



Technical Assistance Report

Project Number: 38412-2
September 2008

India: Preparing the Integrated Flood and Riverbank Erosion Risk Management Project–Assam (Phase 2): Processing and Institutional Strengthening

(Cofinanced by the Multi-donor Trust Fund under the Water
Financing Partnership Facility)

CURRENCY EQUIVALENTS

(as of 1 September 2008)

Currency Unit	–	Indian rupee/s (Re/Rs)
Re1.00	=	\$0.02276
\$1.00	=	Rs43.94

ABBREVIATIONS

ADB	–	Asian Development Bank
ASG	–	Assam state government
COBP	–	country operations business plan
CWC`	–	Central Water Commission
DMO	–	disaster management organization
FFW	–	flood forecasting and warning
FRERM	–	flood and riverbank erosion risk management
ha	–	hectare
IWRM	–	integrated water resources management
MOWR	–	Ministry of Water Resources
SWP	–	State Water Policy
TA	–	technical assistance
WRD	–	Water Resources Department

TECHNICAL ASSISTANCE CLASSIFICATION

Targeting Classification	–	General intervention
Sector	–	Agriculture and natural resources
Subsector	–	Water resource management
Themes	–	Sustainable economic growth, environmental sustainability, capacity development
Subthemes	–	Fostering physical infrastructure development, natural resources management, institutional development

NOTE

In this report, "\$" refers to US dollars.

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I. INTRODUCTION

1. The Asian Development Bank (ADB) has included in its country operations business plan (COBP) 2008–2010 for India¹ a loan for flood and river erosion management for Assam and Arunachal Pradesh as a component of ADB's 2009 lending program. To support the programs for Assam, a project preparatory technical assistance (TA) was undertaken from April 2007 to June 2008,² and a follow-on TA to support further preparation and institutional strengthening was included in the COBP as part of the 2008 TA program.³ A fact-finding mission was fielded in June 2008 and formulated the TA design. The design and monitoring framework is in Appendix 1.

II. ISSUES

2. India is one of the most disaster-prone countries in the world. Flooding is a major recurrent natural disaster, causing damage on average of \$450 million annually that is increasing in the recent years. The country has a flood-prone area accounting for about 14% of India's geographic area and 25% of its cultivable area. A comprehensive policy framework for flood management was developed at the national level through the 2002 National Water Policy to promote short- to long-term programs for structural and non-structural measures with a basin-wide approach that integrates catchment improvements. To date, about 18 million (hectares) ha of flood prone area has been protected with flood embankments and other structures, and a nation-wide flood forecasting and warning (FFW) system has been established. However, large gaps still exist between the national policy framework and operations at the state level. Key issues include: (i) the predominance of structural measures pursued on a piecemeal basis, (ii) their limited integration with long-term planning and strategic programming at the basin level, (iii) limited attention and coverage of nonstructural measures, and (iv) limited institutional capacity of the state agencies to deliver programs that include effective stakeholder participation.

3. Assam remains one of the poorest states in India, with 36% of its 26 million people living under the poverty line in 2000, and the state's per capita domestic product was 43% below the national average in 2003. Many other development indicators also lag behind. This is caused by several factors including poor infrastructure, a remote location, and an inability to minimize the damage from frequent flooding. The state's strategy for economic development emphasizes rapid urban and industrial growth, and rural development through strategic interventions, with investments in key infrastructure such as transport, power, and communications.

4. Effective flood and riverbank erosion risk management (FRERM) remains high on the development agenda of Assam, given that 90% of its agriculture land and urban areas are located in flood-prone areas. Flooding has a devastating impact, affecting an average of 3 million people and more than 1.2 million ha of land annually. In 2004 it affected 12 million people and more than 2.9 million ha, with total damages amounting to \$1.5 billion. In addition, about 7% of the land in the state's 17 riverine districts has been lost due to river erosion over the last 50 years. The social disruption and costs of these natural disasters have been rising in recent years due to a growing population and expanding economic activities.

5. The state is mostly covered by the alluvial plains and low-lying hills of the Brahmaputra and Barak River basins. Severe flooding and riverbank erosion are caused by runoff from

¹ ADB. 2007. *India: Country Operational Business Plan (2008-2010)*. Manila.

² ADB. 2006. *Technical Assistance to India for Preparing the North East Integrated Flood and Riverbank Erosion Management Project (Assam)*. Manila.

³ The TA first appeared in the business opportunities section of ADB's website on 17 July 2008.

extremely heavy rainfall during the monsoon season, giving the Brahmaputra the fourth highest level of flood discharge in the world and the second highest level of sediment loads coming from upper watersheds that are geologically unstable. This situation is exacerbated by watershed degradation due to deforestation and shifting cultivation practice. Effective FRERM calls for a holistic, basin-wide approach with a sound planning and coordination framework that integrates short- to long-term strategies and programs, including: (i) improved catchment management, (ii) reservoirs that are feasible on social and environmental grounds, and (iii) balanced combinations of structural and nonstructural measures to manage the immediate annual risks of inundation and land loss.

6. The state has installed flood embankment systems protecting about 50% of its flood-prone areas. However, their effectiveness is limited due to poor construction quality and deterioration caused by insufficient maintenance, riverbed levels rising, and failure caused by river erosion. Coping with river erosion is particularly challenging due to the high capital and maintenance costs of protection works, which limits their application to highly strategic locations. Many embankment systems suffer from frequent flood damages caused by overtopping and erosion-induced breaches, constraining investments in urban and agriculture development. Less-protected areas suffer from chronic flooding.⁴ To cope with the problems, a high priority needs to be accorded to the improvement of existing embankments, particularly along high value areas where maintenance can be ensured. Riverbank protection should be provided where feasible, while also exploring more cost effective and flexible options that apply leading national and international technologies to adapt to dynamic river processes. Alternative risk management measures should be put in place in other areas including flood proofing; strategic retirement (or setback) of embankments; and a range of nonstructural measures such as FFW, flood and river erosion risk mapping, adaptive cropping, and social safety nets for the poor.

7. The 11th five-year plan (2007–2012) of the Government of India has accorded higher priority to FRERM. This is in line with a paradigm shift reflected in the country's new disaster management strategy that now focuses on preparedness as opposed to post-disaster response; persistent poverty particularly in flood-prone areas; and the impacts of climate change such as a higher incidence of water-related natural disasters. Within this context, the Assam state government (ASG) has initiated steps to establish a sound policy and an institutional framework of integrated water resources management (IWRM) and FRERM. A state water policy (SWP) has been drafted that envisages establishing institutions for IWRM, and a holistic, state-wide FRERM plan as an essential instrument to address the problems from an integrated long-term perspective. The need for institutional strengthening and better coordination of key sector organizations is also recognized, including the Water Resources Department (WRD) and disaster management organizations (DMOs) at the local government level.

