

**PROJECT INFORMATION DOCUMENT (PID)
CONCEPT STAGE**

Report No.: PIDC190

Project Name	Bihar Flood Rehabilitation Phase II (P127725)
Region	SOUTH ASIA
Country	India
Sector(s)	General water, sanitation and flood protection sector (70%), General agriculture, fishing and forestry sector (30%)
Lending Instrument	Specific Investment Loan
Project ID	P127725
Borrower(s)	Ministry of Finance, DEA
Implementing Agency	Bihar Aapda Purniwas and Punarnirman Society
Environmental Category	A-Full Assessment
Date PID Prepared	28-Dec-2011
Estimated Date of Appraisal Completion	10-Aug-2012
Estimated Date of Board Approval	15-Nov-2012
Concept Review Decision	

I. Introduction and Context

Country Context

Bihar lies mid-way between West Bengal in the east and Uttar Pradesh in the west. It is bounded by Nepal to the north and by Jharkhand to the south. The State is a stretch of fertile plain that is divided into two unequal parts, separated by the Ganges River, which flows from west to east. The northern part of the state is drained by the Ganges northern tributaries of Bagmati, Gandak and Kosi, which originate in Nepal. These three rivers are difficult to manage and regularly flood much of North Bihar. The southern part of the state, suffers from the opposite problem. South of the Ganges, maintaining sufficient water resources for agricultural production is an important challenge

The economy of Bihar is largely service oriented, with a significant agricultural base and a limited industrial sector. As of 2008, services made up 55 percent of the state economy, while agriculture accounted for 33 percent of output (albeit 74 percent of employment) and industry 10 percent. Bihar is an important agricultural state: it accounts for 8-10 percent of the national agricultural production, is the second largest producer of vegetables, and is the third largest producer of fruits. However, agricultural productivity, cropping intensity, and market-orientation of production is low - evidenced by the fact that the average per worker income in agriculture is half of the national average. Despite the importance of the agriculture sector to the State's economy and the people's livelihoods, investment (both public and private) in irrigation, research, extension and farm-input and -output market linkages have been inadequate in the past, which has constrained output and productivity.

Sectoral and Institutional Context

Following major floods in the Kosi Basin in 2008, the Government of Bihar (GoB) requested assistance from the World Bank to address the emergency needs of the population, as well as the longer term challenges of flood management, vulnerability reduction, connectivity, and agriculture productivity. During the preparatory stage of the Bank's assistance strategy for recovery from the floods, and after considering various possibilities, the Government of India (GoI), GoB and the Bank agreed on a phased approach to recovery and reconstruction. The first phase would provide timely and focused support for reconstruction efforts, and later phases would focus on a long-term program to support Bihar's need for flood management, increased agriculture productivity and improved connectivity.

A first project, Bihar Kosi Flood Recovery Project (BKFRP, US\$220 million), became effective in January 2011 and focuses on emergency needs through the reconstruction of damaged houses, rehabilitation of road infrastructure, and the strengthening of the flood control structures in the Kosi Basin. Two smaller project components are aimed at enhancing livelihood opportunities of the affected population and improving the emergency response capacity for future disasters.

This proposed Phase II project will address longer term challenges as described above, and is prepared in the broader context of the State's five year plan for 2011-2016 and the preliminary results of the GoB's Agriculture Roadmap for 2012 to 2022. This Roadmap, which set ambitious targets for the holistic development of agriculture in the state, recognizes the need for coordinated action from multiple departments and proposes a multisector approach to increase agriculture productivity .

The proposed project will concentrate on two geographical areas that will serve as examples for future scaling up by the GoB. These areas have been selected on cost benefit consideration with one zone identified in North Bihar, where flooding is a major concern, and one zone in South Bihar, where regular droughts inhibit consistent agricultural production. Focusing investments on

these areas should provide opportunities for the GoB to acquire expertise on how to best deal with both floods and drought that could later be applied throughout the entire State of Bihar.

