>2</sup> As a result, revenue collection has increased by over 40% since 1999.

## OTHER RURAL AND MUNICIPAL INFRASTRUCTURE

### A. Damage and Impact

1. Tamil Nadu ranks the third in the human development index for India, with a poverty index of 21%; Kerala with a poverty index of 13%, ranks first; the national average was 26% in 1999/2000. However, poverty incidence in tsunami-affected coastal communities is significantly higher than the state average figures, reaching over 70% in both states in some backward habitations. The majority of the coastal communities continue to earn their income in largely traditional sectors of fishing and farming, while the poor survive primarily through a variety of informal subsistence activities and wage labor. The state governments have placed high priority on promoting rural development through the creation of self- and wage-employment opportunities with provision of community infrastructure, enterprise development support, and training. The tsunami hit these critical means of production and transportation of goods and services along the coastline thereby significantly affecting the livelihoods of the vulnerable coastal communities.

2. The tsunami waves coming ashore at high speed and returning to the sea caused disruption of rural and municipal infrastructure, including severe erosion of roads, siltation of drainage channels, destruction of buildings, and damage to electrical distribution systems. Some 775 kilometers (km) of *panchayat* union, *panchayat*, and municipal roads were fully or partially damaged in Tamil Nadu and 70 km in Kerala. The Joint Assessment Mission (JAM) estimated immediate and medium-term reconstruction needs at \$26 million in Tamil Nadu and Kerala. These were assessed by the Asian Development Bank (ADB) mission at \$40 million for Tamil Nadu and \$8 million for Kerala. The ADB mission incorporated the updated data collected by the concerned agencies on the reconstruction needs of those minor facilities which are widely scattered across the affected areas. This information was not available during the JAM.

3. Taking into account the lessons of the emergency rehabilitation interventions and local consultations by the JAM, the sector recovery strategy emphasizes (i) decentralized and transparent decision making and community participation with emphasis on gender; (ii) upgrading systems with disaster resistant design; (iii) providing employment opportunities for the tsunami-affected communities; (iv) forging good working relationships with the concerned departments and capable nongovernment organizations (NGOs); (v) ensuring quality of works in terms of process and products by setting out and monitoring measurable indicators; and (vi) strengthening sustainable operation and maintenance (O&M) capacity of the local government institutions.

### B. Scope

4. This component will rehabilitate/upgrade rural and municipal infrastructure and provide related services for the tsunami-affected communities of Tamil Nadu and Kerala. Rehabilitation works will be carried out to restore facilities to pre-tsunami level or to a higher cost-effective standard. The facilities rehabilitated or upgraded under the Project will include rehabilitation/upgrading of (i) village and municipal roads; (ii) drainage canals; (iii) public buildings such as common fish landing, processing, and marketing facilities, community centers, and *panchayat* offices (about 450 in Tamil Nadu); and (iv) damaged electricity line network and distribution transformers. The Project will also provide technical support for damage assessment surveys, construction quality control, and community participation. Rehabilitation of public buildings will consider disaster-resistant design and relocation to a safer environment as appropriate.

5. This component will contribute to restoring and rebuilding the livelihood of the affected communities by rehabilitating essential minor village and municipal infrastructure, providing employment opportunities to local labor during the process, and supporting local community institutions for participatory planning and implementation to rebuild their cohesion and confidence for development. Specifically, it will contribute to reducing transportation time and resources for goods and services, in particular fishery and associated products, the main industry of the affected areas. It will lead to improved drainage conditions, at least to the pre-disaster level. These, along with disaster-resistant rehabilitation of public buildings, will support improved productive and quality of life conditions, while providing essential employment opportunities to the affected communities. Village ponds will be restored (under the livelihood component) achieving the twin objectives of employment and increased water storage. The Project's institutional support will lead to improved practices in community participation in project planning and implementation, and sound technical design and quality control, along with increased involvement of local government institutions and beneficiaries in O&M of completed schemes.

### **C. Subproject Selection Criteria**

6. Subprojects to be selected will meet the general criteria outlined in Appendix 11. Rehabilitation/upgrading works will be packaged into individual subprojects at each village or community, and selected and implemented following the specific criteria and format jointly prepared by the consultants and the state governments and agreeable to ADB. These include (i) consultation with the affected communities including vulnerable groups through local government institutions; (ii) contribution to improving environmental conditions; and (iii) confirmation of O&M sustainability through preparation of O&M plans with clear stipulation of responsibilities and resource requirements of the concerned parties, and confirmed affordability by the local governments and the beneficiaries.

### **D. Cost Estimates and Financing Plan**

7. The total cost of this component is \$52.59 million equivalent. Of the total cost, \$43.53 million equivalent is for Tamil Nadu and \$9.06 million equivalent for Kerala. ADB will finance the entire foreign exchange cost of \$24.93 million and \$24.37 million equivalent of local currency cost or about 94% of the total cost. The Government will finance the remaining local currency cost of \$3.29 million equivalent, which includes taxes and duties. Cost estimates and financing plan are in Appendix 9.

### **E. Implementation Arrangements**

#### **1. Project Management**

8. The Revenue Administration, Disaster Management and Mitigation Department (RADMMMD) in Tamil Nadu and the Department of Disaster Management (DDM) in Kerala will be the executing agencies (EAs). The EAs will establish project management units (PMUs) with representation of line agencies. The PMUs will work closely with the ADB extended missions to facilitate implementation and exercise monitoring and control.

9. Within this framework, in Tamil Nadu, the Rural Development Department will be the implementing agency (IA) for rural infrastructure subcomponent, whereas the Commissionerate of Municipal Administration Department (CMAD) will be the IA for municipal infrastructure. The

Tamil Nadu Electricity Board will implement the power distribution restoration. In Kerala, the Public Works Department will be the IA for rural infrastructure and will delegate implementation to the concerned *panchayat* as appropriate, whereas the Kerala State Electricity Board will be the IA for power distribution restoration. Project implementation units (PIUs) will be established within the IAs. Day-to-day subproject implementation will be undertaken by the concerned district offices of the IAs. The PIUs will be responsible for selecting and preparing the subprojects, and will carry out the due diligence to ensure compliance with the subproject selection criteria indicated in Appendix 11 and ADB social, environmental, and resettlement safeguard policies (Appendixes 13, 14, 15, and 16).

## **2. Implementation Schedule**

10. The Project will be implemented over 3 years, commencing in the second quarter of 2005. The concerned state governments will establish the PMUs and assign relevant staff for the PMUs and IAs within 1 month of project approval. The start-up activities will be completed within 6 months of loan effectiveness, including (i) recruitment of consultants; (ii) finalization of subproject assessment, prioritization, and selection criteria; (iii) selection of subprojects; and (iv) procurement of immediately required works including processing for retroactive financing.

## **3. Procurement**

11. Civil works contracts and procurement of goods and services will follow local competitive bidding procedures in accordance with ADB *Guidelines for Procurement*.

## **4. Consulting Services**

12. Domestic consulting services are required, comprising road engineer, building/structural engineer, environment specialist, resettlement specialist, construction manager, and field engineers, for (i) overseeing subproject proposal preparation; (ii) advising on technical studies and disaster resistant design; (iii) monitoring and quality control; (iv) helping with public participation; and (v) assisting with reports and other ADB requirements, including safeguards.

## **5. Monitoring and Quality Control**

13. For effective management of subproject planning, implementation monitoring, and quality control, each subproject will have a subproject implementation plan that sets out distinct processes and outputs, including impact indicators in their subproject plan. Those indicators will be monitored through a project performance monitoring system for the Project, comprising the systems of effective recording and reporting at the field level, and monitoring and auditing at the IA and PMU level with the assistance of consultants. Beneficiaries will also be involved in project monitoring and evaluation, through direct reporting to the PMU.

## **6. Sustainable Operation and Maintenance**

14. The concerned *panchayat* and municipality is responsible for the O&M of the constructed facilities for roads, stormwater drainage, and public buildings, while Tamil Nadu Electricity Board and Kerala State Electricity Board are responsible for O&M of power distribution with revenue collection. In Tamil Nadu, the Rural Development Department has been increasing budget allocations for village infrastructure maintenance in recent years, with *panchayats* provided with higher incentives in terms of tax recovery and use of annual budget for maintenance purposes. Replacement of lost assets (roads and buildings) under the Project

will provide opportunities for clearly defining O&M requirements, responsibilities, and arrangements. In Kerala, the state government has been progressively strengthening the arrangements for *panchayat* road maintenance in recent years under its decentralization process, by preparing the *panchayat* road asset portfolio; allocating the road maintenance grant (as a part of a nondevelopment grant) to each *panchayat* on the basis of the portfolio; and strengthening the allocation of road maintenance grant.

15. For the purpose of sustainable O&M, subproject specific O&M plans will be developed at the planning stage setting out the annual O&M arrangements and institutional responsibilities including financial requirements. These will be presented and confirmed with the concerned local government institutions and beneficiaries when finalizing the subproject implementation plan. O&M by distinct user groups will be promoted for small common facilities such as those used by local fisherfolk. Affordability of the concerned local government organizations and the beneficiary groups will also be confirmed at this stage with due financial assessments.

## COST ESTIMATES

**Table A9.1: Cost Estimates by Component**  
(\$ million; unless otherwise indicated)

Component	Tamil Nadu						Kerala						Total			Mode of Financing			
	FX	Local	Total	FX(%)	ADB	GOV	FX	Local	Total	FX(%)	ADB	GOV	FX	Local	Total		FX(%)	ADB	GOV
<b>Component A:</b>																			
<b>Livelihood</b>																			
Livelihood Restoration (existing SHGs)	0.00	22.99	22.99				0.00	4.50	4.50				0.00	27.49	27.49				ATF
Livelihood Restoration (new SHGs)	0.00	8.83	8.83				0.00	2.92	2.92				0.00	11.75	11.75				
Asset Replacement	0.12	7.01	7.13				0.07	0.45	0.52				0.19	7.46	7.65				
Skill Training	0.00	2.91	2.91				0.00	0.23	0.23				0.00	3.14	3.14				
Risk Mitigation	0.00	2.68	2.68				0.00	0.68	0.68				0.00	3.36	3.36				
Restoring Community Infrastructure	0.00	5.45	5.45				0.00	0.00	0.00				0.00	5.45	5.45				
Taxes & Duties	0.00	1.16	1.16				0.00	0.17	0.17				0.00	1.32	1.32				
<b>Total Component A</b>	<b>0.12</b>	<b>51.03</b>	<b>51.15</b>	<b>0.23</b>	<b>49.99</b>	<b>1.16</b>	<b>0.07</b>	<b>8.95</b>	<b>9.02</b>	<b>0.78</b>	<b>8.85</b>	<b>0.17</b>	<b>0.19</b>	<b>59.97</b>	<b>60.16</b>	<b>0.32</b>	<b>58.84</b>	<b>1.32</b>	
<b>Component B:</b>																			
<b>Transportation Rehabilitation of Roads and Bridges</b>																			
Civil Works	5.92	3.19	9.10				10.20	5.50	15.70				16.12	8.69	24.80				OCR
Equipment and Materials	0.00	0.00	0.00				0.00	0.00	0.00				0.00	0.00	0.00				
Taxes & Duties	0.00	0.64	0.64				0.00	1.10	1.10				0.00	1.74	1.74				GOV
<b>Rehabilitation of Ports and Harbors</b>																			
Civil Works	1.62	13.98	15.60				0.76	6.44	7.20				2.38	20.42	22.80				OCR
Equipment and Materials	1.60	0.50	2.10				0.10	0.90	1.00				1.70	1.40	3.10				
Taxes & Duties	0.00	1.20	1.20				0.00	0.55	0.55				0.00	1.75	1.75				GOV
<b>Total Component B</b>	<b>9.14</b>	<b>19.50</b>	<b>28.64</b>	<b>31.90</b>	<b>26.80</b>	<b>1.84</b>	<b>11.06</b>	<b>14.49</b>	<b>25.55</b>	<b>43.29</b>	<b>23.90</b>	<b>1.65</b>	<b>20.20</b>	<b>33.99</b>	<b>54.19</b>	<b>37.27</b>	<b>50.70</b>	<b>3.49</b>	

Component	Tamil Nadu						Kerala						Total						Mode of Financing
	FX	Local	Total	FX(%)	ADB	GOV	FX	Local	Total	FX(%)	ADB	GOV	FX	Local	Total	FX(%)	ADB	GOV	
<b>Component C(i): Water Supply and Sanitation</b>																			
Civil Works	0.00	11.62	11.62				0.00	3.96	3.96				0.00	15.58	15.58				
Equipment and Materials	6.26	5.12	11.38				4.97	4.07	9.04				11.23	9.19	20.42				ATF
Taxes & Duties	0.00	1.38	1.38				0.00	0.73	0.73				0.00	2.11	2.11				GOV
<b>Subtotal Component C(i)</b>	<b>6.26</b>	<b>18.12</b>	<b>24.38</b>	<b>25.67</b>	<b>23.00</b>	<b>1.38</b>	<b>4.97</b>	<b>8.76</b>	<b>13.73</b>	<b>36.21</b>	<b>13.00</b>	<b>0.73</b>	<b>11.23</b>	<b>26.88</b>	<b>38.11</b>	<b>29.47</b>	<b>36.00</b>	<b>2.11</b>	
<b>Component C(ii): Rural and Municipal Infrastructure</b>																			
<b>Municipal Infrastructure</b>																			
<b>Roads and Drainage</b>																			
Civil Works	3.08	2.52	5.60				0.00	0.00	0.00				3.08	2.52	5.60				
Equipment and Materials	0.00	0.00	0.00				0.00	0.00	0.00				0.00	0.00	0.00				OCR
Taxes & Duties	0.00	0.39	0.39				0.00	0.00	0.00				0.00	0.39	0.39				GOV
<b>Public Buildings</b>																			
Civil Works	0.17	1.75	1.92				0.00	0.00	0.00				0.17	1.75	1.92				
Equipment and Materials	0.38	0.10	0.48				0.00	0.00	0.00				0.38	0.10	0.48				OCR
Taxes & Duties	0.00	0.16	0.16				0.00	0.00	0.00				0.00	0.16	0.16				GOV
<b>Subtotal Municipal Infrastructure</b>	<b>3.63</b>	<b>4.92</b>	<b>8.55</b>	<b>42.49</b>	<b>8.00</b>	<b>0.55</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>3.63</b>	<b>4.92</b>	<b>8.55</b>	<b>42.49</b>	<b>8.00</b>	<b>0.55</b>	
<b>Rural Infrastructure</b>																			
<b>Roads and Drainage</b>																			
Civil Works	12.90	10.55	23.45				1.65	1.35	3.00				14.55	11.90	26.45				
Equipment and Materials	0.00	0.00	0.00				0.00	0.00	0.00				0.00	0.00	0.00				OCR
Taxes & Duties	0.00	1.64	1.64				0.00	0.21	0.21				0.00	1.85	1.85				GOV
<b>Public Buildings</b>																			
Civil Works	0.63	5.21	5.84				0.00	0.00	0.00				0.63	5.21	5.84				
Equipment and Materials	1.17	0.29	1.46				0.00	0.00	0.00				1.17	0.29	1.46				OCR
Taxes & Duties	0.00	0.48	0.48				0.00	0.00	0.00				0.00	0.48	0.48				GOV