8. The Integrated Flood and Riverbank Erosion Risk Management Investment Project–Assam (the Project) has been included in ADB's 2009 lending program for India, on the basis of the ASG's proposal. A multitranche financing facility (MFF) proposal was prepared under the first TA (footnote 2). It aims to enhance security against flooding and river erosion in the selected, flood-prone areas of the state while strengthening the requisite policy, planning, and institutional foundations. Its scope includes (i) institutional and knowledge base development, including holistic state level FRERM planning, strengthening of sector institutions, data and knowledge base development, and regional networking; (ii) comprehensive FRERM structural and nonstructural measures; and (iii) participatory project management systems. The proposal

⁴ Poverty incidence along the riverine front lines is particularly high, with a large number of people displaced by river erosion now occupying areas, including the flood embankments, as squatters.

places significant emphasis on advance efforts to strengthen institutional bases, including a comprehensive planning framework, and a sound knowledge base to effectively respond to the dynamic natural river processes. Structural measures focus on the four existing embankment systems, which protect critical areas of the state's interest, through adoption of alternative cost effective and sustainable designs. Nonstructural measures extend to the areas most vulnerable to chronic flooding. Field level programs will be provided following the establishment of effective mechanisms for participatory planning and implementation, and the building of capacities of the local DMOs to which the program delivery agencies will be held accountable. These objectives are in line with the lessons identified during the first TA.

9. The first TA has prepared the abovementioned MFF proposal with a sector road map, feasibility and safeguard assessments for four subprojects, and multi-disciplinary implementation arrangements, building on the existing policy, planning, and study documents.⁵ These are examined by ASG, the Government of India, and ADB to initiate project processing. In this context, the relevant policy and institutional strengthening actions need to be advanced to provide an enabling environment. These actions include (i) finalization of the SWP and its initial implementation with appropriate IWRM functions, (ii) preparation of a state-level FRERM plan with a wider basin perspective, and (iii) initiation of the institutional strengthening actions of WRD.⁶ The experience of ADB-assisted infrastructure projects in India indicates the critical need to eliminate the time gap between project approval and implementation.⁷ Addressing this problem requires (i) early establishment of multi-disciplinary project management offices at the state and subproject levels; (ii) timely processing of the detailed project reports incorporating innovative designs; (iii) providing training for the assigned staff on the required implementation procedures and arrangements; (iv) initiating pre-construction activities, including a participatory planning and design process with local stakeholders; (v) initiating critical knowledge base development such as morphological prediction and flood plain zoning; and (vi) advancing the recruitment of critical service providers such as consultants and nongovernment organizations. The proposed TA is needed and designed to address these specific project issues.

III. THE TECHNICAL ASSISTANCE

A. Impact and Outcome

10. The overall impact of the TA and the Project will be enhanced security against flooding and river erosion, and induced economic growth in the state's vital areas of economic interests, including urban and productive rural areas, and natural heritage sites. This will be achieved through an integrated FRERM approach comprising (i) a comprehensive planning framework, (ii) a balanced combination of structural and nonstructural measures implemented with stakeholder participation, and (iii) sound institutional foundations. The TA's outcome will include (i) an improved policy environment, planning framework, and capacity of WRD and other agencies to operationalize IWRM and integrated FRERM with set reform actions; and (ii)

⁵ Including the National Water Policy 2002, 11th five-year plan of the Government, Assam state government, Brahmaputra master plans prepared by the Brahmaputra Board, and a comprehensive natural resources sector study of the North East region undertaken by the Government of India with the assistance of the World Bank.

⁶ Little external assistance has been provided to sector operations in Assam. WRD remains largely structure-oriented, with insufficient management systems (from planning to monitoring and evaluation) to respond to the dynamic river process in an adaptive, efficient, and sustainable manner. Capacities to pursue holistic FRERM programs in consultation with diverse stakeholders also need strengthening. The road map has set out specific agendas and actions including (i) office realignment; (ii) vision and institutional strategy formulation; (iii) functional strengthening (human resources, data and knowledge base, work execution, and quality control); (iv) management tools; (v) multi-disciplinary and participatory systems; and (vi) sustainable maintenance operations.

⁷ Long delays were observed in some circumstances due to the large gaps in the executing agency's capacity to put into operation the required implementation procedures, and delays in mobilizing consultants and contractors.

advanced management capacities and readiness to initiate the Project in terms of detailed project report preparation and clearance, project office establishment, staff assignment and capacity development, implementation materials and management systems, and progress in advance actions for procurement. The initial poverty and social analysis is in Appendix 2.

B. Methodology and Key Activities

11. The TA will support the policy, program, and institutional development efforts owned by WRD and the ASG by supplementing the latter's resources and materials to facilitate the stipulated outputs. Close coordination will be maintained with government agencies, including the Ministry of Water Resources (MOWR) and affiliated organizations such as the Central Water Commission (CWC) and Brahmaputra Board. The TA will also introduce best practices and lessons learned in the Asian region and other Indian states. A consultative approach will be taken to include participation from the wider stakeholders associated with FRERM and water resources management at large. The TA activities comprise two components.

1. Part A: Institutional Strengthening

12. The TA's first component will support ASG's actions to provide an overall enabling policy environment, planning framework, and institutional foundation for integrated and sustainable FRERM in the context of IWRM. Activities will include assistance for (i) finalizing a draft SWP through stakeholder consultations, and initial steps to functionalize IWRM; (ii) preparing a framework for a state-level integrated FRERM plan with catchment interventions, institutional and knowledge development, and environmental conservation; (iii) implementing WRD's institutional actions defined under the first TA for operationalizing integrated FRERM, including changes in structure, staffing and resources, and management systems; (iv) pursuing a change management process for WRD to meet its emerging mandates, including a vision and mission statements, institutional strategy, and an action plan; (v) developing a computerized asset management system of FRERM infrastructure for sustainable monitoring and maintenance planning; (vi) developing knowledge base through various studies, including support for the development of a river erosion prediction system; (vii) establishing database management systems on hydrology, morphology, sediment transport, and environmental parameters; and (viii) organizing seminars for staff of ASG and the Government of India on presentation of international best practices and lessons for integrated FRERM and IWRM.

2. Part B: Project Management Systems Support

13. The TA's second component will enhance institutional capacity to operationalize integrated FRERM under the Project while accelerating its timely, efficient, and effective initiation and implementation. Activities will include (i) advisory support for WRD's preparation of detailed project reports with innovative designs for the individual subprojects for Government of India's clearance; (ii) preparation of a project implementation plan, including the relevant guidelines and manuals related to implementation and management information systems; (iii) training programs for the project staff, local providers, and stakeholders at the state, district, and subproject levels, with capacity mapping and training needs assessments; (iv) detailed design, contract packaging, bid document preparation, and advance actions for procurement; (v) implementation of requisite surveys, and investigation and preparation of resettlement plans and other safeguard documents; (vi) consultative processes for detailed design and planning with the district and village level disaster management organizations; and (viii) preparation of sample community-based disaster management plans with participatory planning for appropriate local minor interventions.

C. Cost and Financing

14. The total TA cost is estimated at \$1,130,000 equivalent. The amount of \$150,000 will be financed on a grant basis by ADB's TA funding program and \$750,000 will be financed on a grant basis by the Multi-donor Trust Fund under the Water Financing Partnership Facility,⁸ to be administered by ADB. ASG will finance the remaining \$230,000 equivalent with in-kind support. The Government of India and ASG will also provide relevant information and materials. Details of the cost estimates and financing plan are in Appendix 3. The Government of India has been informed that approval of the TA does not commit ADB to finance the Project.