Relationship to CAS

This project is an important part of the Bank's strategy to assist the GoB in integrating disaster risk mitigation into the State's longer-term development process. As such, the project is solidly anchored within Pillar II of the India Country Strategy - Ensuring Development is Sustainable – which states that “World Bank Group's assistance will help to increase the resilience of people and the economy to nature-related and man-made shocks,” and aims to “support India's comprehensive efforts to reduce the country's vulnerability to floods, cyclones, earthquakes and other natural perils.”

II. Proposed Development Objective(s)

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The project development objective is to unlock the economic potential in selected areas of Bihar through an integrated approach that includes the rehabilitation of flood mitigation and irrigation infrastructure, as well as improved access to markets and agriculture services.

Key Results

The key results expected are improved crop and livestock productivity, increased cash income from agriculture, and reduced losses from floods and droughts. The primary beneficiaries will be farmers and livestock producers, but other rural households in the project area, whose livelihoods are impacted by floods, will also benefit from the project. Enhanced productivity would be achieved by improving flood control and irrigation capabilities through investment in infrastructure and technical assistance coupled with investments to improve agricultural productivity. The project would also support increased access to agricultural markets by augmenting the rural road network. With investments concentrated in two targeted areas, the greater Kosi Basin and South Central Bihar, an anticipated follow-up by the GoB is the scaling of the multi-sector investment program to the remaining districts of Bihar.

III. Preliminary Description

Concept Description

The project will be developed under a multi-sector framework with investment activities aimed at reducing output volatility and increasing productivity in selected geographical areas. Flood control and irrigation investments will target two areas selected on either side of the Ganges River. Flood control investments will be made in the Greater Kosi Basin while irrigation investments will be made in both Northeast and South Central Bihar. Additional activities will be concentrated in the same geographical area to increase connectivity between farmers and markets through strengthening and augmenting the transport network, primarily focusing on providing missing bridges and rural roads to connect farmers to local markets (rural haats). Additional activities in the same districts will then aim at increasing agricultural productivity through investments aimed at improving the effectiveness of public sector support to agriculture and catalyzing greater private sector participation in agricultural production. These activities will include significant institutional strengthening and capacity building efforts, along with activities to increase access to finance.

By integrating activities from several departments, the project seeks to maximize complementarity of action. Flood control, irrigation, improved connectivity, and services to farmers will build on each other to help increase productivity in the targeted areas. In addition, several activities will leverage each other. For example, rural roads can help strengthen embankments and be used for evacuation in case of floods; off-grid solar power can provide electricity for other agriculture activities; and solar powered pumps can also include sensors to monitor the water table.

Particular attention will be given to institutional strengthening, including in flood control, to increase capacity to manage embankment and river systems; irrigation, to better understand and manage water resources while improving the capacity of water user associations; transport, to increase the ability to maintain rural connectivity; and, agriculture, to increase the effectiveness of services and support to farmers, while providing support to increase the involvement of private participation in the agriculture value chain.

The project will comprise the following six components:

Component 1 – Improving Flood Management [US\$500] million

Activities financed under this component will primarily focus on increasing the resiliency of existing infrastructure in the greater Kosi Basin to annual flooding. The component will also include significant institutional strengthening activities to help Bihar move towards a more proactive risk management approach to flood risk. Investments to be financed include, inter-alia: (i) improvements and strengthening of critical portions of the Eastern Kosi Embankment; (ii) restoration of embankments and channel improvement in critical stretches of the Kosi River; (iii) procurement of dredging equipment and maintenance; (iv) flood protection works to protect vulnerable populations; (v) flood moderation schemes for NE Bihar; and, (vi) drainage schemes for NE Bihar.