Component	Tamil Nadu						Kerala						Total						Mode of Financing
	FX	Local	Total	FX(%)	ADB	GOV	FX	Local	Total	FX(%)	ADB	GOV	FX	Local	Total	FX(%)	ADB	GOV	
<b>Electrical</b>																			
Civil Works	0.00	0.40	0.40				0.00	0.96	0.96				0.00	1.36	1.36				OCR
Equipment and Materials	1.28	0.32	1.60				3.67	0.92	4.59				4.95	1.24	6.19				
Taxes & Duties	0.00	0.11	0.11				0.00	0.30	0.30				0.00	0.40	0.40				GOV
<b>Subtotal Rural Infrastructure</b>	<b>15.98</b>	<b>19.00</b>	<b>34.98</b>	<b>45.68</b>	<b>32.75</b>	<b>2.23</b>	<b>5.32</b>	<b>3.73</b>	<b>9.06</b>	<b>58.76</b>	<b>8.55</b>	<b>0.51</b>	<b>21.30</b>	<b>22.74</b>	<b>44.04</b>	<b>48.37</b>	<b>41.30</b>	<b>2.74</b>	
<b>Subtotal Component C(ii)</b>	<b>19.61</b>	<b>23.92</b>	<b>43.53</b>	<b>45.05</b>	<b>40.75</b>	<b>2.78</b>	<b>5.32</b>	<b>3.73</b>	<b>9.06</b>	<b>58.76</b>	<b>8.55</b>	<b>0.51</b>	<b>24.93</b>	<b>27.66</b>	<b>52.59</b>	<b>47.41</b>	<b>49.30</b>	<b>3.29</b>	
<b>Total Component C</b>	<b>25.87</b>	<b>42.04</b>	<b>67.91</b>	<b>38.09</b>	<b>63.75</b>	<b>4.16</b>	<b>10.29</b>	<b>12.49</b>	<b>22.79</b>	<b>45.18</b>	<b>21.55</b>	<b>1.24</b>	<b>36.16</b>	<b>54.54</b>	<b>90.70</b>	<b>39.87</b>	<b>85.30</b>	<b>5.40</b>	
<b>Component D: Capacity Building Support and Implementation Assistance</b>																			
Consultancies	0.00	2.21	2.21				0.00	1.20	1.20				0.00	3.41	3.41				ATF
Incremental Administration	0.00	1.00	1.00				0.00	0.75	0.75				0.00	1.75	1.75				
Taxes & Duties	0.00	0.34	0.34				0.00	0.21	0.21				0.00	0.55	0.55				GOV
<b>Total Component D</b>	<b>0.00</b>	<b>3.55</b>	<b>3.55</b>	<b>0.00</b>	<b>3.21</b>	<b>0.34</b>	<b>0.00</b>	<b>2.16</b>	<b>2.16</b>	<b>0.00</b>	<b>1.95</b>	<b>0.21</b>	<b>0.00</b>	<b>5.71</b>	<b>5.71</b>	<b>0.00</b>	<b>5.16</b>	<b>0.55</b>	
<b>Land Acquisition, Rehabilitation and Resettlement</b>																			
Land	0.00	0.40	0.40	0.00	0.00	0.40	0.00	0.43	0.43	0.00	0.00	0.43	0.00	0.83	0.83	0.00	0.00	0.83	GOV
<b>Total Costs</b>	<b>35.12</b>	<b>116.53</b>	<b>151.65</b>	<b>23.16</b>	<b>143.75</b>	<b>7.90</b>	<b>21.42</b>	<b>38.52</b>	<b>59.94</b>	<b>35.74</b>	<b>56.25</b>	<b>3.69</b>	<b>56.55</b>	<b>155.04</b>	<b>211.59</b>	<b>26.72</b>	<b>200.00</b>	<b>11.59</b>	
<b>Interest During Construction and Commitment Charges</b>	<b>5.00</b>	<b>0.00</b>	<b>5.00</b>	<b>100.00</b>	<b>0.00</b>	<b>5.00</b>	<b>2.00</b>	<b>0.00</b>	<b>2.00</b>	<b>100.00</b>	<b>0.00</b>	<b>2.00</b>	<b>7.00</b>	<b>0.00</b>	<b>7.00</b>	<b>100.00</b>	<b>0.00</b>	<b>7.00</b>	GOV
<b>Total Project Costs</b>	<b>40.12</b>	<b>116.53</b>	<b>156.65</b>	<b>25.61</b>	<b>143.75</b>	<b>12.90</b>	<b>23.42</b>	<b>38.52</b>	<b>61.94</b>	<b>37.82</b>	<b>56.25</b>	<b>5.69</b>	<b>63.55</b>	<b>155.04</b>	<b>218.59</b>	<b>29.07</b>	<b>200.00</b>	<b>18.59</b>	

ADB = Asian Development Bank, ATF = Asian Tsunami Fund, FX = foreign exchange, GOV = Government, OCR = ordinary capital resources, SHG = self-help groups.

Note: Column and row totals may not exactly add up due to rounding.

Source: Asian Development Bank estimates.

**Table A9.2: Components and Subcomponents to be Financed by the Asian Tsunami Fund**  
(\$ million)

<b>Component</b>	<b>Tamil Nadu</b>	<b>Kerala</b>	<b>Total</b>
<b>Component A: Livelihood</b>			
Livelihood Restoration (existing SHGs)	22.99	4.50	27.49
Livelihood Restoration (new SHGs)	8.83	2.92	11.75
Asset Replacement	7.13	0.52	7.65
Skill Training	2.91	0.23	3.14
Risk Mitigation	2.68	0.68	3.36
Restoring Community Infrastructure	5.45	0.00	5.45
<b>Total Component A</b>	<b>49.99</b>	<b>8.85</b>	<b>58.84</b>
<b>Component C (i): Water Supply and Sanitation</b>	<b>23.00</b>	<b>13.00</b>	<b>36.00</b>
<b>Component D: Capacity Building Support and Implementation Assistance</b>			
Consultancies	2.21	1.20	3.41
Incremental Administration	1.00	0.75	1.75
<b>Total Component D</b>	<b>3.21</b>	<b>1.95</b>	<b>5.16</b>
<b>Total Grant</b>	<b>76.20</b>	<b>23.80</b>	<b>100.00</b>

SHG = self-help groups.

Note: Column and row totals may not exactly add up due to rounding.

Source: Asian Development Bank estimates.

**Table A9.3: Components/Subcomponents to be Financed by Ordinary Capital Resources**  
(\$ million)

<b>Component</b>	<b>Tamil Nadu</b>	<b>Kerala</b>	<b>Total</b>
<b>Component B: Transportation</b>			
Rehabilitation of Roads and Bridges	9.10	15.70	24.80
Rehabilitation of Ports and Harbors	17.70	8.20	25.90
<b>Total Component B</b>	<b>26.80</b>	<b>23.90</b>	<b>50.70</b>
<b>Component C (ii): Rural and Municipal Infrastructure</b>			
<b>Municipal Infrastructure</b>			
Roads and Drainage	5.60	0.00	5.60
Public Buildings	2.40	0.00	2.40
<b>Subtotal Municipal Infrastructure</b>	<b>8.00</b>	<b>0.00</b>	<b>8.00</b>
<b>Rural Infrastructure</b>			
Roads and Drainage	23.45	3.00	26.45
Public Buildings	7.30	0.00	7.30
Electrical	2.00	5.55	7.55
<b>Subtotal Rural Infrastructure</b>	<b>32.75</b>	<b>8.55</b>	<b>41.30</b>
<b>Total Component C (ii)</b>	<b>40.75</b>	<b>8.55</b>	<b>49.30</b>
<b>Total Loan Components</b>	<b>67.55</b>	<b>32.45</b>	<b>100.00</b>

Source: Asian Development Bank estimates.

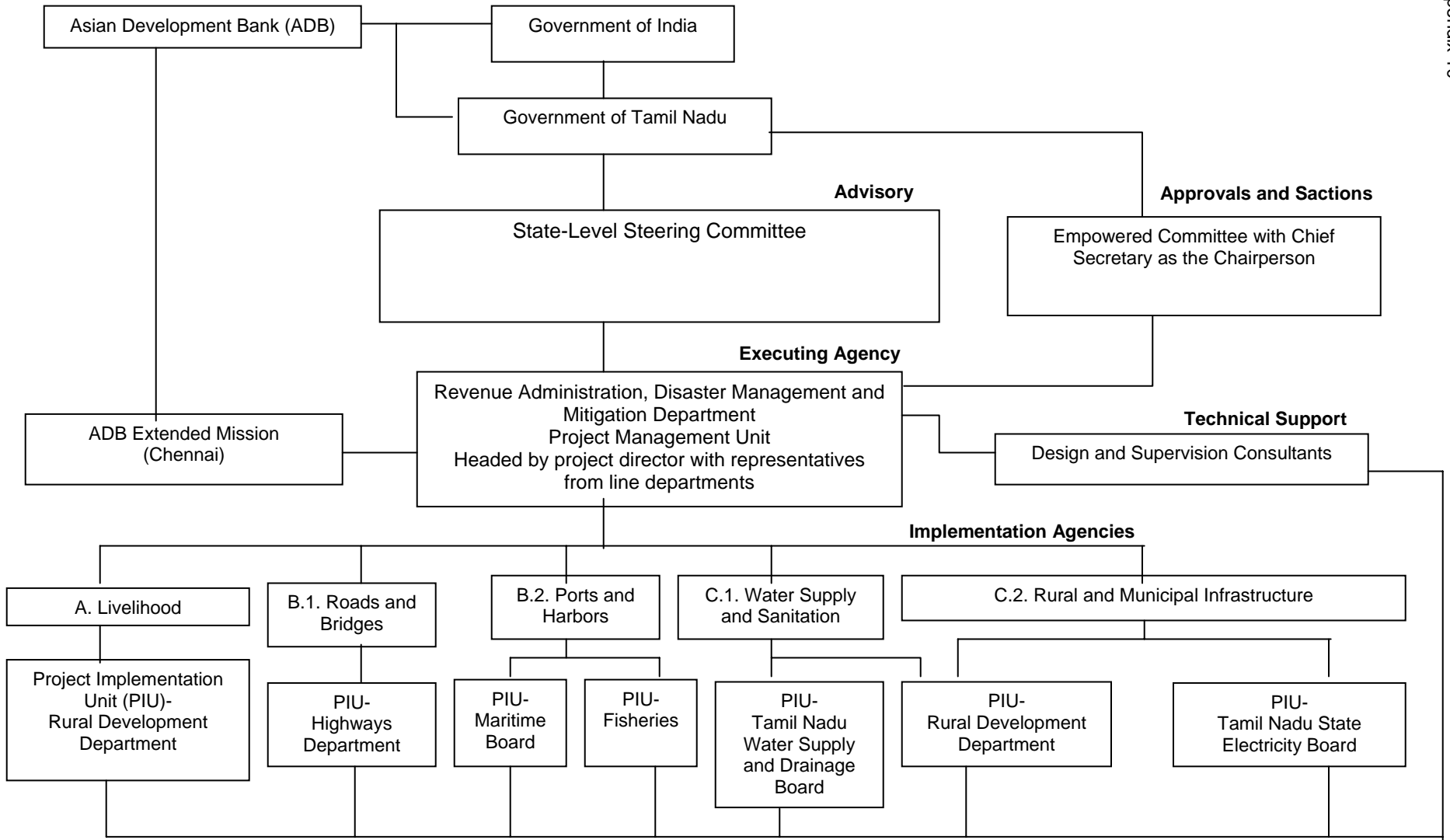
**Table A9.4: Counterpart Funding by Component and Item**  
(\$ million)

<b>Component</b>	<b>Tamil Nadu</b>	<b>Kerala</b>	<b>Total</b>
Taxes and Duties	7.50	3.26	10.76
Land Acquisition, Rehabilitation and Resettlement	0.40	0.43	0.83
Interest During Construction and Commitment Charges	5.00	2.00	7.00
<b>Total Counterpart Costs</b>	<b>12.90</b>	<b>5.69</b>	<b>18.59</b>