D. Implementation Arrangements

15. WRD of ASG will be the TA's Executing Agency (EA) and will implement the TA in close coordination with Government of India agencies, including the Department of Economic Affairs, Ministry of Development of North East Region, MOWR, CWC, and Brahmaputra Board. ASG will (i) expand the existing TA management office to include a coordinator and database manager, and to become the project management unit; (ii) maintain the existing, multi-disciplinary TA steering committee and project preparatory core group; (iii) expand WRD's institutional development working group to include managerial staff; and (iv) form an interdepartmental IWRM working group to define a road map to implement SWP.⁹

16. The TA will be implemented over a period of 15 months from October 2008 to December 2010 (with a break from June to September 2009). The TA will require the engagement of 11 person-months of international and 33 person-months of national consultant services. All activities will be owned and implemented by ASG, with the facilitation and analytical support provided by the national consultants under the overall advice and guidance of the international consultants, who will be engaged as advisors. An outline terms of reference is shown in Appendix 4. All consultants will be engaged individually by ADB in consultation with the ASG and the Government of India to obtain the best mix of consultants having the most appropriate qualifications and experience. The consultants will be recruited in accordance with ADB's *Guidelines on the Use of Consultants* (2007, as amended from time to time) and other arrangements satisfactory to ADB for selecting and engaging national consultants. The specific reporting requirements, which will be consolidated by the international and/or national team leader based on the inputs from individual consultants, are also stipulated in Appendix 4. Stakeholder workshops involving ASG, the Government of India, the consultants, and ADB will be organized at the inception, midterm, and draft final stages. Seminars and workshops will also be organized with the ASG staff and other stakeholders concerned.

IV. THE PRESIDENT'S DECISION

17. The President, acting under the authority delegated by the Board, has approved (i) ADB administering a portion of technical assistance not exceeding the equivalent of \$750,000 to be financed on a grant basis by the Multi-donor Trust Fund under the Water Financing Partnership Facility, and (ii) ADB providing the balance not exceeding the equivalent of \$150,000 on a grant basis, to the Government of India for preparing the Integrated Flood and Riverbank Erosion Risk Management Project–Assam (Phase 2): Processing and Institutional Strengthening, and hereby reports this action to the Board.

⁸ Contributors: the governments of Australia, Austria, and Norway.

⁹ These measures will be pursued to develop strong ownership of ASG to proceed with necessary institutional development to provide the enabling environment for effective and sustainable FRERM operations.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets and/or Indicators	Data Sources and/or Reporting Mechanisms	Assumptions and Risks
<p>Impact Enhanced economic growth and reduced poverty in the selected subproject areas and sub-basins of Brahmaputra River Assam, together with reduced flood and riverbank erosion damages (brought about through the ensuing Project prepared under the two TA programs).</p>	<ul style="list-style-type: none"> • Incomes: Increases in household incomes (to be quantified during the TA) • Poverty: Incremental poverty reduction in subproject areas • Production: Increases in production in agriculture, industry and urban services • Flood security: reduced damages due to flooding and riverbank erosion • State total revenue: Increased revenue from rising incomes, and reduced expenditure from state calamity funds • Institutions: Similar interventions are replicated, accelerating economic growth 	<ul style="list-style-type: none"> • National and district statistics on agriculture, incomes, and human development index • Benefit monitoring and evaluation reports • Other appropriate statistics including those related to the improved management information system of the Water Resources Department 	<p>Assumptions</p> <ul style="list-style-type: none"> • ASG will accept loan terms and conditions offered through the Government of India. • Ensuing loan project is feasibly designed, funded, and implemented. • Political will and stable leadership to pursue reforms • Strong ownership and stakeholder participation <p>Risk</p> <ul style="list-style-type: none"> • Natural disasters beyond the design return period
<p>Outcome Ensuring project design is agreed to by the Government of India, ASG and ADB, and necessary institutional development substantially progresses with associated project startup activities by the time of its effectiveness, all of which contribute to achieving the project objective of reduced flood and riverbank erosion damages (through improved FRERM institutional foundations, a sound planning framework, extension of structural and nonstructural measures, and project management).</p>	<ul style="list-style-type: none"> • Ensuring the project is approved by the Government of India, ASG, and ADB, with MFF modality having three phases • Detailing and finalizing policy and institutional action plan to operationalize integrated FRERM and its initial implementation, and generic capacities are developed • Sound planning framework developed for integrated FRERM • Project management system is established and staff trained for implementation arrangements • Training modules and programs for project staff, stakeholders, and private providers developed, and initial training conducted • Substantial progress in advance procurement of goods and civil works and recruitment process of consultants and NGOs 	<ul style="list-style-type: none"> • TA consultants progress reports • ADB review mission reports • TA final report 	<p>Assumptions</p> <ul style="list-style-type: none"> • Project institutions are committed to promote integrated FRERM • Timely establishment of project offices and assignment of qualified staff • Willingness and responsiveness of line agencies, local governments, and stakeholders to operationalize participatory FRERM • Stable leadership and support within and outside the EA
<p>Outputs A. Progress in Institutional Strengthening for Integrated FRERM and IWRM (i) Policy and institutional framework for IWRM, (ii) Planning framework for integrated FRERM, and (iii) institutional foundations for integrated FRERM</p>	<p>By December 2009</p> <p>(i) IWRM</p> <ul style="list-style-type: none"> • Finalization of state water policy • Framework for IWRM setup and arrangements defined • Action plan for policy implementation developed and finalized by ASG apex body <p>(ii) FRERM planning framework</p> <ul style="list-style-type: none"> • FRERM strategy and framework drafted for consultative process • Arrangements for planning and management defined 	<ul style="list-style-type: none"> • Inception report • Draft reports on the outputs concerned • ASG orders, guidelines, and manuals • EA, working group, advisory group, and steering committee meeting minutes • Aide memoire of ADB inception and review missions 	<p>Assumptions</p> <ul style="list-style-type: none"> • ASG provides timely support in establishing office and assigning qualified staff • Ownership on the part of ASG and WRD to proceed with necessary institutional actions • Strong political support and leadership

Design Summary	Performance Targets and/or Indicators	Data Sources and/or Reporting Mechanisms	Assumptions and Risks
	<p>(iii) Flood and riverbank erosion risk management institutional foundation</p> <ul style="list-style-type: none"> • Immediate institutional changes as defined by the first project preparatory TA completed • WRD's change needs recognized and change management process initiated • Progress in preparing institutional vision and strategy for WRD • Detailed design prepared for data and knowledge management system • Prediction system developed for riverbank erosion for major rivers • Basic design prepared for asset management system and institutions for their monitoring and maintenance planning • Seminars for advanced flood and riverbank erosion risk management systems conducted 		
<p>B. Sound Project Management Systems (i) Integrated FRERM project management systems, (ii) capacity development, (iii) project processing and initial implementation</p>	<p>By June 2009</p> <p>(i) Project management system</p> <ul style="list-style-type: none"> • Detailed project implementation plan with various manuals • MIS for baseline, process, and outputs and impacts, including socioeconomic and institutional data • Immediate action plan for smooth project launching <p>(ii) Capacity development</p> <ul style="list-style-type: none"> • Project offices at state and subproject levels established with staff assignments • Training programs and manuals developed for the ensuing Project • Training provided to project staff (at central and subproject levels) and stakeholders • Training institutions and trainers identified and trained <p>(iii) Project processing and initial implementation</p> <ul style="list-style-type: none"> • Detailed project reports and project documents prepared and approved by ASG and the Government • Detailed designs for main civil works, and safeguards plans for subsequent works prepared • Detailed procurement plan prepared and finalized • Consultative process progressed for the main civil works 	<ul style="list-style-type: none"> • Draft detailed project reports and project documents of ASG and the Government of India • Project implementation and training materials • EA, working group, advisory group, and steering committee meeting minutes • Consultants' progress reports • Aide memoire of ADB review missions 	<p>Assumptions (Same as above)</p> <ul style="list-style-type: none"> • Participatory process is appreciated by line departments, local governments, and stakeholders • Local security problems will not disturb the process • WRD provides sufficient ownership and counterpart support to institutionalize the outputs <p>Risk</p> <ul style="list-style-type: none"> • 2008 and 2009 monsoons may hamper the local preparatory processes

Design Summary	Performance Targets and/or Indicators	Data Sources and/or Reporting Mechanisms	Assumptions and Risks
	immediately initiated in tranche 1 <ul style="list-style-type: none"> • Advance procurement of goods and civil works, and engagement of consultants and NGOs substantially progressed 		
Activities with Milestones		Inputs	
A. By the ASG/ Government of India <ul style="list-style-type: none"> (i) Appoint counterpart staff and form steering committee, working group, and advisory group (completed) (ii) Establish ensuing project management setup at state, and subproject levels (Jan 2009) (iii) Prepare draft detailed project reports for the subprojects (Dec 2008), and detailed designs for main civil works for tranche-1 (iv) Regularly work with consultants to provide surveys and other support, and to organize meetings (Oct 2008–Dec 2009) (v) Organize workshops at the inception, midterm, and draft final stages, and trainings for project staff (project management unit and four subproject offices) and stakeholders (vi) Provide office space, data, information, documents, detailed project reports (and other inputs as appropriate), and other support to the TA (Oct 2008–Dec 2009) 		ADB - \$900,000 <ul style="list-style-type: none"> • Consulting services 44 person-months - \$591,000 • Surveys and Studies - \$150,000 • Workshops, Seminars and Trainings - \$25,000 • Administrative and Support Services - \$38,000 • Equipment - \$6,000 • Contingencies - \$90,000 Government - \$230,000 <ul style="list-style-type: none"> • Counterpart and administrative support - \$60,000 • Local Travel - \$30,000 • Studies and Surveys - \$140,000 	
B. By Consultants <p>Undertake TA activities in close collaboration with the Government of India, ASG, stakeholders, and ADB</p> <ul style="list-style-type: none"> (i) Immediate support for the critical actions of the two components below, to be conducted by individual consultants (Oct 2008–Dec 2009) (ii) Institutional strengthening for integrated FRERM and integrated water resources management (Oct 2008–Dec 2009) (iii) Project management systems development and support (Oct 2008–June 2009) 			
C. By Stakeholders <ul style="list-style-type: none"> (i) Join workshops at various stages (Oct 2008–Dec 2009) (ii) Participate in the preparation of detailed design processes and trainings (same as above) 			
D. By ADB <ul style="list-style-type: none"> (i) Recruit consultants in coordination with ASG and Government of India (Sep 2008) (ii) Monitor and supervise TA activities regularly (iii) Guide TA activities through inception and review missions 			

ADB = Asian Development Bank, ASG = Assam state government, EA = executing agency, FRERM = flood and riverbank erosion risk management, IWRM = integrated water resources management, MFF = multitranches financing facility, MIS = management information system, NGO = nongovernment organization, TA = technical assistance, WRD = Water Resources Department.

INITIAL POVERTY AND SOCIAL ANALYSIS

Country and Project Title:	India: Integrated Flood and Riverbank Erosion Risk Management Project–Assam		
Lending or Financing Modality:	Multitranche Financing Facility	Department/ Division:	South Asian Department/ Agriculture, Natural Resources, and Social Services Division

I. POVERTY ISSUES

A. Linkages to the National Poverty Reduction Strategy and Country Partnership Strategy

1. Based on the country poverty assessment, the country partnership strategy and the sector analysis describe how the project would directly or indirectly contribute to poverty reduction and how it is linked to the poverty reduction strategy of the partner country.

India's 11th five-year plan (2007–2012) prioritizes reducing regional and rural-urban disparity, and chronic poverty, particularly in rural areas, through inclusive and equitable growth, with a strong focus on accelerating the growth rate in underdeveloped regions. Assam remains one of the least developed states in India, with its per capita income level 43% below the national average in 2003. This is the result of several factors, including poor infrastructure, remoteness, and inability to minimize the impacts of damage from frequent flooding. Among these, effective flood risk management remains high on the development agenda, given that 90% of Assam's agriculture land and urban areas are located in flood-prone areas that are mostly inundated during extreme flooding, which has a devastating impact. About 7% of the land in the state's 17 riverine districts has also been lost due to river erosion in the last 50 years, displacing a large number of people and adding to the landless and homeless poor. Following the holistic national policy framework for flood management, the Assam state government now intends to address this chronic problem through a comprehensive approach encompassing a sound policy and planning framework with a basin-wide integrated catchment management perspective; structural and nonstructural measures to cope with immediate annual risks by exploring innovative cost-effective, and sustainable options adaptive to natural processes; and firm institutional foundations to deliver programs in an accountable manner, including stakeholder consultations. The proposed project (the Project) will support the ASG's efforts towards this end, with a primary focus on improving the performance of existing flood embankment systems that protect the strategic areas of interests (urban and productive rural areas, and a natural heritage site), extending nonstructural measures to the most vulnerable flood-prone areas, and strengthening the requisite planning and institutional basis (e.g., database). ADB's country strategy and program for India (2003–2006)^a expanded ADB's operations in rural infrastructure including water resources as the most important feature to address the country's chronic regional disparity and looming water crisis. The new draft country partnership strategy (2008–2012) envisage enhanced ADB roles in rural infrastructure development for irrigation, water resources, and agriculture marketing, in accordance with the priority of the sector in the Government's 11th five-year plan and ADB's long-term strategic framework 2008–2020 (Strategy 2020).^b The objective and design of the ensuing Project are consistent with the strategic direction of these planning frameworks.

B. Targeting Classification

1. Select the targeting classification of the project:

General Intervention (GI) Individual or Household (TI-H); Geographic (TI-G); Non-Income MDGs (TI-M1, M2, etc.)

2. Explain the basis for the targeting classification:

C. Poverty Analysis

1. If the project is classified as TI-H, or if it is policy-based, what type of poverty impact analysis is needed?

2. What resources are allocated in the project preparatory technical assistance (PPTA)/due diligence?

3. If GI, is there any opportunity for pro-poor design (e.g., social inclusion subcomponents, cross subsidy, pro-poor governance, and pro-poor growth)?