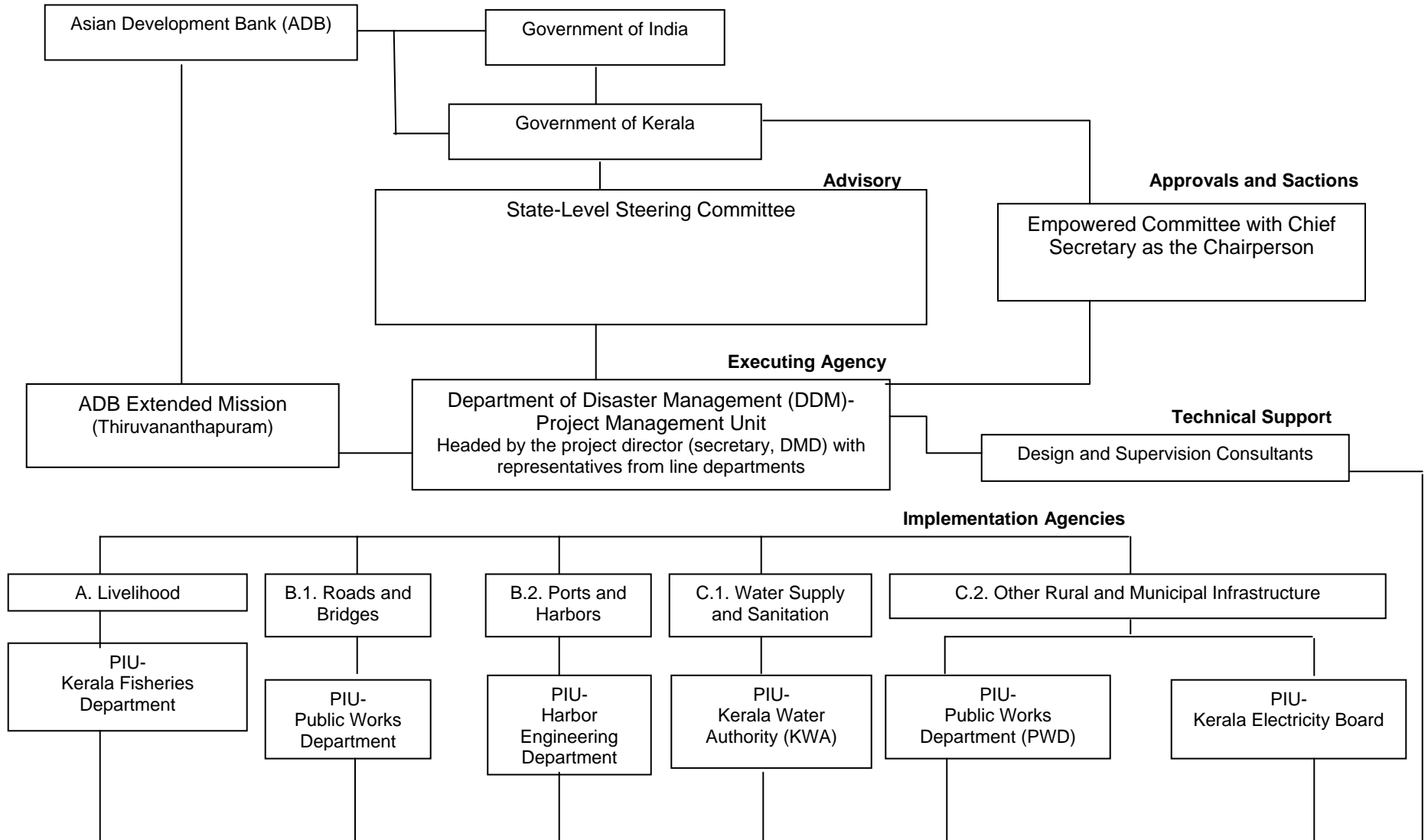
Source: Asian Development Bank estimates.

**PROJECT MANAGEMENT STRUCTURE AND ORGANIZATION CHART**

**A. Tamil Nadu**



**B. Kerala**



## SUBPROJECT SELECTION AND APPROVAL

### A. Eligibility Criteria for Subprojects

1. The subprojects will be for rehabilitation of tsunami-damaged infrastructure in the transport, rural/municipal infrastructure, and water supply and sanitation sectors. The eligibility criteria listed represent threshold general selection criteria for a subproject to be satisfied prior to application of sector-specific criteria.

- (i) The subproject will rehabilitate or restore damaged infrastructure and facilities caused by the tsunami, based on the damage and needs assessment, and assessment carried out by the project consultants.
- (ii) The subproject is technically feasible and cost-effective, incorporates multihazard resistant design standards of the Government of India or equivalent authorities, and represents a least-cost alternative.
- (iii) The subproject will incorporate beneficiary consultation and input in the selection process where applicable.
- (iv) The subproject will be completed within the project implementation period.
- (v) The funding of the subproject will not overlap with funding from other agencies, though such agencies may cofinance specified support, including monitoring, capacity building, and identified poverty reduction.
- (vi) All necessary approvals of the national and respective state governments will be obtained for the subprojects before submission by the project management unit (PMU) to the Asian Development Bank (ADB) for approval.
- (vii) Subprojects will be prioritized on the basis of their social and economic impacts.
- (viii) The subproject is (a) in compliance with applicable national and state laws and ADB *Environment Policy* (2002); and (b) prepared in accordance with the requirements of an agreed environmental assessment and review procedures framework. Subprojects that do not satisfy the framework will not be included under the Project. For subprojects that require an initial environmental examination (IEE), (a) the IEE is included in the subproject proposal; (b) the related environment management and monitoring plan is prepared for design and implementation; and (c) government environment clearance including all necessary clearances as applicable for respective states is obtained prior to award of the subproject contract. In the exceptional cases of subprojects that require an environmental impact assessment (EIA), the EIA will be prepared according to the procedures specified in the EARPF and approved by the State Governments and ADB prior to approval of the subproject.
- (ix) The subproject is (a) in compliance with applicable national and state laws and ADB *Policy on Involuntary Resettlement* (1995); (b) minimizes land acquisition and resettlement, and limits resettlement to unencumbered public lands to the extent possible and that has not been squatted upon; and (c) is prepared in accordance with an agreed resettlement framework. For subprojects involving resettlement a resettlement plan, in accordance with the resettlement framework as agreed with ADB will have been approved by ADB (including any revisions on account of detailed design) prior to the award of the subproject contract.

- (x) In the event of impacts on indigenous peoples (including scheduled tribes) under any subproject, that subproject is (a) in compliance with applicable national and state laws and ADB *Indigenous Peoples' Policy* (1998); and (b) is prepared in accordance with specific actions as set forth in the resettlement framework. For subprojects involving indigenous peoples, the related plan will have been approved by ADB prior to the award of civil works contract under the subproject.

## **B. Sector-Specific Subproject Selection Criteria**

### **1. Roads and Bridges**

2. The subprojects under the this component will also meet the following criteria as applicable: (i) a tsunami-damaged road at a distance not more than 5 kilometers (km) from the tsunami-affected coastline; (ii) a tsunami-damaged road not more than 5 km along the river or backwater from the coast; (iii) unbridged crossings on state roads constituting potential evacuation routes that will considerably reduce the time required for evacuation or provide rescue and relief in case of future tsunami, storms, or cyclones; and (iv) construction activities on subprojects will only commence after complying with all statutory environmental requirements as applicable and taking account of road safety requirements which can be duly audited.

### **2. Ports and Harbors**

3. The subprojects will also meet the following criteria: (i) provide emergency or short-term reestablishment of port and fisheries operation; (ii) contribute significantly to disaster mitigation; and (iii) contribute significantly to enhancing safety in maritime transport and fishing.

### **3. Water Supply and Rural and Municipal Infrastructure**

4. The specific criteria will include (i) consultation with affected communities including vulnerable groups through local government institutions for water supply and sanitation; (ii) confirmation on the aquifer and river water availability and sustainability for schemes seeking new sources; (iii) contribution to improving environmental conditions; and (iv) confirmation of operation and maintenance (O&M) sustainability through preparation of O&M plans with clear stipulation of responsibilities and resource requirements of the concerned parties with their confirmed affordability.

## **C. Procedures**

5. All subprojects will be prepared and processed in accordance with the following procedures (Table A11):

- (i) The implementing agencies (IAs) will select a subproject from the list agreed with ADB during the loan inception mission for the Project, or propose other subprojects that qualify given the eligibility criteria and prepare a project concept paper, which describes the main elements of the proposed subprojects and main justification, and (a) fill out an involuntary resettlement checklist and (b) environmental screening checklist.
- (ii) These reports will be submitted to the project management units in the respective states for review. If the PMU finds that the proposed subproject is eligible in light of the eligibility criteria and the reports are in order, PMU will send the reports to ADB

for further review, to obtain necessary guidance with regard to the extent of relevant analysis, assessment, plan, etc.

- (iii) ADB will review the subproject concept reports submitted by the PMU. If ADB finds that a proposed subproject is not likely to satisfy the eligibility criteria and/or the agreed procedures, ADB will advise the PMU either (a) to modify the subproject proposal in a manner that will make it eligible for approval or (b) that the subproject must be rejected. If a subproject is rejected, the PMU may propose a replacement subproject. If the proposed subproject satisfies the eligibility criteria and procedures, based on the resettlement checklist, ADB will advise on the requirements of preparation and application of the resettlement plan.
- (iv) Following approval of a subproject concept by PMU and ADB, the relevant IA will conduct feasibility study and preliminary design or other similar design works, and based on those works, develop a resettlement plan (if required) and undertake an IEE including an environmental management plan.
- (v) The IA will disclose the resettlement plan (if required) and IEE to the affected persons and incorporate the results of the consultation.
- (vi) The report of the feasibility study and preliminary design/other design work, including the resettlement plan (if required) and IEE, will be submitted by the IA to the PMU for its appraisal. The PMU will appraise the reports in light of the relevant frameworks. Based on the review, the PMU will prepare a summary appraisal report for each of the subprojects. If the PMU finds that one or more proposed subprojects are technically, environmentally, and socially viable, and all reports are in order, the PMU will send those reports, with attachments including the resettlement plan (if required) and IEE, to ADB for further review and approval.
- (vii) ADB will review the summary appraisal reports, together with required attachments. If ADB finds that the proposed subproject satisfies the eligibility criteria and procedures, ADB will approve the subproject. If ADB finds that the proposed subproject does not satisfy the eligibility criteria and procedures, or does not comply with sector-specific criteria, and ADB safeguard policies, ADB may advise the PMU on remedial actions to be taken for the proposed subproject for it to comply or reject the subproject.

**Table A11: Summary Procedures for Selection and Approval of Subprojects**

Activities	Required Action	Responsibility
1. Initial list of subprojects	Prepare initial list of subprojects with brief description of activities to be implemented in each subproject, and along with rough cost estimates submit the proposal to the project management unit (PMU) through the technical section.	Implementing agencies (IAs) with assistance from consultants as required
2. Compilation and initial review of subprojects	Compile and review as appropriate based on the selection criteria, the subproject proposals submitted by the IAs.	PMU with assistance from consultants
3. Selection and approval of subprojects	Based on agreed selection criteria and the priority of the state governments, select and approve subproject proposals.	Empowered Committee for the respective state
4. Survey and detailed design	Conduct survey and prepare detailed design; hold consultations with different beneficiary groups and civil societies to determine local needs and priorities; consider social impacts of the subprojects, including the environment and resettlement effects; and apply the requirements set forth in the initial environmental examination and the resettlement framework.	IA with assistance from consultant, with inputs from communities and civil societies

<b>Activities</b>	<b>Required Action</b>	<b>Responsibility</b>
5. Detailed cost estimates and bidding documents	Based on the detailed design, prepare detailed cost estimates, bidding documents, and technical specification.	IA and PMU with assistance of consultant
6. Prepare detailed subproject proposal and submit to ADB	Submit the approved subproject proposal to the Asian Development Bank (ADB), with relevant environmental and social safeguard compliances, for review and approval.	PMU
7. Final subproject approval	Review and approval of the subproject proposals.	Respective PMU of the state/ADB as applicable



## SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY

### A. Linkages to the Country Poverty Analysis

<b>Is the sector identified as a national priority in country poverty analysis?</b>	<input checked="" type="checkbox"/> Yes  <input type="checkbox"/> No	<b>Is the sector identified as a national priority in country poverty partnership agreement?</b>	<input checked="" type="checkbox"/> Yes  <input type="checkbox"/> No
<p><b>Contribution of the sector or subsector to reduce poverty in Tamil Nadu and Kerala:</b> The Tsunami Emergency Assistance Project (TEAP) will restore and upgrade the highest priority rural, municipal, and transport infrastructure and other social services; and rehabilitate affected livelihoods in the tsunami-affected coastal districts of Tamil Nadu and Kerala. Restoring and improving water supply and sanitation systems, drainage networks, and solid waste management activities will reduce incidence of waterborne diseases and improve the environmental quality of coastal districts, as well as the public health and hygiene levels among affected communities. The TEAP will also restore livelihoods of affected households, focusing on women and vulnerable groups. Sector interventions will promote wage labor opportunities, consultation, and community participation during project implementation. The TEAP will mitigate short- and medium-term increases in the incidence and severity of poverty in tsunami-affected areas. It will also contribute to building social capital and community networks and promote disaster preparedness.</p>			

### B. Poverty Analysis

#### Targeting Classification: General intervention

#### What type of poverty analysis is needed?

**Poverty and Human Development in Tamil Nadu and Kerala:** Poverty incidence in Tamil Nadu (21%; 13.05 million people) and Kerala (12.72%; 4.1 million people) is well below the national average of 26% in 1999/2000. The human development index value for Tamil Nadu (0.531) and Kerala (0.638) is higher than the national average of 0.472. Tamil Nadu and Kerala are among the best performing states in terms of health, education, and other social development indicators. Both the states have a high degree of public participation in political life and higher social capital. Despite the favorable human development indicators of both the states, poverty, and inequality levels are disproportionately and significantly high among several social groups. A recent participatory poverty assessment in Kerala identified acute poverty concentration among the fishing and coastal communities, tribal households, agricultural and urban labor, scheduled castes and tribes, the disabled, and people in traditional industries like coir, cashew, hand looming, and stone crushing. In Tamil Nadu, rural poverty is also concentrated among the marginal rainfed farmers, agriculture labor, and pockets of coastal communities. Poverty among coastal communities is highly varied, geographically interstitial (fragmented and intermittent) and socially differentiated. It is much less conspicuous among the surrounding coastal development. The coastal poor are socioeconomically and environmentally vulnerable due to low coverage and quality of water and sanitation services, and health and education infrastructure. Poverty levels are compounded by income seasonality, informal livelihoods, and chronic indebtedness. Environmental disasters like the tsunami, and frequent cyclones, have further worsened the vulnerability and coping ability of coastal communities.