The proportion of Assam's population living below the poverty line is high (about 36%). Over two thirds of Assam's population is rural. Poverty is largely a rural issue, with 40% of the rural population living below the poverty line. Poverty is more widespread in the western and southern districts, and the hill districts. The Brahmaputra and Barak rivers and their tributaries dominate the economic and social life of Assam. Over 90% of urban and agriculture land is located in the flood-prone area. Thus, the regular occurrence of floods and loss of land due to river erosion constrains the state's economic activities. Agriculture remains the primary economic sector, with paddy, wheat, mustard, potatoes, and other vegetables as the major crops. The agriculture sector's productivity is well below the national average, and only about half of the state's farmers cultivate their fields more than once a year. The uncertainties of rainfall and associated floods hamper agricultural productivity. Likewise, service and industrial sectors are also affected by frequent flooding and associated low level of investments and a lack of employment opportunities.

In view of the intrinsic linkage between flooding and river erosion, and the state's economic performance, effectively managing annual flooding is critical to accelerate economic growth and make major inroads in poverty reduction. The risk of flooding is

cited as the main factor hampering urban and industrial development, as the risk of investment losses is considered very high in most areas. Given the concentration of the poor in the rural areas, enhancing agriculture and rural development also needs to be pursued. Increased rice production will require developing irrigated agriculture (only 20% of the state's cropland is irrigated), for which flood embankment and river erosion control will provide a more conducive environment. The unpredictable nature of the annual floods has also made farmers risk averse, planting only one rain-fed paddy crop annually. People have been made homeless and landless by progressive riverbank erosion, and have been forced into sharecropping arrangements to survive, with little incentive to invest in productivity-enhancing agro-technology.

The proposed Project will enhance the performance of existing flood embankment systems through the provision of embankment upgrading, riverbank protection works, and associated infrastructure such as flood-proofing platforms, sluice gates, and minor drainage channels, along with a range of nonstructural measures to cope with flooding and river erosion risks. Through the improved reliability of flood protection infrastructure, the Project is expected to reduce the loss of income due to frequent flooding and induce urban and rural populations to make productive investments, which will enhance the incomes of project beneficiaries. As an important part of the project component, local participatory disaster management committees will be strengthened at the district, block, and village levels to take leading roles in planning and implementing the designated FRERM and associated programs. Participation of poor and vulnerable groups will be pursued through nongovernment organizations (NGOs) that will be engaged for the purpose of strengthening the disaster management committees. The Project will also seek poverty reduction by prioritizing the provision of community-based risk management programs, including flood proofing platforms in areas with a high incidence of poverty, such as the riverine communities displaced by riverbank erosion. Within the framework of the disaster management committees' planning process, efforts will be made to link with existing poverty reduction programs at the district and village levels for more effective and participatory delivery to the poorest and most vulnerable populations. A separate project proposed for Japan Fund for Poverty Reduction (JFPR) will also be prepared to provide livelihood enhancement to supplement existing programs. The Project will pursue the active involvement of poor and vulnerable groups in disaster management committees and other group formation, planning, and implementation processes.

II. SOCIAL DEVELOPMENT ISSUES

A. Initial Social Analysis

Based on existing information:

1. Who are the potential primary beneficiaries of the project? How do the poor and the socially excluded benefit from the project?

A large segment of the population in the four selected subproject areas (Dibrugarh town, Kaziranga in Jorhat district, and Palasbari in Kamrup district) live in flooding and riverbank erosion high-risk zones. As a result, they frequently suffer. The local population reported the loss of nearly half of their crops every year along with substantial damages to homes and livestock. Agriculture and wage laborers are the principal local occupations. The incidence of landlessness is high in all subproject areas. On the average, nearly 40% of the population is poor. Almost all of the population in Matmara is classified as indigenous, while the indigenous population accounts for 42% in Kaziranga, and 15% in both Dibrugarh and Palasbari. Nevertheless, according to the field assessment carried out during the first project preparatory technical assistance (TA), the social, economic, and cultural characteristics of indigenous people do not differ significantly from other social groups.

2. What are the potential needs of beneficiaries in relation to the proposed project?

According to the participatory rural appraisal survey, the local population reported problems related to high levels of insecurity and stress due to chronic flooding and river erosion, which prohibits them from developing a long-term perspective for development. Specific problems relate to the lack of early warning systems; the need to evacuate their houses and move to higher places mostly on embankments; where a number of new problems are encountered such as unhygienic conditions, no privacy that especially affects women' lack of drinking water, food and fuel for cooking, and fodder for cattle; and inadequate education facilities. In general, development needs are clustered into three groups: (i) addressing immediate needs related to safer, hygienic shelter facilities providing food security and employment; (ii) organizing the communities and providing reliable, year-round facilities and infrastructure; and (iii) developing economic self-sufficiency through sustainable livelihoods.

3. What are the potential constraints in accessing the proposed benefits and services, and how will the project address them?

The project is expected to deliver significant benefits in terms of reduced flood and erosion damages, protection against displacement, protection of assets and livelihoods, and increased economic activities and incomes induced by more reliable flood management infrastructure. However, there exists a general distrust among the community regarding the performance of the Water Resources Department in flood and riverbank erosion risk management (FRERM) due to the (i) overall poor performance of flood embankments that fail to deliver reliable protection; (ii) poor quality of construction and insufficient maintenance; (iii) repeated embankment retirement to cope with river erosion as an emergency response in the past, but without compensation for the land acquired; (iv) overemphasis on structural measures with the lack of advance warning systems; and (v) absence of stakeholder participation in planning and implementation of FRERM interventions leading to a lack of transparency and accountability in the delivered programs. There is also limited coordination among the local government institutions, line departments, and stakeholders concerned for flood response and recovery activities.

Under the circumstances, the project design and institutional arrangements need to place strategic emphasis on beneficiary and stakeholder participation, transparency and accountability measures of the program delivery organizations, interagency coordination, and full compliance with social safeguards. The strategy will comprise several layers, including (i) policy measures to deliver program activities under the overall guidance of participatory disaster management committees at the district, block, and village levels, with central-level supervision to be provided by an empowered, autonomous, and multi-disciplinary project management unit that will ensure compliance in stakeholder participation and interagency coordination; (ii) capacity strengthening and empowerment of disaster management committees to ensure sound governance, including representation and participatory decision making; (iii) specific actions and programs targeted to vulnerable groups including women to support their higher representation and livelihoods enhancement; and (iv) supporting systems for compliance with social safeguards measures, including the resolution of the pending land acquisition cases of past flood embankment works.

B. Consultation and Participation

1. Indicate the potential initial stakeholders.

During the first TA, socioeconomic surveys were undertaken covering representative households of all categories within the subproject area to capture the present socioeconomic status, development constraints and needs, and possible impacts of the project. Consultations were held in the four subproject areas, particularly with those living along the bank lines threatened by flooding and riverbank erosion and those outside of the embankment systems and riverine char land (sand bars). Participants in the consultations included village headmen, *panchayat* (local government) members, women, and socioeconomically disadvantaged groups—tribal, elderly, children—through focus group meetings. In addition, semi-structured interviews were also undertaken with officials from WRD, district administration officers, medical and health officers, local school teachers, and NGOs and civil society members.

2. What type of consultation and participation is required during the PPTA or project processing (e.g., workshops, community mobilization, involvement of nongovernment organizations and community-based organizations, etc.)?

A participatory process was used during the first PPTA, and consultations and collaborative decision making were carried out with a particular focus on women, the landless, indigenous people, and other vulnerable groups in the subproject area using participatory rural appraisal techniques, along with other ordinary stakeholders. Focus group meetings were organized targeting the most vulnerable people, and an inventory of local needs was prepared, encompassing problems and constraints related to: (i) water resources and disaster management, including flooding and river erosion, agriculture, fisheries, environment, and other uses; (ii) possible solutions to resolve the constraints identified; and (iii) appropriate institutional mechanisms to address those constraints. NGOs were engaged to facilitate this process.

In addition to the local consultative process, state level workshops were organized at the midterm and draft final stages of the first TA to present and discuss key findings and the prospective scope and issues of the proposed investment project, and to seek the feedback of the central, state, and local governments, local and international experts, and a wide range of stakeholders (e.g., civil society organizations active in environmental and vulnerable groups development issues such as tribal populations). Useful suggestions were provided, including the need for duly reflecting the interests of the marginal and poorest population, such as embankment squatters, who are often outside of the embankment systems and displaced by river erosion, and the significant strengthening of the institutional basis and capacities of the relevant organizations.

3. What level of participation is envisaged for project design?

Information sharing Consultation Collaborative decision making Empowerment⁷

4. Will a consultation and participation plan be prepared? Yes No Please explain.

The Project will strengthen and effectively utilize the existing local participatory disaster management framework including district, subdistrict, and village level disaster management committees. They will be empowered to take a lead role to plan and decide on implementing the FRERM plans concerned at the subproject and community levels, based on which the programs will be delivered by the designated organizations under the monitoring and supervision of the disaster management committees. This participatory process will be institutionalized after completion of the Project in the annual planning and implementation process of FRERM program delivery, and maintenance and adaptation of the infrastructure. Village disaster management committees and community groups will also be strengthened to take over the management of minor infrastructure such as flood proofing platforms, small sluice gates, and drainage canals. NGOs will be engaged to facilitate the process.

C. Gender and Development

1. What are the key gender issues in the sector and/or subsector that are likely to be relevant to this project or program?

Due to unequal access of women to productive resources and the prevailing gender discrimination within traditional households, women bear a disproportionately higher burden of poverty. A lack of autonomy within the household and social restrictions on mobility prevent women from access to education, skills training, and health facilities as well as to labor markets. Besides household chores, rural women are major contributors to the rural economy in crop and livestock production. In addition, women spend a large part of their time gathering water and firewood for household use. Women also face particular stress and hardships at times of evacuation and displacement caused by flooding and river erosion, with exposure to various

exploitative risks. A strategy for gender mainstreaming was formulated taking these features into consideration and sets out the Project's approach toward addressing gender concerns.

2. Does the proposed project or program have the potential to promote gender equality and/or women's empowerment by improving women's access to and use of opportunities, services, resources, assets, and participation in decision making? Yes No Please explain.

The first TA's output has recommended a gender and development strategy including steps to enhance women's participation in relevant organizations, in particular disaster management committees at district, block, and village levels, and their ability to improve their livelihoods. The draft gender action plan proposes (i) employment opportunities for women generated by investment and maintenance works; (ii) promotion of women participation in disaster management committees with numerical targets with training for their active involvement; (iii) identify and respond to women's needs in FRERM planning process; (iv) establish links with existing development programs of the district for stronger participation of women; (v) targeting women in the complementary support programs of the project; and (vi) preparing a separate JFPR project with particular focus on women's participation and livelihoods enhancement in the context of community based flood and river erosion risk management.

3. Could the proposed project have an adverse impact on women and/or girls or widen gender inequality?¹⁰
 Yes No Please explain.

III. SOCIAL SAFEGUARD ISSUES AND OTHER SOCIAL RISKS

Issue	Nature of Social Issue	Significant/Limited/ No Impact/Not Known	Plan or Other Action Required
Involuntary Resettlement	While the project focus is on rehabilitation and upgrading existing embankment systems, this often requires strip land acquisition to enhance the embankment cross sections and their retirement. For some subprojects, there are squatters on embankments who were displaced by river erosion and evacuated there.	Significant for all four subproject sites. (First TA has prepared a draft resettlement framework, and a full resettlement plan for immediate work in one of the subproject areas.)	<input checked="" type="checkbox"/> Full Plan <input type="checkbox"/> Short Plan <input checked="" type="checkbox"/> Resettlement Framework <input type="checkbox"/> No Action <input type="checkbox"/> Uncertain
Indigenous Peoples	The project will benefit the entire local population groups and will not differentially affect any groups, including indigenous peoples. The four subprojects are supported by all groups.	Insignificant. (First TA has prepared a draft indigenous peoples development framework.)	<input type="checkbox"/> Plan <input checked="" type="checkbox"/> Other Action <input checked="" type="checkbox"/> IP Framework <input type="checkbox"/> No Action <input type="checkbox"/> Uncertain
Labor <input type="checkbox"/> Employment Opportunities <input type="checkbox"/> Labor Retrenchment <input checked="" type="checkbox"/> Core Labor Standards	Reliability of flood management infrastructure will create increased employment opportunities for all industries. Core labor standards will be included in contractors' contract clauses.	Limited impacts.	<input type="checkbox"/> Plan <input checked="" type="checkbox"/> Other Action <input type="checkbox"/> No Action <input type="checkbox"/> Uncertain
Affordability	The project does not envisage cash contributions by beneficiaries (given the public goods nature of the benefits) except for minor structures which beneficiaries are expected to operate and maintain through labor contribution.	Limited or no impacts.	<input type="checkbox"/> Action <input type="checkbox"/> No Action <input type="checkbox"/> Uncertain
Other Risks and/or Vulnerabilities <input type="checkbox"/> HIV/AIDS <input type="checkbox"/> Human Trafficking <input type="checkbox"/> Others (conflict, political instability, etc.), please specify	The project does not envisage adverse impacts.	Limited or no impacts.	<input type="checkbox"/> Plan <input type="checkbox"/> Other Action <input type="checkbox"/> No Action <input type="checkbox"/> Uncertain

IV. PPTA OR DUE DILIGENCE RESOURCE REQUIREMENT

1. Do the terms of reference (TOR) for the PPTA (or other due diligence) include poverty, social and gender analysis and the relevant specialist(s)?
 Yes No If no, please explain why.

2. Are resources (consultants, survey budget, and workshop) allocated for conducting poverty, social and/or gender analysis, and consultation and participation during the PPTA or due diligence? Yes No If no, please explain why.

^a ADB. 2003. *Country Strategy and Program (2003–2006): India*. Manila.

^b ADB. 2008. *Strategy 2020: The Long-Term Strategic Framework of the Asian Development Bank 2008–2020*. Manila.

COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Total Cost
A. ADB and the Multi-donor Trust Fund under the Water	
Financing Partnership Facility Financing ^a	
1. Consultants	
a. Remuneration and Per Diem	
i. International Advisors	340.0
ii. National Consultants	175.0
b. International and Local Travel	
i. International Travel	45.0
ii. Local Travel ^b	21.0
c. Reports and Communications	10.0
2. Surveys and Studies	
a. Technical and Institutional Studies and Surveys ^c	100.0
b. Socio Economic Surveys and Studies	50.0
3. Workshops, Seminars, and Training ^d	25.0
4. Administrative and Support Services	
a. Office Operation and Maintenance	12.0
b. Administration and Support Staff	26.0
5. Equipment and Furniture ^e	6.0
6. Contingencies	90.0
Subtotal (A)	900.0
B. Government Financing	
1. Administrative Support	30.0
2. Counterpart Staff	30.0
3. Local Travel and Vehicles for Counterpart Staff	30.0
4. Studies, Surveys, Data Analysis, and Reports	140.0
Subtotal (B)	230.0
Total	1,130.0

ADB = Asian Development Bank, TA = technical assistance.

^a Financed on a grant basis by ADB's technical assistance funding program (\$150,000) and Multi-donor Trust Fund for Water Financing Partnership Facility (\$750,000) contributed by the governments of Australia, Austria, and Norway and administered by ADB. TA expenditure items will be financed on a pro-rata basis.

^b Includes vehicle rental and operation and local airfares.

^c Include support for studies to develop morphological prediction and hydrological and other analyses (\$70,000) undertaken by local research organizations, and supporting surveys.

^d Includes workshops on TA inception, interim, and draft final stages, and various seminars.

^e Includes survey equipment, office equipment, computer software, and furniture, to be transferred to the executing agency upon completion of the TA.

Source: Asian Development Bank estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS ¹

A. General

1. The technical assistance (TA) will further prepare the Integrated Flood and Riverbank Erosion Risk Management Project–Assam (the Project), by enhancing its policy and institutional basis and advancing the management capacities of the relevant institutions, building on the output of the first TA that has prepared the Project proposal. The TA will include (i) part A: institutional strengthening for integrated flood and riverbank erosion risk management (FRERM) and integrated water resources management (IWRM), and (ii) part B: project management systems support. The consulting services will include international and national experts and undertake the tasks outlined here. The consultants will assist the analyses using the materials provided by the Assam state government (ASG) and the Government of India (the Government), and other documents to conform to international best practices,² with extensive consultations. The inputs of the consultants are shown in Table A4.1.

Table A4.1: Consulting Services Inputs

Expertise	Person-Months
A. International Advisors	
1. River Management Specialist/International TL	4.0
2. Flood Management Specialist	2.0
3. Water Resources Institutional Specialist	2.0
4. Social Safeguards Specialist	1.0
5. Management Information Systems Specialist	2.0
Subtotal (A)	11.0
B. National Consultant	
1. Project Mgt Specialist (Flood Management)/National TL	8.0
2. IWRM Specialist	2.0
3. Institutional Specialist	3.0
4. Design Engineer	3.0
5. Geotechnical Specialist	2.0
6. Project Economist	3.0
7. Sociologist	4.5
8. Environment Specialist	2.5
9. Resettlement Specialist	5.0
Subtotal (B)	33.0
Total	44.0

IWRM = integrated water resources management, TL = team leader.

Source: Asian Development Bank.

B. Scope of Services

1. Part A: Institutional Strengthening

2. Part A will support ASG's efforts to provide an overall enabling policy environment, planning framework, and institutional foundation for operationalizing integrated and sustainable FRERM within the context of IWRM.

¹ The terms of reference on the basis of experts are prepared as Supplementary Appendix.

² Including Food and Agriculture Organization. 2007. *Hazard Risk Preparedness in Agriculture: Good Practice Examples from South and South East Asia*. Thailand.

a. Institutional Framework for Integrated Water Resources Management

3. On the basis of the draft state water policy (SWP) prepared by ASG, the consultants will assist and undertake the following activities, in close contact and consultations with the State Water Resources Board and its representatives.

- (i) Review and advise on the draft SWP and its bases including resource base, status and issues of management and service delivery, and action agendas.
- (ii) Facilitate the consultative process towards SWP finalization with wider awareness campaigns and stakeholder workshops.
- (iii) Assess appropriate IWRM functions including environmental conservation and their institutional arrangements following the framework envisaged under the draft SWP (water council, management agency, and data/information center).
- (iv) Assist the development of short- to medium-term action plan to stipulate the steps to start implementing SWP, such as public awareness, data and knowledge base, planning and programming, management instruments, institutions, legal framework, etc. for recommendation to the state apex body.

b. Planning Framework for State Level Integrated Flood and Riverbank Erosion Risk Management and Catchment Interventions

4. In accordance with the draft SWP, the national Disaster Management Guidelines for Flood Management (2008), and other international best practices, the consultants will assist the preparation of a framework for integrated FRERM plan for strategic planning, implementation monitoring and coordination of FRERM and the relevant watershed operations synthesized under the first TA, the consultants will assist and undertake the following activities.

- (i) Compile and review available data on FRERM and catchment management in Assam and the North East region in the five-year plan and other available documents, including information on indigenous approaches.
- (ii) Collect and synthesize data and maps on flood- and riverbank erosion-prone areas and on land use, including upper watersheds, historical damages (inundated area, land lost, and financial damages), and the vulnerability of socioeconomic conditions and ecosystems on the basis of tributary basins.
- (iii) Collect and assess existing systems (structural assets, nonstructural systems, retention basins, community flood proofing/ shelters, and environmental management systems) of FRERM and catchment management, with respect to performance, lessons, and issues and prospects for extension.
- (iv) In line with the integrated FRERM strategies (prepared under the first TA), existing plan documents by the ASG, the Government, and other organizations, develop a framework for a state-level flood management plan integrated with upper catchment interventions, encompassing structural and nonstructural measures, environmental management systems, and institutional foundations.
- (v) Support the initial development of the integrated flood and catchment management plan following the above framework, with listing and synthesizing of the ongoing, planned, and recommended programs and actions to be included.
- (vi) Suggest institutional arrangements for annual and periodic planning, programming, implementation coordination and monitoring of the integrated plan.

c. Institutional Foundations for Integrated Flood and Riverbank Erosion Risk Management

5. This component will support the initial implementation of the institutional development action in Water Resources Department (WRD) and relevant institutions, including disaster

management committees, to put into operation an integrated FRERM system. Following the institutional development road map prepared under the first TA through diagnostic institutional analysis of WRD and relevant institutions, the activities will include the following:

- (i) Assist WRD to undergo short-term changes in terms of the structure and staffing to operationalize integrated FRERM in the context of the Project, with preparation of ASG orders, office and staff job descriptions, and staff recruitment.
- (ii) Organize consultations with WRD staff at all levels and key stakeholders with focus group meetings, and discuss the perceived need for institutional changes and the institutional action plan suggested under the first TA.
- (iii) Facilitate the initiation of the change management process owned by WRD to meet its mandates for integrated FRERM, including the preparation of vision and mission statements owned by WRD, institutional development strategy, and medium-term action plan covering all required aspects (structure, financial resources, human resources and management with incentive systems, and management systems for all stages of project cycle) including capacity building.
- (iv) Following the first TA, define the detailed arrangements for improved quality control of FRERM infrastructure, including specifications for construction supervision, and internal and external technical auditing arrangements.
- (v) Assist detailing the structure and arrangements for WRD's data and knowledge base management system for physical profiles, hydrology, geo-morphology and modeling, and support initial operationalization and development.
- (vi) Assist the initial development of a state-wide river erosion prediction system using the assessment of historic satellite images, and hydrological modeling, with the involvement of capable local research institutions.
- (vii) Review the available asset management systems used internationally and in India (including the road sector in India and flood control system in other countries), and outline recommended system options including technical scope (hardware and software needs), costs, and implementation schedule.
- (viii) Assist the detailing of the sustainable financing mechanisms of FRERM system operation and maintenance following the framework prepared under the first TA.
- (ix) Organize seminars and workshops to introduce and discuss national and international best practices in integrated FRERM.