**Damage, Losses, and Tsunami Impacts:** The loss of human lives and personal injuries due to the tsunami in coastal communities were accentuated by the destruction of houses and property, assets and livelihoods, and social and transport infrastructure. Widespread destruction at individual and community levels has led to fragmentation of families and social networks, and increased the number of vulnerable social groups. The fisherfolk have suffered maximum damage in terms of loss of dwelling units, and household and productive assets like boats and nets. A large number of microenterprises have been adversely affected by disruptions in supplies and markets, loss of income-generating assets, equipment, and shops. The damage to agriculture and livestock, though not significant, has also affected the livelihoods of coastal communities. Small and marginal farmers, agricultural laborers, and other social groups who depend on agriculture, horticulture, and aquaculture have been severely affected by the destruction of standing crops and livestock and salinization of agricultural land and water sources. Landless and other casual labor engaged in seasonal employment and other intermittent activities for subsistence have also suffered loss of employment and wages. Increases in the number of orphaned and separated children, adolescent girls, single parent households, households headed by women, and elderly and disabled without social care has increased the vulnerability of the poor. Destruction of water supply and sanitation systems and salinization of wells has worsened the already low coverage of sanitation in coastal villages. Destruction of roads, bridges, and culverts has disrupted mobility and accessibility of the affected communities to essential social, economic, and relief services. The damaged infrastructure poses environmental and health risks and will further reduce the pace of social and economic development in the affected communities. The poverty impact of the tsunami is localized and experienced more severely at the village and community levels, especially for households involved in fishing, agriculture, horticulture, aquaculture, and microenterprises. Since damage is largely confined to rural areas, the incidence and severity of rural poverty is likely to increase among the affected communities. The number of below poverty line families is likely to increase in the short and medium term. Families above the poverty line are expected

to slide below the poverty line. The number of poor people could increase if water supply, sanitation, health, and livelihood needs are not addressed immediately.

**Project Benefits and Impacts:** Based on the short- and medium-term recovery and reconstruction strategy outlined in the joint assessment review report, the TEAP will provide emergency assistance to support the ongoing government and private sector efforts to restore damaged social and economic infrastructure, and restore livelihoods of affected communities in Tamil Nadu and Kerala. The livelihoods component will restore the microenterprises of poor and low-income households through capacity building, enterprise and skills training, and support for economic activities. Those affected will be mobilized into existing and new self-help groups and provided capital for income-generating activities and replacement of assets. In addition, the vulnerability of the poor and low-income households will be mitigated through available life and property insurance schemes. The rural and municipal infrastructure component will rehabilitate/upgrade rural and municipal infrastructure and provide related services for the tsunami-affected communities. Restored and improved water supply to the perennially water-stressed communities will reduce the chronic water poverty and vulnerability<sup>1</sup> of the coastal poor. By providing improved and sustainable drinking water supplies, and improving the sanitation coverage, the TEAP will significantly improve public health and reduce morbidity from potential waterborne diseases. It will also reduce women's drudgery in collection/storage of water, and accrue improved health, health care, and productivity benefits to the communities, especially the women. The sanitation and solid waste subcomponents will improve the environmental conditions in coastal habitations. Reconstruction of the village and *panchayat*/municipal roads and small-scale infrastructure, such as rural markets and fish-loading facilities, will improve local access to essential services and productive public assets, and support local livelihoods through labor opportunities during the implementation. The transportation component will restore state and district roads and bridges and repairs ports and harbors, which will enable the affected populations to resume their social and economic activities. The coastal population will be able to access essential health, education, and emergency and other government welfare and relief services. Restored transport linkages will support the livelihood restoration activities by facilitating physical access to local fishing and commodities markets, wage labor, and other alternative livelihood opportunities. Improved access to evacuation routes, emergency relief measures, and disaster shelters will increase a sense of physical security among the people. Increased familial and community interaction will reduce the vulnerability of the affected households and provide a sense of social security. The ports and fishing harbors subcomponent will support restoration of labor and livelihood opportunities for those engaged in fisheries, boat building, and other port operations.

### C. Participation Process

**Is there a stakeholder analysis?**  Yes  No

TEAP preparation involved the identification and consultation of key primary and secondary project stakeholders, especially during the joint assessment of needs and damages. The key primary stakeholders are the tsunami-affected coastal communities in the 345 affected villages in Tamil Nadu and 187 villages in Kerala. Other primary stakeholders are small farmers, wage labor, women engaged in trading and other microenterprises, self-help group (SHG) members, scheduled caste and scheduled tribes households; poor and low income households; and other vulnerable groups like the orphans, adolescent girls, and households headed by women. The key secondary or institutional stakeholders include the government of Tamil Nadu, department of rural development, Tamil Nadu Water and Drainage Board, department of special village *panchayats*, affected *panchayats* and local bodies, highways department, commissionerate of municipal affairs, Tamil Nadu Corporation of Women's Development Limited, pollution control board, electricity board, department of finance, department of health, department of ports and fisheries, and maritime board. In Kerala, the secondary stakeholders include the Government of Kerala, department of disaster management, department of finance, fisheries department, the Kerala Water Authority, poverty alleviation agencies such as Kudumbashree, department of local self governance, affected *panchayats* and local bodies, department of power, the public works department. Civil society including nongovernment organizations (NGOs), community groups, and other international agencies engaged in relief and reconstruction are the other secondary stakeholders.

**Is there a participation strategy?**  Yes  No

A community participation strategy is integrated into the overall project design. The reconstruction and recovery strategy emphasizes (i) utilizing decentralized and transparent decision making and community participation, in particular for women; (ii) providing employment opportunities for the tsunami-affected communities; (iii) building good working relationships with the implementing departments, community-based structures such as SHGs and NGOs; and (iv) strengthening sustainable operation and maintenance capacity of the concerned communities and local government institutions. Participatory approaches will be encouraged in designing subprojects, implementation, operation and maintenance, and monitoring and evaluation arrangements. The process will involve information sharing, consultations, interviews, focus group meetings, and collaborative decision-making. The

<sup>1</sup> Water supply in coastal areas suffers from low per capita supply and high content of fluoride, sodium and iron, with shallow wells facing high level of salinity in dry seasons.

subproject selection criteria includes targeting of most affected groups, especially women and the newly vulnerable groups; community consultations on subprojects; practical and feasible mechanisms for local communities to participate in reconstruction works; preferential use of local labor; and local procurement for livelihood support.

#### D. Gender Development

**Strategy to maximize impacts on women:** The TEAP will restore and improve women's access to income-generating activities, essential social services, community structures, decision-making mechanisms, and other local recovery and reconstruction-related information. Improved water and sanitation infrastructure and other public services will accrue health and health care benefits to women and their families and provide more time for productive income-generating activities by reducing the drudgery in collecting water. The livelihoods component is designed as a targeted intervention to promote social and economic empowerment among the coastal women by enabling them to regain and improve their lost incomes, upgrade their technical and business skills, access internal group savings for production/consumption needs, access institutional credit, and mobilize and involve themselves through women's organizations. Fifty percent of the livelihood component is earmarked for women in the affected areas.

Has an output been prepared?  Yes  No

#### E. Social Safeguards and other Social Risks

Item	Significant/ Not Significant/ None	Strategy to Address Issues	Plan Required
<b>Resettlement</b>	<input checked="" type="checkbox"/> Significant <input type="checkbox"/> Not significant <input type="checkbox"/> None	Land acquisition and resettlement impacts are envisaged in both the states since land acquisition for construction work might cause resettlement impacts. For all project components, most rehabilitation work will be carried out within the original right-of-way while the improvements to current engineering standards for some major districts, other district roads, and internal roads might require the acquisition of narrow strips of land. For the rehabilitation of rural and municipal infrastructure, power transmission lines, ports and harbors, and street lighting, no land acquisition or resettlement impacts are envisaged. Rehabilitation and construction of new public buildings such as community centers, <i>panchayat</i> offices, and <i>anganwadi</i> centers might require small-scale land acquisition, if state land is not available. The Project will entail A/B category subprojects.	<input type="checkbox"/> Full <input type="checkbox"/> Short <input type="checkbox"/> None  Resettlement Frameworks (RFs) prepared
<b>Affordability</b>	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	The TEAP will restore essential social and economic infrastructure and services damaged and/or affected by the tsunami. It will restore the incomes and livelihoods of the affected communities.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Labor</b>	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	No adverse impact on labor is anticipated. The TEAP will create wage employment through the livelihoods and infrastructure components. Skilled and unskilled jobs will be created during construction. The TEAP will also benefit those who lost their primary source of livelihoods based on fisheries, farming, and other microenterprise sectors. Women will have equal access to jobs and wages under the TEAP.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Indigenous Peoples</b>	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	No differential impact is anticipated. Project design ensures that affected communities benefit equally without any differential impact on schedule tribe households. Any impact on indigenous peoples will be addressed through specific actions as outlined in the resettlement framework.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Other Risks and/or Vulnerabilities</b>	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None		<input checked="" type="checkbox"/> No

## RESETTLEMENT FRAMEWORK (TAMIL NADU)

1. The Tsunami Emergency Assistance (Sector) Project (TEAP) includes (i) rehabilitation of Tamil Nadu state roads and standardization of major district roads and bridges; (ii) rehabilitation of fully and partially damaged rural and municipal infrastructure such as water supply, sanitation, drainage, internal roads, power transmission lines, street lighting, and public buildings; (iii) rehabilitation of ports and harbors; and (iv) capacity building and implementation assistance. The TEAP emphasizes the mitigation of immediate losses of priority assets by rehabilitating fully or partially damaged basic infrastructure.

2. Land acquisition and resettlement impacts are envisaged for the TEAP in Tamil Nadu. The bridge in Kanyakumari, if it cannot be rebuilt on the original alignment, will have to be realigned. The government's decision as to whether the bridge can be rebuilt on the original alignment or requires a new alignment is still under consideration. Most rehabilitation work will be carried out within the original right-of-way, while the improvement of several major district and internal roads might require acquisition of narrow strips of land. Construction of emergency evacuation routes may also necessitate small-scale land acquisition and could cause temporary acquisition, disruptions, and losses. No land acquisition or resettlement impacts are envisaged for the rehabilitation of rural and municipal infrastructure, power transmission lines, ports and harbors, and street lighting. Rehabilitation and construction of new public buildings such as community centers, *panchayat* offices, and *anganwadi* centers might require small-scale land acquisition, if government land is not available.

3. With regard to the provision of emergency assistance to tsunami-affected people, the TEAP ensures that all will benefit on an equitable basis. Among those affected are scheduled tribe populations. Initial needs assessment did not identify likely adverse effects arising from their status as scheduled tribe. The TEAP will have no impacts on their tribal and cultural identity or on their social and economic institutions. However, if impacts on them are identified during TEAP implementation, such impacts will be addressed through specific actions, as necessary. Such specific action will be formulated according to the approved resettlement framework (RF) for the TEAP.

4. The TEAP will be implemented as a sector project and the RF outlines the broad scope of the TEAP's resettlement policies, procedures, and institutional requirements. Resettlement plans (RPs) and specific actions for subprojects that will have involuntary resettlement and indigenous peoples issues will be prepared according to the RF during project implementation.

### A. Policy Framework and Entitlements

5. In February 2004, the Government of India approved the National Policy on Resettlement and Rehabilitation (NPRR). The policy provides broad guidelines and executive instructions and will be applicable to projects displacing 500 families or more in flat lands and 250 families or more in hilly areas. The NPRR requires projects to (i) minimize displacement and identify nondisplacing or least-displacing alternatives; (ii) plan the resettlement and rehabilitation of project-affected families including special needs of tribal and vulnerable sections; (iii) provide a better standard of living to project-affected families; and (iv) facilitate harmonious relationships between the requiring body and project-affected families through mutual cooperation. While the NPRR recognizes most of the significant resettlement principles in the Asian Development Bank's (ADB) *Involuntary Resettlement Policy* (IRP), the NPRR does not meet some of the IRP's safeguards. First, the NPRR's threshold of applicability is limited to land acquisitions for highways, railway lines, transmission lines, and pipelines. Second, each project-affected family will be offered an ex-gratia payment of Rs10,000 and no other resettlement and rehabilitation benefits. Third, replacement value is not clearly defined and is not taken into account in

calculating lump-sum compensation. Fourth, no specific entitlements are available for squatters and encroachers.

6. The Land Acquisition Act 1894 and its amendments to date generally governs land acquisition and compensation in Tamil Nadu. The Act covers only legal titleholders and provides for (i) market value of the land; (ii) compensation of 30% on the market value for compulsory acquisition; (iii) an additional amount for trees, crops, houses, or other immovable properties; (iv) damage due to severing of land, residence, or place of business; and (v) an interest of 12% on the market value from the date of notification to award. The IRP has some additional complementary provisions especially with regard to displacement and resettlement of squatters and other informal settlers.