2. Part B: Project Management Systems Support

6. Part B will support the immediate operationalization process of integrated FRERM in the context of the Project, with the provision of services for capacity development of project institutions. It comprises the following components: (i) project management systems development, (ii) capacity strengthening, and (iii) advisory support for project processing and initial implementation. The initial part of the first and third components will be assisted by the individual consultants mobilized in the first four months of the TA implementation period.

a. Project Management Systems Development

7. This TA component will support the preparation of the necessary materials to set out the system and procedures to implement the Project. The specific activities will include the following.

- (i) Assist the preparation of the detailed project implementation plan including the relevant guidelines and manuals such as component-wise detailed implementation procedures and arrangements; social and environmental safeguards; procurement; financial management; and information disclosure.
- (ii) Assist the preparation of the project management system including a management information system for baseline, process, and outputs and

outcomes; reporting, recording, monitoring and evaluation system; internal and external quality control; and safeguards management systems.

- (iii) Assess the detailed project implementation plan and management systems, and suggest any measures for addressing potential constraints.

b. Capacity Strengthening

8. This TA component will support the capacity strengthening of the project institutions concerned to start operationalizing integrated FRERM. The activities will include the following:

- (i) Assist the establishment of a project management office and subproject level office, including multidisciplinary staffing arrangements and assignments, along with disaster management committees at district and village levels.
- (ii) Assist the development of a comprehensive capacity strengthening program and materials for the project staff to effectively implement the Project, including WRD, other line departments, other service providers, and representatives of the local governments and stakeholders.
- (iii) Support the establishment of project offices and staff assignments at the central, and district and subproject levels, including the offices and units dedicated to environmental and social safeguards management; and advise ASG on the necessary staff recruitment and assignment processes as appropriate.
- (iv) Impart initial training to the assigned staff for the project from ASG, local government, providers, and stakeholders to support the initial implementation of the ensuing Project, including safeguards training and seminars at WRD.
- (v) Identify appropriate training institutions that can provide training to operationalize integrated FRERM, and support the development of training capacities of the institutions and staff concerned.

c. Advisory Support for Project Processing and Initial Implementation

9. This TA component will provide necessary advisory support to facilitate WRD to process the necessary program, subproject, and design documents for clearance by the ASG and the Government, while supporting necessary supporting surveys, consultations, and analyses. This is intended to expedite the project processing and initiation.

- (i) Advise on WRD's preparation and processing of the detailed project reports for the individual subprojects, and overall Project documents, with analytical support to complete technical (including innovative FRERM designs, and physical and mathematical modeling as needed), socioeconomic, and other analyses.
- (ii) Advise on WRD's process of detailed design for the main civil work packages for inclusion in the first tranche of the Project.
- (iii) Support surveys and analysis to prepare and finalize draft resettlement plans and other relevant social and environmental safeguards documents for the specific works envisaged during the latter part of the first tranche.
- (iv) Facilitate local level consultations—with effective linkage with and mobilization of disaster management committees at the district and village levels—on the implementation plans of the relevant structural and nonstructural FRERM measures to be implemented in the locality concerned.
- (v) Prepare sample village-level, community-based, risk management plans specifying the scope of disaster management and other interventions.
- (vi) Support the finalization of detailed procurement plan for the first tranche of the Project encompassing all equipment, works, and services.
- (vii) Advise on (a) WRD's preparation and finalization of the standard bid documents for the procurement of goods and civil works, including appropriate technical

specifications and of the request for proposal documents for the consulting and nongovernment organization (NGO) service packages; and (b) advance actions for procurement, and advance recruitment of consultants and NGOs.

C. Reporting Requirements

10. For effective planning and progress monitoring, the consultants will prepare an inception report within three weeks of being fielded, to be followed by quarterly progress reports, which will be prepared by international and national team leaders with inputs from the individual experts. The TA will produce the following reports and documents for submission to ASG, the Government, and the Asian Development Bank (ADB) for review and advice.³

Table A4.2: Reports and Schedules

No.	Title	Terms of Reference	Draft Final Reports	Final Reports
Part A				
1.	Inception Report	Para 10	Week 3	Week 5
2.	Quarterly Progress Reports	Para 10	Not required	Every quarter
3.	State Water Policy Implementation Plan	Para. 3	Month 13	Month 15
4.	Planning Framework for Integrated Flood and Catchment Management: (i) interim report and (ii) final report	Para. 4	(i) Month 8 (ii) Month 13	(i) Month 9 (ii) Month 15
5.	WRD Institutional Development Plan	Para. 5 (i)-(iii)	Month 9	Month 15
6.	Guidelines for FRERM Infrastructure Quality Control	Para. 5 (iv)	Month 9	Month 15
7.	WRD Data and Knowledge Management System Report	Para. 5 (v)	Month 9	Month 15
8.	Management Information System for Infrastructure Performance Monitoring and Maintenance Planning	Para. 5 (vi)-(vii)	Month 9	Month 15
9.	Seminar Reports on International FRERM Practices	Para. 5 (viii)	Not required	After events
Part B				
1.	Project Implementation Plan (including implementation manuals on subject matters and MIS design)	Para 7	Month 8	Month 9
2.	Capacity Development Plan and Training Materials	Para. 8	Month 8	Month 9
3.	Resettlement Plans for Tranche-1 Civil Works	Para. 9 (iii)	Month 4	Month 9
4.	Sample Village Community Disaster Management Plans	Para. 9 (iv)	Month 6	Month 9
5.	Bid Documents for Civil Works and Other Procurements	Para. 9 (vii)	Month 6	Month 9

FRERM = flood and riverbank erosion risk management, MIS = management information system, WRD = Water Resources Department.

Source: Asian Development Bank.

11. To facilitate the effective preparation of the outputs, the following workshops will be organized in consultation with the ASG: (i) workshop at the beginning of month 2 to discuss the draft inception report and institutional development work plan, (ii) workshop in month 9 to discuss the interim outputs, and (iii) workshop to present the draft outputs of the TA in month 15. Specific subject matter seminars will also be organized during the TA period.

1. Facilities to Be Provided by the Assam State Government

12. ASG will provide the consultants with the following facilities and services:

- (i) office space including furniture and utilities;
- (ii) technical surveys to support the analytical works and detailed design;
- (iii) draft detailed project reports, and data, records and other information; and counterpart staff to work with the consultant team.

³ Ministry of Development of North East Region will be the nodal agency of the Project to oversee and take stock of any constraints at the central or state government levels.