7. To reduce inherent delays in the land acquisition process from 18 to 6 months or less, the Government of Tamil Nadu (GOTN) issued a government order in 1995—"Acquisition of Land for various purposes, Acquisition through negotiation—Uniformity in procedure, fixation of land value and Constitution of Committee." The order sets out the principles of fixing of land value for negotiation. It allows negotiations up to 150% of the market value/guideline value for each hectare of land. Thus, whenever land must be acquired, GOTN constitutes a district negotiation committee with the district collector as the head with representatives from other line departments (Revenue, Requisitioning Agency, and Finance), which could sanction up to a total amount of Rs2,000,000. If the total value of land exceeds Rs2,000,000, a state committee will be appointed. When the negotiated value exceeds 150% of the market value/guideline value for each hectare of land, each negotiation, irrespective of the total cost, is referred to the concerned administrative department of GOTN through the commissioner of land administration for final orders. The negotiation takes place between a willing seller and GOTN. Thus, when the negotiated value exceeds the amount that can be sanctioned by the district collector or the state committee, it is referred to the concerned administrative department of GOTN for final orders. A seller who is not in agreement with the amount of compensation offered can withdraw from the negotiation.<sup>1</sup>

8. Based on these state laws and regulation on land acquisition, the ADB IRP and the NPRR, the following resettlement principles will be applied to all TEAP subprojects:<sup>2</sup> (i) land acquisition and other involuntary resettlement impacts will be minimized as much as possible; (ii) wherever possible, Government land will be utilized which is free from encumbrances and will not include land that is squatted upon; (iii) those affected will be informed and consulted on compensation options and in formulating the RPs in accordance with the agreed RF; (iv) land and other property compensation will be paid at replacement costs; (v) payment of compensation for lost land, housing, assets, and other resettlement assistance will be given in full before awarding civil contracts; (vi) compensation at replacement cost and resettlement assistance will be given to all nontitled people affected (e.g., informal dwellers/squatters, and encroachers) before acquiring land and their properties; (vii) all those affected will receive assistance to restore their income and to rehabilitate their livelihood; and (viii) special assistance will be given to households headed by women and other vulnerable groups.

9. In case of land acquisition, compensation will be paid at mutually agreed rates through negotiations as outlined in the 1995 government order at replacement costs. In the event the

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<sup>1</sup> For purposes of housing and housing related infrastructure in February 2005, GOTN issued G.O. Ms. No. 75 which enabled GOTN to direct District Level Negotiation Committees to purchase lands through private negotiations up to a maximum of 200% of the market value or guidelines value, whichever is lower, without any monetary ceiling for the rehabilitation of tsunami affected people.

<sup>2</sup> The Executing Agency will be responsible to ensure compliance/clearances with relevant government laws and regulation, if any, in addition to what is stated in the RF.

landowner does not agree to acquisition through negotiation and the land is acquired as per the Land Acquisition Act, compensation will be paid at replacement costs. If the compensation amount assessed by a district collector is lower than that of the replacement cost determined by the land acquisition and valuation committee, the difference will be paid in the form of a special grant to the affected person. The Government will bear transaction costs such as stamps/registration costs in case of purchase of replacement land. Nontitled affected people will be entitled to both compensation and rehabilitation assistance based on the nature of their losses. Replacement cost of structures will also be paid to squatters/informal dwellers, and resettlement assistance, such as shifting allowance and compensation for loss of workdays/income. Households headed by women and other vulnerable households (such as scheduled tribe/scheduled caste, disabled, elderly) will be eligible for additional assistance in terms of income restoration.

10. The entitlement matrix (Table A14) lists types of losses, eligibility, and entitlements, and provides basic parameters for the preparation of compensation and resettlement benefits. The matrix will apply to all subprojects.

**Table A14: Entitlement Matrix**

Type of Loss	Application	Definition of People Affected	Entitlement	Details of Entitlements
Agricultural land, homesteads, commercial land (private property)	Land on the project right of way (ROW)	Titleholders	Compensation at replacement cost.	<ol style="list-style-type: none"> <li>1. Cash compensation through negotiation as per government order (1995) at mutually agreed rates equal to replacement value and/or GO Ms. No. 75 (2005).</li> <li>2. Cash compensation as per Land Acquisition Act at replacement costs. If the replacement cost of land determined by land acquisition and valuation committee is more than the compensation determined by district collector, the difference will be paid as a special grant by the Project directly to those affected.</li> <li>3. Transaction costs will be paid by the Project (registration cost, stamp fees etc., incurred in the purchase of replacement land).</li> </ol>
Residential and commercial structures (private property)	Structure within the ROW	Titleholders	Compensation at replacement cost	<ol style="list-style-type: none"> <li>1. Cash compensation to be paid by the district collector at replacement costs. If the replacement cost of structure determined by land acquisition and valuation committee is more than the compensation determined by district collector, the difference will be paid as a special grant by the Project directly to those affected.</li> <li>2. A lump sum shifting assistance for shifting household assets including cost of transportation and labor costs.</li> <li>3. Project will assist those affected to purchase land to relocate to a new site.</li> <li>4. Right to salvage material from the demolished structure.</li> </ol>
Loss of income from business and loss of wages	Businesses and employees affected by project ROW	Individual	Lump sum	<ol style="list-style-type: none"> <li>1. Owners of businesses will be compensated for their loss of income for 3 months based on actual income lost assessed on a case-by-case basis.</li> <li>2. Employees directly affected by displacement of employer will receive</li> </ol>

Type of Loss	Application	Definition of People Affected	Entitlement	Details of Entitlements
				<p>wages for 3 months calculated on the basis of minimum wages.</p> <p>3. Support to those affected, through the livelihoods programs (Appendix 4) under the Project (training, capacity building, and enterprise development) for restarting or new income-generating activities.</p>
Annual/seasonal crops and trees	Crops and trees on ROW	Cultivator–household	Compensation at market value	<ol style="list-style-type: none"> <li>1. Advance notice for harvesting standing crops.</li> <li>2. Owner will receive grant equal to market value of crop lost for 10 years plus cost of replacement of seeds.</li> <li>3. Sharecroppers/tenants will be compensated at market value for the crop lost plus cost of replacement of seeds for the next season's harvest.</li> <li>4. Compensation for trees based on timber value at market prices, to be determined by Forest Department and Horticultural Department.</li> <li>5. For perennial trees, compensation will be 3–5 times the market value.</li> </ol>
Structures by squatters and informal settlers (residential/commercial)	Structures affected by ROW	Household	No compensation for land; compensation for structure at replacement cost and other assistance	<ol style="list-style-type: none"> <li>1. Compensation for loss of structure at replacement cost.</li> <li>2. A lump sum shifting assistance for shifting household assets including cost of transportation and labor costs.</li> <li>3. Affected people to relocate to a new site provided by the project.</li> <li>4. Support to those affected losing commercial structures, through the livelihoods program (Appendix 4) under the Project (training, capacity building and enterprise development) for restarting/new income-generating activities.</li> </ol>
Additional assistance for vulnerable groups below poverty line (BPL), households headed by women, elderly and disabled	Households affected by ROW	Individual	Assistance for income restoration and training	<ol style="list-style-type: none"> <li>1. Preferential employment in the Project, especially for women and the poor</li> <li>2. Support those affected through the livelihoods programs under the Project (Appendix 4) which will include- <ul style="list-style-type: none"> <li>• Support for capacity building, enterprise training, and economic activities to already organized self-help groups (SHGs).</li> <li>• Support for capacity building, enterprise training for new SHGs (male and female) not yet organized into community-based groups.</li> <li>• Replacement of productive assets, skill upgrading, risk mitigation through insurance.</li> </ul> </li> </ol>
Specific action for indigenous people/scheduled tribe (ST)	Land and other assets affected by ROW	Individual	Assistance for income restoration and training	<ol style="list-style-type: none"> <li>1. Preferential employment in the project, especially for women and the poor.</li> <li>2. Support those affected through the livelihoods programs under the Project (Appendix 4), which will include <ul style="list-style-type: none"> <li>• Support for capacity building, enterprise training, and economic activities to already organized SHGs.</li> <li>• Support for capacity building, enterprise</li> </ul> </li> </ol>

Type of Loss	Application	Definition of People Affected	Entitlement	Details of Entitlements
				training for new SHGs (male and female) not yet organized into community-based groups. • Replacement of productive assets, skill upgrading, risk mitigation through insurance.
Community infrastructure and amenities	Affected by ROW	Community	Replacement	1. Complete rehabilitation/restoration by the Project.
Other impacts not identified	1. Unforeseen impacts will be documented and mitigated based on the principles agreed in this RF.			

## B. Procedure for RP Preparation

11. The Revenue Administration, Disaster Management and Mitigation Department (RADMMMD) will be the Executing Agency (EA). Through its project management unit (PMU) it will be responsible for overall coordination, planning, implementation, monitoring, and financing of all resettlement and rehabilitation activities. RADMMMD, through the PMU and through the implementing agencies (IAs), will prepare RPs for each subproject that will have a resettlement impact or impact on indigenous peoples or both. The RPs will be prepared in accordance with this agreed RF and in compliance with the ADB IRP. The IAs with the assistance from the social development and resettlement specialist under the design and supervision consultants and nongovernment organizations (NGOs) will carry out social impact assessment surveys and undertake census, asset inventory, and detailed measurement surveys for each subproject. If impacts are found to be “significant,”<sup>3</sup> a full RP will be prepared for each subproject and if impacts are less than significant, a short RP will be prepared for that subproject. The RP will include measures to ensure that socioeconomic conditions, needs, and priorities of women are identified, and that the process of land acquisition and resettlement will not disadvantage women. If new categories of affected people and types of losses are identified, entitlements will be included in accordance with the IRP. RPs will be prepared in close consultation with those affected and will be disclosed to them. RADMMMD will review the RPs and submit them to ADB for review and approval. No civil work contract will be awarded before the approval of the RP by ADB. If any impacts on the indigenous people are identified, they will be addressed adequately through specific action as outlined in the entitlement matrix.

## C. Institutional Responsibilities

12. The Revenue Administration, Disaster Management and Mitigation Department (RADMMMD) at the state-level will be the EA of the TEAP, while the State Level Steering Committee (SLSC) will have the overall advice and guidance with the departments and the IAs. The PMU formed within RADMMMD and headed by the project director will be responsible for overall coordination, planning, implementation, monitoring, and financing of all resettlement and rehabilitation activities under the TEAP. RADMMMD will depute an official within the PMU to be in charge of land acquisition and resettlement operations, and will report to the project director. Each IA in their project implementation unit will also have qualified social/resettlement professionals. The social development and resettlement specialist will assist the PMU and IAs/line departments in preparing RPs. The project director will recruit and appoint local NGOs,

<sup>3</sup> Involuntary resettlement category A: Significant means 200 or more people will experience major impacts which are defined as (i) being physically displaced from housing, or (ii) losing 10% or more of their productive assets (income generating). Category A projects require a full resettlement plan. Involuntary resettlement Category B: Not significant include involuntary resettlement impacts that are not deemed significant and require a short resettlement plan.

as required, to help prepare and implement resettlement activities. The concerned staff at the PMU, IAs/field offices, project NGOs, and revenue department officials will undergo a week long orientation and training in resettlement policy and management. The deputed official in the PMU with the assistance from the social development and resettlement specialist will work in close coordination with the respective IAs and project NGOs on the day-to-day activities of RP implementation.

13. A land value assessment for the project committee headed by the district collector or his/her representative will also be formed with representatives from RADMMMD, IAs, district/tehsil Land Revenue office, representatives of those affected, local government, village leaders, professional assessors, and implementing NGO to assess replacement value of lost assets through a land market value survey and through compiling and comparing other available sources of information.<sup>4</sup> RADMMMD will ensure that any land acquisition and resettlement/relocation is preceded by a satisfactory RP, formulated according to the agreed RF. RADMMMD will also ensure that appropriate entitlements and mitigation measures are included in the RP especially for the benefit of vulnerable groups—households headed by women, below poverty line, scheduled caste/scheduled tribes, the elderly, and disabled. The PMU will submit RPs for ADB review and approval, and will ensure that affected persons will receive compensation and other entitlements before civil work contracts are awarded.

#### **D. Implementation Schedule and Budget**

14. The resettlement plans for all subprojects will be prepared and implemented from June 2005 to December 2006. GOTN will cover all costs related to land acquisition and resettlement budgets. All compensation and resettlement assistance will be paid prior to displacement. RADMMMD will ensure that funds are delivered on time to the district collector and the implementing NGOs for timely RP implementation.

#### **E. Disclosure, Consultation, and Grievances**

15. In preparing an RP, all stakeholders will be consulted by RADMMMD through focus group discussions and meetings. The RPs will be made available in the local language(s) during meetings in the various communities and will be disclosed to all affected persons. Summary RPs will be disclosed on the ADB Involuntary Resettlement Website. Consultations with those affected will continue throughout project implementation.

16. Grievance redress committees will be established in each administrative district, with representation from RADMMMD, IAs, people affected, women/vulnerable groups, local government, and NGOs chaired by the district collector or his/her representative, e.g., additional district magistrate in charge of land acquisition. Through public consultations, those affected will be informed that they have a right to grievance redress. They can call upon the support of NGOs to assist them in presenting their grievances or queries to the grievance redress committee, which are expected to settle many grievances. The committees must resolve grievances within a stipulated time. Their decision will be binding unless challenged by a court of law. The committees will meet at least four times a month during the first 6 months of project implementation, and twice a month from the seventh month.

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<sup>4</sup> District Level Monitoring Committees and Village Level Monitoring Committees will be extensively utilized for this purpose.

## **F. Monitoring and Evaluation**

17. RADMMMD will establish a monthly monitoring system and prepare monthly progress reports on all aspects of land acquisition and resettlement activities. The report will contain progress made in RP implementation with particular attention to monitoring and the delivery of entitlements. The deputed official in charge of land acquisition and resettlement in the PMU with assistance from the social development and resettlement specialist, through the IAs, field offices, and NGOs will monitor the progress of land acquisition and resettlement and also prepare biannual reports, forwarding them to ADB for review. ADB review mission back-to-office reports will include progress in resettlement plan implementation.

## **RESETTLEMENT FRAMEWORK (KERALA)**

1. The Tsunami Emergency Assistance (Sector) Project (TEAP) consists of (i) construction of small bridges on evacuation routes; (ii) rehabilitation and standardization of major district roads and other district roads; (iii) rehabilitation and rebuilding of fully and partially damaged rural and municipal infrastructure, such as water supply, sanitation, drainage, internal roads, power transmission lines, street lighting, and public buildings; (iv) rehabilitation of ports and harbors; and (v) capacity building and implementation assistance. The TEAP emphasizes mitigation of immediate losses of priority assets through rehabilitation of fully or partially damaged basic infrastructure. The Department of Disaster Management (DMD) will be the Executing Agency.

2. Land acquisition and resettlement impacts for the TEAP are envisaged in Kerala. The construction of three emergency evacuation bridges for disaster preparedness in Allapuzha and Kollam districts could require the acquisition of private land triggering resettlement impacts. However, as improvement of major district roads and other district roads to accepted engineering standards will be carried out on their existing right-of-way, only narrow strips of land will need to be acquired at several locations. Resettlement impact of rehabilitation of rural and municipal infrastructure, power transmission lines, and ports and harbors are expected to be minimal. Rehabilitation and construction of new public buildings such as community centers, *panchayat* offices, and *anganwadi* centers might require small-scale land acquisition, if government land is not available.

3. Scheduled tribe populations are among the tsunami-affected. Initial need assessment, however, did not identify any likely adverse effects on them. However, if any adverse impacts on them are identified during TEAP implementation, they will be addressed through specific actions, listed in resettlement framework (RF), as necessary.

4. The RF outlines the broad scope of Asian Development Bank (ADB) resettlement policies and procedures that are applicable to the TEAP, and institutional requirements to implement the TEAP. Resettlement plans (RPs) and specific actions, if any, will be prepared according to the agreed RF during TEAP implementation.

### **A. Policy Framework and Entitlements**

5. The Government of India in February 2004 approved the National Policy on Resettlement and Rehabilitation (NPRR). The policy provides broad guidelines and executive instructions, and will be applicable to projects displacing 500 families or more in flat lands and 250 families or more in hilly areas. The NPRR requires projects to (i) minimize displacement and identify nondisplacing or least-displacing alternatives; (ii) plan the resettlement and rehabilitation of project-affected families, including special needs of tribal and vulnerable sections; (iii) provide a better standard of living to project-affected families; and (iv) facilitate harmonious relationships between the requiring body and project-affected families through mutual cooperation. The NPRR does not meet some of key safeguards of the ADB Involuntary Resettlement Policy (IRP). First, the NPRR's threshold of applicability is limited to land acquisitions for highways, railway lines, transmission lines, and pipelines. Second, each project-affected family will be offered an ex-gratia payment of Rs10,000 and no other resettlement and rehabilitation benefits. Third, replacement value is not clearly defined and is not taken into account in calculating lump-sum compensation. Fourth, no specific entitlements are available for squatters and encroachers. On the other hand, the NPRR does recognize some of the significant resettlement principles that are enshrined in the IRP.

6. The Land Acquisition Act of 1894 and its amendments to date generally govern land acquisition and compensation in Kerala. The act covers only legal land titleholders and provides for (i) market value of land; (ii) compensation of 30% on the market value for compulsory acquisition; (iii) additional compensation for trees, crops, houses, or other immovable properties; (iv) damage due to severing of land, residence, or place of business; and (v) an interest of 12% on the total compensation agreed from the date of notification to the award. The IRP complements the Land Acquisition Act, especially with regard to displacement and resettlement of squatters and other informal settlers.

7. The Government of Kerala (GOK) has adopted the Rehabilitation and Resettlement Principles and Policy Framework for fast-track projects, which are in line with the ADB IRP. The policy principles state that (i) all acquisition of private land will be under the Land Acquisition Act and compensation paid under the Act will be supplemented with further rehabilitation and resettlement support to meet replacement value of all assets and to improve the standard of living of those affected; (ii) common property resources will be replaced as far as feasible, and assistance will be provided at replacement value to the community if replacement fails; (iii) before taking possession of acquired lands and properties, all compensation and resettlement and rehabilitation and related activities will be completed in accordance with the policy; (iv) every effort will be made to ensure that new housing for all affected persons is available before people are required to relocate; (v) if those affected are unable to continue with their previous occupations, they will be provided with support and assistance through alternative employment strategies; (vi) land compensation will not be extended to encroachers and squatters, but they will be provided with rehabilitation and resettlement assistance; (vii) people affected will be involved in planning, implementation, and monitoring of the project; (viii) RPs will be translated into local languages and disclosed to all those affected; and (ix) vulnerable groups including those living below poverty line, scheduled caste, scheduled tribe, households headed by women, orphans, destitutes, and the disabled will be provided with suitable additional rehabilitation assistance.

8. As per the approved Guidelines for Accelerating Land Acquisition for fast-track projects, GOK has resorted to direct purchase of land from land titleholders. The process is initiated through the issuance of the notification under section 4(1) of the Land Acquisition Act, and section 6(1) of the Survey and Boundaries Act, 1961. The land price is arrived at by taking recourse to three systems: (i) taking into account the prescribed rates or the average of the actual transaction rates of similar lands for contemporary years for which sale deeds are registered; (ii) taking into consideration 20 times of the annual value of gross production of the concerned land, averaged over the preceding 5 years; and (iii) fixing market value of land equal to the minimum land value if so prescribed by state government under the Indian Stamp Act for the purpose of registration of sale deeds under the Indian Registration Act of 1908. The replacement value is fixed at whichever is the highest among the three amounts arrived at using the three alternate methods. In case replacement value is higher than the market value determined by the district collector, the difference will be paid in the form of assistance by the project. Direct purchase methods in fast-track projects are applicable to all cases of transfer of land to the ownership of the project authority in which a land titleholder is willing to enter into a direct sale deed. The land acquisition proceedings initiated in respect of the parcels of land are then withdrawn through a notification under section 48 of the Land Acquisition Act, wherein the government can withdraw from acquisition of any land of which possession has not been taken. In cases where direct purchase cannot be effected for any specific reason, procedures under the Land Acquisition Act is continued leading to passing of award under the Act and provision of additional rehabilitation and resettlement assistance.

9. Based on the above state laws and regulation on land acquisition, ADB *Policy on Involuntary Resettlement*,<sup>1</sup> the NPRR, Rehabilitation and Resettlement Policy of Fast-Track Projects, and Guidelines for Accelerating Land Acquisition adopted by the government, the following resettlement principles will be applied to all TEAP subprojects:<sup>2</sup> (i) land acquisition and other involuntary resettlement impacts will be minimized as much as possible; (ii) wherever possible, Government land will be utilized that is free from encumbrances and will not include land that is squatted upon; (iii) affected people will be informed and consulted on compensation options and in formulating RPs in accordance with the agreed RF; (iv) land and other property compensation will be paid at replacement cost; (v) payment of compensation for lost land, housing, assets, and other resettlement assistance will be given in full before awarding civil contracts; (vi) compensation at replacement cost, and resettlement and relocation assistance will be given to all nontitled people affected (e.g., informal dwellers/squatters, and encroachers) before acquiring land and their properties; (vii) all those affected will get assistance to restore their income and to rehabilitate their livelihood; and (viii) special assistance to households headed by women and other vulnerable groups.

10. In case of land acquisition, compensation will be paid at a mutually agreed rate that is replacement value following the methods of land price determination mentioned in para 8. If land is acquired as per the Land Acquisition Act, compensation will be paid at replacement costs. If the compensation amount assessed by a district collector is lower than that of the replacement cost as assessed by the Land Assessment Value Committee, the difference will be paid in the form of a special grant to the affected person. The Government will bear transaction costs such as stamps/registration costs in case of purchase of replacement land. Nontitled affected persons will be entitled to both compensation and rehabilitation assistance based on the nature of their losses. Replacement cost of structure will also be paid to squatters/informal dwellers and relocation and resettlement assistance such as shifting allowance and compensation for loss of workdays/income. Households headed by women and other vulnerable households (such as scheduled tribe/scheduled caste, disabled, elderly) will be eligible for additional assistance in terms of income restoration.

11. The entitlement matrix (Table A15) lists types of losses, eligibility, and entitlements, and provides basic parameters for the preparation of compensation and resettlement benefits. The matrix will apply to all subprojects.

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<sup>1</sup> ADB. 1995. *Policy on Involuntary Resettlement*. Manila.

<sup>2</sup> DMD will be responsible for ensuring compliance/clearances with relevant government laws and regulation, if any, in addition to what is stated in the resettlement framework.

**Table A15: Entitlement Matrix**

Type of Loss	Application	Definition of People Affected	Entitlement	Details of Entitlements
Agricultural land, homesteads, commercial land (private property)	Land on the project right-of-way (ROW)	Titleholders	Compensation at replacement cost	<ol style="list-style-type: none"> <li>1. Cash compensation through direct purchase as per Guidelines of Accelerating Land Acquisition at mutually agreed rates at replacement value</li> <li>2. Cash compensation as per Land Acquisition Act at replacement costs. If the replacement cost of land is more than the compensation determined by district collector, the difference will be paid as a special grant by the Project directly to the affected person.</li> <li>3. The land price will be arrived at by taking recourse to three systems namely (i) taking into account the prescribed rates or the average of the actual transaction rates of similar lands for contemporary years for which sale deeds are registered; (ii) taking into consideration 20 times of the annual value of gross production of the concerned land, averaged over preceding 5 years; and (iii) fixing up market value of land equal to the minimum land value if so prescribed by the state government under Indian stamp Act for the purpose of registration of sale deeds under the Indian Registration Act of 1908. The replacement value will be fixed at whichever is the highest among the three amounts arrived at the three alternate methods.</li> <li>4. Transaction costs will be paid by the Project (registration cost, stamp fees etc., incurred in the purchase of replacement land).</li> <li>5. Transitional allowance calculated at minimum wages for 6 months, if residual land is not viable or for 3 months when residual land is viable.</li> <li>6. In case of severance of agricultural land, an additional grant of 10% of the amount paid for land acquisition.</li> </ol>
Residential and commercial structures (private property)	Structure within the ROW	Titleholders	Compensation at replacement cost	<ol style="list-style-type: none"> <li>1. Cash compensation for loss of residential and commercial structures at replacement value. If the replacement cost of structure is more than the compensation determined by the district collector, the difference will be paid as a special grant by the Project directly to those affected.</li> <li>2. A lump sum shifting assistance for shifting household assets including cost of transportation and labor costs.</li> <li>3. Project will assist people affected to purchase land to relocate to a new or alternate site.</li> <li>4. Right to salvage material from the demolished structure.</li> </ol>
Loss of income from business and loss of wages	Businesses and employees affected by project ROW	Individual	Lump sum	<ol style="list-style-type: none"> <li>1. Owners of businesses will be compensated for their loss of income for 3 months.</li> <li>2. Employees directly affected by displacement of employer will receive wages for 3 months.</li> <li>3. Support to people affected, through the livelihoods programs (Appendix 4) under the Project (training, and capacity building and enterprise development) for restarting/new income-generating activities.</li> </ol>

Type of Loss	Application	Definition of People Affected	Entitlement	Details of Entitlements
Annual/seasonal crops and trees	Crops and trees on ROW	Cultivator-household	Compensation at market value	<ol style="list-style-type: none"> <li>1. Advance notice for harvesting standing crops</li> <li>2. Owner will receive grant equal to market value of crop lost for 10 years plus cost of replacement of seeds.</li> <li>3. Sharecroppers/tenants will be compensated at market value for the crop lost plus cost of replacement of seeds for the next season's harvest.</li> <li>4. Compensation for trees based on timber value at market prices, to be determined by Forest Department and Horticultural Department.</li> <li>5. For perennial trees, compensation will be 3 to 5 times the market value.</li> </ol>
Structures by squatters and informal settlers (residential / commercial)	Structures affected by ROW	Household	No compensation for land; compensation for structure at replacement cost and other assistance	<ol style="list-style-type: none"> <li>1. Compensation for loss of structure at replacement cost.</li> <li>2. A lump sum shifting assistance for shifting household assets including cost of transportation and labor costs.</li> <li>3. People affected will relocate to a new site provided by the Project.</li> <li>4. Support to people losing commercial structures, through the livelihoods program (Appendix 4) under the Project (training and capacity building, enterprise development) for restarting / new income-generating activities.</li> </ol>
Additional assistance for vulnerable groups (below poverty line, scheduled caste, households headed by women, elderly and disabled)	Households affected by ROW	Individual	Assistance for income restoration and training	<ol style="list-style-type: none"> <li>1. Preferential employment in the Project, especially for women and the poor.</li> <li>2. Support those affected through the livelihoods programs under the Project (Appendix 4), which includes <ul style="list-style-type: none"> <li>• Support for capacity building, enterprise training, and economic activities to already organized self-help groups (SHGs).</li> <li>• Support for capacity building, enterprise training for new SHGs (male and female) not yet organized into community-based groups.</li> <li>• Replacement of productive assets, skill up grading, risk mitigation through insurance.</li> </ul> </li> </ol>
Specific action for indigenous people/ scheduled tribe	Land and other assets affected on ROW	Individual	Assistance for income restoration and training	<ol style="list-style-type: none"> <li>1. Preferential employment in the Project, especially for women and the poor.</li> <li>2. Support those affected through the livelihoods programs under the Project (Appendix 4), which includes <ul style="list-style-type: none"> <li>• Support for capacity building, enterprise training, and economic activities to already organized self-help groups.</li> <li>• Support for capacity building, enterprise training for new SHGs (male and female) not yet organized into community based groups.</li> <li>• Replacement of productive assets, skill upgrading, and risk mitigation through insurance.</li> </ul> </li> </ol>
Community infrastructure and amenities	Affected by ROW	Community	Replacement	<ol style="list-style-type: none"> <li>1. Complete rehabilitation/restoration by the Project.</li> </ol>
Other impacts not identified	1. Unforeseen impacts will be documented and mitigated based on the principles agreed in this resettlement framework.			

## **B. Procedure for Resettlement Plan Preparation**

12. DMD/the project management unit (PMU), through the implementing agencies<sup>3</sup> (IAs) will prepare RPs for each subproject that will have resettlement impacts or impacts on indigenous peoples, or both. The RPs will be prepared in accordance with this agreed RF and in compliance with the ADB IRP. The IAs with the assistance from social development and resettlement specialist under the design and supervision consultants, and nongovernment organizations (NGOs) will carry out social impact assessment surveys and undertake census, asset inventory, and detailed measurement surveys for each subproject. If impacts are found to be “significant,”<sup>4</sup> a full RP will be prepared for each subproject and if impacts are less than significant, a short RP will be prepared. The RP will include measures to ensure that socioeconomic conditions, needs, and priorities of women are identified; and that the process of land acquisition and resettlement will not disadvantage women. If new categories of affected people and types of losses are identified, their entitlements will be included in RPs in accordance with the agreed RF and IRP. RPs will be prepared in close consultation with all those affected and will be disclosed to them in a language that they could understand. DMD will review all RPs; and submit all RPs to ADB for review and approval. No civil works contract will be awarded before approval of an RP by ADB. Any impacts on indigenous peoples identified will be adequately addressed through specific actions, as outlined in the entitlement matrix of the agreed RF.

## **C. Institutional Responsibilities**

13. The PMU will be formed within DMD and headed by a project director. The PMU will be responsible for overall coordination, planning, implementation, monitoring, and financing all resettlement and rehabilitation activities under the Project. DMD will depute an official within the PMU to be in charge of land acquisition and resettlement operations, and report to the project director. Each IA will have a project implementation unit with qualified social/resettlement professionals. The social development and resettlement specialist will assist the PMU and IAs /line departments in preparing RPs. The project director will recruit and appoint local NGOs, as required, to assist in preparing and implementing resettlement activities. The concerned PMU staff, IAs/field offices, project NGOs, and revenue department officials will undergo a week-long orientation and training in resettlement policy and management. The deputed official in the PMU, with the assistance from the social development and resettlement specialist, will work in close coordination with the respective IAs and project NGO/s on the day-to-day activities of RP implementation. A land value assessment committee headed by the district collector or his/her representative will be formed with representatives from DMD, IAs, district/Tehsil land revenue office, representatives from people affected, local government, village leaders, professional assessors and implementing NGO to assess replacement value of lost assets through a land market value survey following the systems of assessments mentioned in para. 8.

14. DMD will ensure that any land acquisition and resettlement/relocation is preceded by a satisfactory RP, formulated according to the agreed RF. DMD will also ensure that appropriate entitlements and mitigation measures are included in the RP, especially for the benefit of vulnerable groups: households headed by women, below the poverty line, scheduled caste/scheduled tribes, the elderly, and disabled. The PMU will submit RPs for ADB review and approval, and will ensure that those affected receive compensation and other entitlements before civil work contracts are awarded.

<sup>3</sup> IAs include Department of Fisheries and Cooperatives, Ports/Harbor Engineering Department, Kerala State Electricity Board, Kerala Water Authority, Public Works Department, and Rural Development Department.

<sup>4</sup> Involuntary Resettlement Category A: Significant means 200 or more people will experience major impacts, defined as (i) being physically displaced from housing, or (ii) losing 10% or more of their productive assets (income generating). Category A projects require a full resettlement plan. Involuntary Resettlement Category B: Not significant includes involuntary resettlement impacts that are not deemed significant and require a short resettlement plan.

#### **D. Implementation Schedule and Budget**

15. The resettlement plans for all subprojects will be prepared and implemented from July 2005 to December 2006. All costs related to land acquisition and purchases will be borne by GOK. DMD will ensure that sufficient funds are delivered on time to the district collector to disburse to those affected. The project implementing NGOs will monitor the acquisition, land purchase, and payment of replacement value to those affected. Land acquisition and payment of compensation and other special rehabilitation and resettlement assistance will begin as soon as the Project is approved and will be completed within 2 years.

#### **E. Disclosure, Consultation, and Grievances**

16. In preparing an RP, DMD will consult all stakeholders through focus group discussions and meetings. Once the draft RPs are formulated, they will be made available in local language(s) to all people affected. RPs will be disclosed on the ADB Involuntary Resettlement Website. Consultations with those affected will continue throughout project implementation.

17. Grievance redress committees will be established in each administrative district. They will have representation from DMD, IAs, people affected, women/vulnerable groups, local government, and NGOs, and be chaired by the district collector or his/her representative e.g., additional district magistrate in charge of land acquisition. Through public consultations, those affected will be informed that they have a right to grievance redress. They can enlist NGOs to assist them in presenting their grievances or queries to the grievance redress committee. The grievance redress committees are anticipated to settle most of the grievances. The committees must resolve grievances within a stipulated time, and their decision will be binding unless challenged by a court of law. The committees will meet at least four times a month during the first 6 months of project implementation, and twice a month from the seventh month.

#### **F. Monitoring and Evaluation**

18. DMD will establish a monthly monitoring system and prepare monthly progress reports on all aspects of land acquisition, compensation payment, provision of special assistance, and other resettlement activities. The reports will contain progress in the delivery of entitlements. The deputed official-in-charge of land acquisition and resettlement at the PMU with the assistance of the social development and resettlement specialist, through IAs, field offices, and NGOs will monitor the progress of land acquisition and resettlement, and prepare biannual reports and forward them to ADB for review. ADB review mission back-to-office reports will include progress with resettlement plan implementation.

## SUMMARY INITIAL ENVIRONMENTAL EXAMINATION

### A. Introduction

1. This initial environmental examination report aims to: (i) describe the Tsunami Emergency Assistance (Sector) Project (TEAP), (ii) describe the potential environmental impacts and corresponding mitigation measures, and (iii) explain the environmental assessment and review procedures that will be adopted during project implementation. The report was prepared following a fact-finding mission to India between 24 February and 11 March 2005, and benefited from the findings of the Joint Assessment Mission.<sup>1</sup> The report was prepared in accordance with Asian Development Bank (ADB) *Environmental Policy*<sup>2</sup> and *Disaster and Emergency Assistance Policy*.<sup>3</sup> The recommendations are consistent with the environmental and related legislations of the Government of India.

### B. Description of the Project

2. The TEAP is a rehabilitation and reconstruction project that aims to restore livelihoods and infrastructure damaged or destroyed by the tsunami. The TEAP will be implemented in the two southern states of Tamil Nadu and Kerala over 3 years. It comprises three components, (i) livelihoods, (ii) transportation, and (iii) rural and municipal infrastructure. A number of subprojects will be included under each of these components. The detailed designs of subprojects will be done during project implementation. In this sense, the overall project is considered to be sector-like in design. The following sections list indicative subproject activities to be considered under each component:

#### 1. Livelihoods

3. This component aims to restore livelihoods of those directly or indirectly affected by the tsunami. Activities will include

- (i) developing microenterprises through skills development and microenterprise establishment support to self-help groups of poor and low income households;
- (ii) forming new self-help groups in affected areas for delivery of microenterprise development support;
- (iii) replacing productive assets of damaged microenterprises in affected areas;
- (iv) reducing vulnerabilities of the poor through programs such as group insurance schemes; and
- (v) restoring community infrastructure affected by the tsunami.

#### 2. Transportation

4. This component seeks to address transportation infrastructure damaged or destroyed by the tsunami. Activities will include rehabilitation and reconstruction of (i) roads and highways, and (ii) ports and harbors.

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<sup>1</sup> World Bank, United Nations, and Asian Development Bank.

<sup>2</sup> ADB. 2003. *Environment Policy*, Manila.

<sup>3</sup> ADB. 2004. *Disaster and Emergency Assistance Policy*. Manila.

5. **Roads and Highways.** Specific interventions include
- (i) rehabilitating or reconstructing badly damaged sections of state highways, major district roads, and other district roads;
  - (ii) improving collateral structures such as road shoulders, pavements, protection works, and cross drainage structures; and
  - (iii) constructing several new bridges along evacuation routes.

6. **Ports and Harbors.** Specific interventions include

- (i) providing priority dredging of harbor basins and approach channels;
- (ii) rehabilitating breakwaters and harbor compound walls;
- (iii) rehabilitating damaged roads and facilities; and
- (iv) procuring equipment for dredging and improved navigation.

### 3. Rural and Municipal Infrastructure

7. Infrastructure that supports rural and municipal services will be rehabilitated and upgraded. Activities will include

- (i) restoring and upgrading damaged water supply schemes including consolidation of schemes and developing new intake sources;
- (ii) rehabilitating and upgrading sanitary complexes and solid waste management facilities;
- (iii) supporting sanitation and environmental awareness campaigns;
- (iv) providing technical support for damage assessment surveys, studies, improved (disaster resistant) designs, and community participation in implementing subprojects;
- (v) rehabilitating local roads;
- (vi) rehabilitating and upgrading village/*panchayat*-level stormwater drainage facilities; and
- (vii) reconstructing or rehabilitating public buildings such as common fish-landing, processing, and marketing facilities; community centers; and *panchayat* offices.

### 4. Capacity Building and Implementation Assistance

8. The Project will provide technical support for detailed assessment and verification of damage in each of the sectors; preparation of subproject appraisal reports in accordance with national and state government requirements and ADB requirements and selection criteria; incorporation of disaster resistance into the rapid planning, design, and implementation of the works; supervision and monitoring of works to ensure quality control and transparency among contractors and communities carrying out smaller work; and oversight of works in each sector/subsector and provision of detailed accounting, auditing, and reporting to the project management units and project implementation units.

## C. Description of the Environment

### 1. Physical and Ecological Resources

9. The state of Tamil Nadu covers an area of just over 130,000 square kilometers (km<sup>2</sup>), and is the 11<sup>th</sup> largest state in India. It has a coastline of 1,076 km most of which is considered

rural and undeveloped. The state can be broadly divided into two natural regions: the coastal plains and the hilly western area. The major rivers are the Cauvery, Tamaraparani, and Vaigai, and the west flowing river Periyar. The state has a tropical climate with temperatures ranging from 28–40 °C during the summer and 18–26 °C during the winter months. Average annual rainfall is around 950 millimeters.

10. Kerala is a little less than 39,000 km<sup>2</sup> in area and has a coastline of 590 km. The state has a lush vegetative cover with large tracts of forest. Agriculture and forests together account for 84% of the land area. Kerala lies to the west of the western Ghat mountains. As a result the state receives considerable rainfall (especially during the southwest monsoon) and surface water discharge. The state has an abundance of water resources with over 40 rivers flowing through it. It also has extensive mineral deposits and rich marine life.

11. Ecological resources in the coastal areas of southern India have been subject to considerable degradation and depletion, primarily due to human-induced pressures on the environment. Mangrove habitat have reportedly declined by 40% in the last century or so, and indigenous dry evergreen forests along the eastern coastal belt have been reduced to about 1% of the earlier recorded distribution.

## **2. Human and Economic Development**

12. Tamil Nadu has a population of over 62 million, of which 65% is rural. Population density state-wide is around 480 persons per km<sup>2</sup>. The population growth rate by the early 1990s was 2.14%, one of the lowest rates among all the states. Tamil Nadu ranks among the highest of all states in terms of human development indices. Literacy is 73%, second only to Kerala. Infant mortality has reduced drastically over the years and stood at 48<sup>4</sup> by 1999.

13. Agriculture is the mainstay of the economy; however, agriculture as a share of the net domestic product of the state has been in decline. Tamil Nadu is one of the most industrialized states in India. In terms of the contribution of manufactured goods to the net domestic product, Tamil Nadu ranks second among all states. The overall growth rate of the state averaged 6.3% per annum during the 1990s. Per capita income of the state is among the top four of all states.

14. Kerala is one of the most densely populated states of India. The population is over 29 million, and density is around 750 person per km<sup>2</sup>. Most of the population is concentrated in the coastal areas, with some human settlements located within 20 meters of the high tide line. Around 26% live in urban areas. However, the population growth rate of Kerala is the lowest among all states. Kerala leads the country in terms of human development indices, with a literacy rate of 91% and infant mortality of 10.

15. Agriculture currently contributes about 13% to the state's overall income; however, this percentage has been declining. Overall economic growth through the 1990s was 5.7%. Economic activity in the project areas is concentrated in fisheries, agriculture, microenterprises, and coastal tourism. Kerala contributes the second largest share of the overall fish production of India. All of these sectors were badly affected by the tsunami.

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<sup>4</sup> Per thousand live births.

#### **D. Potential Environmental Impacts and Mitigation Measures**

16. The TEAP primarily aims to rehabilitate and reconstruct infrastructure damaged or destroyed by the tsunami and to restore livelihoods of affected people. The negative environmental impacts of rehabilitation and reconstruction activities will be largely limited to the construction phase. Given the scale of individual subprojects, these impacts are not likely to be significant. The infrastructure facilities upgraded by the TEAP will result in certain positive environmental impacts. In terms of expansion or new construction activities, the TEAP includes (i) consolidation and improvement of existing water supply schemes<sup>5</sup> and development of new intake sources and (ii) construction of new bridges along selected evacuation routes. Siting, design, and construction of these new structures will be done with due consideration of the environmental impacts. Potential environmental concerns and benefits of the subprojects are summarized in Table A16.

17. Given the sector-like nature of the TEAP, detailed subproject environmental assessments can be conducted only during implementation. Therefore an environmental assessment and review procedure framework was prepared to outline specific environmental assessment and monitoring procedures that will be adopted when preparing and implementing subprojects.

#### **E. Institutional Requirements and Environmental Monitoring**

18. The primary legislation governing environmental assessment of projects in India is the Environment (Protection) Act (No. 29 of 1986) and rules and notifications issued there under.<sup>6</sup> Other legislation governs the protection of natural resources and clearance requirements on projects and activities that have a bearing on such resources. These pieces of legislation include the Water (Prevention and Control of Pollution) Cess (Amendment) Act (No. 19 of 2003), the Air (Prevention and Control of Pollution) Act (No. 14 of 1981), the Wildlife (Protection) Amendment Act (No. 16 of 2003), the Forest (Conservation) Act (amended in 1988), and the Biological Diversity Act (No. 18 of 2003). These and overriding policies are available on the web site of the Ministry of Environment and Forests of the Government of India.<sup>7</sup>

19. The Environment (Protection) Act has several notifications pertaining to clearance of projects and activities. The notification on Environmental Clearance—General<sup>8</sup> stipulates criteria for projects and activities that require clearance by the Ministry of Environment and Forests of the Government, based on duly prepared environmental impact assessments, and related procedures. The Coastal Regulations Zone (CRZ) notification,<sup>9</sup> governs the authorization for development activities within the zone.<sup>10</sup> Within each state the CRZ is further demarcated into

<sup>5</sup> Consolidated schemes would have around 25,000 connections.

<sup>6</sup> The publication: Central Pollution Control Board. 2001. *Pollution Control Acts, Rules and Notifications Issued There Under*. Delhi. (September) contains a compendium of all legislation that governs environmental and related clearance procedures.

<sup>7</sup> See [www.envfor.nic.in](http://www.envfor.nic.in)

<sup>8</sup> Of 27 January 1994.

<sup>9</sup> Of 19 February 1991 and subsequent amendments.

<sup>10</sup> Defined as the 'coastal stretches of seas, bays, estuaries, creeks, rivers, and backwaters influenced by tidal action (in the landward side) up to 500 meters from the high tide line and the land between the low tide line and the high tide line.

three categories.<sup>11</sup> Authorization for approval of development activities within the zone is delegated to the respective state coastal zone management authorities (CZMA). Projects or activities that are exempted from clearance under the above-mentioned notifications may still require some form of clearance under provisions of these acts or related notifications.

20. Enforcement of the above legislations and notifications vary by state. Provisions of the CRZ notification are enforced by the Department of Environment in Tamil Nadu and by the Department of Science, Technology, and Environment in Kerala. Interpretation of permissible activities in the different zones (i.e., CRZ I through III) and procedures for obtaining clearances also vary by state. Provisions under other legislation are enforced by a range of agencies. State pollution control boards are vested with powers to implement certain provisions of different legislation. State departments of forests and wildlife each have responsibility for enforcing provisions of several acts mentioned above.

21. By virtue of the nature of destruction caused by the tsunami, the TEAP will target coastal infrastructure. Hence, some subproject activities will invariably fall within the CRZ. The range of legislation, notifications, and complex of institutions vested with enforcement authority, as described, lead to the conclusion that the relevant clearances and approvals required of subprojects will vary from case to case.

#### **F. Environmental Assessment and Review Procedures**

22. The TEAP is considered sector-like in that detailed subproject designs will be developed during implementation. Consequently, the specific environmental impacts of subprojects will also be evident only at that stage. In such sector-like projects, greater emphasis is placed on establishing suitable environmental assessment procedures that would be adopted during implementation. Accordingly, an environmental assessment and review procedure framework was prepared (Supplementary Appendix D) to outline specific environmental assessment and monitoring procedures that must be adopted when preparing and implementing subprojects. The framework also highlights the requirement to obtain clearances and approvals under relevant statutory regulations. A summary of the procedures follows.

23. Initial proposals for subprojects will be generated by the project implementation units (PIUs) of the respective ministries and line departments serving as implementing agencies (IAs) of the TEAP. The consultant environmental specialist attached to the design and supervision consultants unit will help the PIUs prepare rapid environmental assessments of each subproject. The rapid assessment takes the form of a checklist and will be prepared in consultation with local community members. Based on the findings of the rapid assessment, the consultant environment specialist will recommend if further environmental assessment of the subproject is considered necessary. The rapid environmental assessment will also be the basis for the consultant environment specialist to point out the relevant approvals and clearances required under various statutory regulations. The decision on further environmental assessment of a particular subproject will be taken in consultation with the project management unit (PMU) and the environmental safeguard officer attached to the ADB extended mission. Further

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<sup>11</sup> Coastal Regulations Zone I (i) is ecologically sensitive or important areas such as wildlife sanctuaries, national parks, government forests, mangroves, coral reefs, breeding and spawning grounds of fish, and sites of historical importance and (ii) includes areas between the low tide line and the high tide line. Zone II are areas that are already developed up to or close to the shoreline, such as major coastal settlements, ports, and other large infrastructure. Zone III comprises areas that are less developed than zone II areas or undeveloped but which do not merit being classified as zone I. Zone IV covers the coastal stretches of the Andaman and Nicobar Islands, Lakshwadeep Islands, and some other islands except those already classified as zone I, II, or III.

environmental assessment will, in most cases, imply an initial environmental examination (IEE), which the consultant environmental specialist will undertake. Although not considered likely given the nature of subprojects considered under the Project, the rapid assessment could highlight significant environmental impacts associated with a subproject, sufficient to warrant an environmental impact assessment (EIA). As an added precaution, the environmental assessment and review procedure framework covers this eventuality and specifies the corresponding procedures that must be followed. All detailed environmental assessments would include an environmental management plan (EMP) to guide mitigation and monitoring of any possible negative environmental impacts.

24. If the subproject requires certain clearances vis-à-vis statutory regulations, the PIU will be responsible for obtaining such clearances prior to commencing construction work on the subproject. In the case of subprojects for which further environmental assessments are deemed necessary (i.e., IEE or EIA), the PIU would endorse the assessment and agree to implement the corresponding EMP. Approval of the IEE or EIA report would be obtained from the relevant government agency responsible for approving environmental assessments. The consultant environment specialist will help monitor implementation of the EMP.

25. The environmental safeguard officer attached to the ADB extended missions will review the first three rapid environmental assessments prepared for subprojects in each sector. Thereafter, the rapid assessments will be reviewed randomly to ensure compliance with the process. All detailed environment assessment reports will be cleared by ADB prior to subproject approval. If the subproject is considered to have environmental impacts warranting an EIA, the required public consultation (at least twice) and disclosure of summary EIA (120 days of public notice through the ADB website) should be met as part of the approval process.

26. In the event that a subproject design undergoes changes following approval of the EIA/IEE and the new design has elements that impinge on the environmental impacts identified and addressed in the original EIA/IEE, or introduces new potential environmental impacts, the EIA/IEE must be revised and be subject to reapproval, to address these new impacts.

## **G. Consultations and Public Disclosure**

27. Consultation and public disclosure of the TEAP were curtailed in view of the emergency processing procedures that were followed for project preparation. Nevertheless, the relevant government agencies were involved in identifying the project scope, and selective consultation with local community groups were carried out during field visits. Further consultations with local community groups will be carried out as appropriate during design and construction of subprojects. These requirements are explained in the environmental assessment and review procedure framework.

## **H. Findings, Recommendations, and Conclusions**

28. On the basis of this description of the TEAP, the potential environmental impacts, possible mitigation measures, and proposed environmental assessment and review procedures to be followed during implementation, no further environmental assessment of the overall project is considered necessary at this stage. The TEAP is not likely to result in significant negative environmental impacts and is likely to generate certain positive environmental impacts. The TEAP is therefore classified as category B in terms of environmental impacts.

**Table A16: Potential Environmental Impacts and Indicative Mitigation Measures**

Sector	Subproject Characteristics			Typical Environmental Mitigation / Enhancement Measures to be Included in Project	
	Subproject Type and Threshold	Typical Activities Envisaged under the Project	Typical Environmental Concerns		
Livelihoods	<ul style="list-style-type: none"> <li>• Asset creation</li> <li>• Capacity building</li> <li>• Employment generation</li> <li>• Risk mitigation</li> </ul>	<ul style="list-style-type: none"> <li>• Establishing and strengthening self-help groups</li> <li>• Construction of village ponds</li> <li>• Technical assistance</li> </ul>	<ul style="list-style-type: none"> <li>• Temporary pollution and nuisance during construction of village ponds</li> <li>• Contaminated water could create health hazards, if ponds are not properly maintained</li> </ul>	<ul style="list-style-type: none"> <li>• Ponds would reduce pressure on groundwater extraction and also supplement groundwater recharge</li> <li>• Ponds could help flush out salinity in groundwater due to increased recharge capacity</li> </ul>	<ul style="list-style-type: none"> <li>• Prepare and implement rapid environmental assessment checklists and environment management plans for each subproject</li> <li>• Construction supervision by qualified personnel</li> <li>• Obtain relevant clearances applicable under statutory regulations governing the subproject areas</li> </ul>
Roads and Highways	<ul style="list-style-type: none"> <li>• Rehabilitation and reconstruction of existing major district roads and other district roads</li> </ul>	<ul style="list-style-type: none"> <li>• Repairing damaged road sections</li> <li>• Minor widening works</li> <li>• Reconstructing drainage and other protection works</li> <li>• Repairing and reconstructing damaged bridges</li> <li>• Rebuilding destroyed bridges</li> </ul>	<ul style="list-style-type: none"> <li>• Temporary pollution by labor camps set up during construction</li> <li>• Deterioration of water quality due to silt runoff during construction</li> <li>• Noise, dust, traffic congestion, and other public nuisance due to construction activities</li> </ul>	<ul style="list-style-type: none"> <li>• Cross-drainage improved</li> <li>• Improvement of vegetation on road sides</li> </ul>	<ul style="list-style-type: none"> <li>• Construction supervision by qualified personnel</li> <li>• Labor camps properly located with water supply and sanitation facilities</li> <li>• Recommended codes of practice included in contract documents to minimize public nuisance</li> <li>• Preparation and implementation of environmental management plans for subprojects</li> </ul>
	<ul style="list-style-type: none"> <li>• Construction of new bridges on evacuation routes</li> </ul>	<ul style="list-style-type: none"> <li>• Construction of 2-lane bridge structures (typically 10 m wide and 250–400 m long)</li> <li>• Widening and reconstruction of access roads connecting bridges</li> <li>• Reconstruction of cross-drainage and other road protection works</li> </ul>	<ul style="list-style-type: none"> <li>• Siting within environmentally sensitive areas classified under statutory regulations</li> <li>• Obstruction of water flow in backwater ways</li> <li>• Removal of vegetation</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction of water pollution caused by ferry service and other mechanized boats currently used to transport people and goods</li> <li>• Reduction of bank erosion caused by mechanized boats and ferry service</li> </ul>	<ul style="list-style-type: none"> <li>• Obtaining clearances applicable under statutory regulations prior to construction of subprojects</li> <li>• Suitable design and construction supervision by qualified experts (including attention to cross-drainage, water movement in canals, vegetative measures for erosion-prone areas)</li> <li>• Minimize loss of trees/natural vegetation and, where minor loss is unavoidable, provide compensatory planting</li> <li>• Rapid assessment of alternatives from environmental/social perspective</li> <li>• Preparation and implementation of environmental management plans for subprojects</li> </ul>

Sector	Subproject Characteristics				Typical Environmental Mitigation / Enhancement Measures to be Included in Project
	Subproject Type and Threshold	Typical Activities Envisaged under the Project	Typical Environmental Concerns	Typical Environmental Opportunities	
Ports and Harbors	<ul style="list-style-type: none"> <li>Rehabilitation and reconstruction works in fishery harbors and minor ports</li> </ul>	<ul style="list-style-type: none"> <li>Providing priority dredging of harbor basins and approach channels</li> <li>Rehabilitating breakwaters and seawalls</li> <li>Rehabilitating damaged roads and shore facilities</li> <li>Procuring new equipment for dredging and navigation aides</li> </ul>	<ul style="list-style-type: none"> <li>Inappropriate disposal of dredge spoils could cause pollution and water logging</li> <li>Construction activities could create temporary forms of pollution and nuisance</li> </ul>	<ul style="list-style-type: none"> <li>Improved designs will reduce vulnerability to natural disasters</li> <li>Proposed equipment and facilities will reduce pollution from harbor operations</li> <li>Debris could be used in a productive manner</li> </ul>	<ul style="list-style-type: none"> <li>Suitable construction supervision to identify appropriate sites for depositing dredge spoils</li> <li>Recommended codes of practice included in contract documents to minimize public nuisance</li> <li>Preparation and implementation of environmental management plans for subprojects</li> </ul>
Water Supply and Sanitation	<ul style="list-style-type: none"> <li>Rehabilitation and upgrading of existing schemes</li> </ul>	<ul style="list-style-type: none"> <li>Reconstructing and rehabilitating damaged parts of existing pipe systems</li> <li>Extending pipe systems</li> <li>Restoring tube wells contaminated by salt water</li> <li>Constructing new tube wells or surface intakes</li> <li>Reconstructing small-scale sanitation facilities</li> </ul>	<ul style="list-style-type: none"> <li>Inappropriate siting of new sources could cause over exploitation of groundwater or reduce availability for downstream users</li> <li>Temporary pollution and nuisance during construction of new pipelines</li> </ul>	<ul style="list-style-type: none"> <li>Supplementing with new sources reduces the likelihood of overextraction from existing source</li> </ul>	<ul style="list-style-type: none"> <li>Adequate technical assistance and studies prior to identifying suitable sources for new intakes</li> <li>Obtaining appropriate clearances under statutory regulations, for expansion of schemes and siting new sources</li> <li>Suitable construction supervision</li> <li>Preparation and implementation of environmental management plans for subprojects</li> </ul>
<i>Panchayat</i> -level infrastructure facilities such as solid waste, stormwater drainage, and community buildings	<ul style="list-style-type: none"> <li>Rehabilitation and upgrading of existing facilities</li> </ul>	<ul style="list-style-type: none"> <li>Repairing or improving existing facilities</li> <li>Reconstructing damaged buildings</li> <li>Providing technical assistance and awareness for improved management</li> </ul>	<ul style="list-style-type: none"> <li>Nuisance and temporary forms of pollution during construction period</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in water pollution from improved sanitation and solid waste disposal facilities</li> <li>Improvement in solid waste management</li> <li>Reduction in water logging</li> </ul>	<ul style="list-style-type: none"> <li>Prepare and implement REA checklists and environment management plans for each subproject</li> <li>Construction supervision by qualified personnel</li> <li>Obtain relevant clearances applicable under statutory regulations governing the subproject areas</li> </ul>