Component 2 – Strengthening Irrigation [US\$150] million

Activities financed under this component will primarily focus on increasing the irrigation capacity of existing infrastructure in the Greater Kosi Basin and South Central Bihar. In addition to significant institutional strengthening, this component will finance two main activities. The first will rehabilitate a large irrigation network. Based on an economic analysis to be undertaken under project preparation, this will either be an extensive renovation and restoration of Ahar-Pynes schemes that are similar to tank irrigation structures throughout India, or the lining of the sides of the Sone Canal to limit the extensive leakage and loss of irrigation capacity. The second activity will support the procurement and implementation of off-grid solar powered, energy efficient, direct current pumps and solar panels. A long-term management contract will be signed for the maintenance of the pumps to ensure sustainability. South Bihar has a high prevalence of days with sunshine and is considered ideal for solar power generation. Institutional strengthening for this component will focus on improving the functionality of Water User Associations and the implantation of a GIS based Ground Water Monitoring System.

Component 3 – Access to Markets [US\$200] million

Activities financed under this component will focus on increasing the connectivity between farmers and markets and will include a large institutional strengthening and capacity building effort. Investments in rural roads and bridges will be made in both targeted regions, the Greater Kosi Basin and South Central Bihar, with emphasis on bridge construction. Investments to be financed include the construction of small and medium bridges and connecting roads in the targeted areas, and upgrading of rural roads connecting the developed rural roads to a higher level of roads. Rural roads to be financed will be identified based on potential connections to the local farmer markets (rural haats). The institutional strengthening activities will focus on the development of an Asset Management System, as well as training in technical skill gradation, and management information systems. Institutional support will also be provided to promote alternative construction methods and materials that take into consideration the annual phenomenon of annual flooding.

Component 4 – Enhancing Agricultural Efficiency [US\$100] million

This component aims to sustainably increase the productivity and profitability of agriculture in the selected project areas. The focus will be on small and marginal farmers and the activities financed will integrate, and add value to, investments made under other components to improve production and market access conditions. Project activities will be implemented by line departments, supplemented by contractual extension staff (a current institutional practice in the State), and with significant involvement of farmers' groups.

There will be four sub-components, including: (i) Crop Production – activities to be financed include dissemination of improved (higher-yield, climate resilient) crop varieties, support to farmers (through access to inputs and/or relevant machinery) to sustainably adopt the demonstrated varieties and production practices, enhancing supply of quality seeds/breed at the local level, and improved

on-farm water management; (ii) Livestock Production (especially fish and small ruminants) – activities to be financed include increasing supply of quality fingerlings and improved aquaculture practices in fisheries, and provision of good quality bucks and improved nutrition and health management for goats and other small ruminants; (iii) Post-Harvest Value-Addition and Marketing – activities to be financed include enhancing community-level assets and expertise for post-harvest value-addition, facilitating establishment of local agro-enterprises (through loan guarantees and other support to “crowd-in” private investment) and upgrading/establishment of local markets (haats) (these haats will be integrated with investments in Component 3, and also feed into larger “hub” markets being developed under a concurrent ADB-financed project; and (iv) Institutional Strengthening and Capacity Building – activities to be financed include strengthening institutional capacity to provide effective extension support at the farmer level, enhancing staff technical skills, and improving capacity for coordination, management and monitoring of relevant public programs in agriculture and allied sectors.

Results indicators for this component include adoption of improved seed/breed varieties, adoption of improved crop/livestock production practices, better seed replacement rate, higher cropping intensity and improved crop-mix, and a higher share of final value captured by primary producers/local communities.

Component 5 – Contingent Emergency Response [US\$0] million

This component, to be prepared under OP/BP8.0, will provide flexibility in the allocation of project resources in case of a major disaster occurring during project implementation. The component would allow for the GoB to request reallocation of uncommitted project resources to emergency response and recovery activities. Disbursements would be made against the procurement of goods, works, and consultant services required to support the immediate response and recovery needs of the GoB. A specified amount could also be earmarked for liquidity support through reimbursement of a pre-identified positive list of goods purchased by the state. The resources would be executed through the existing PMU greatly accelerating a possible response.

Component 6 – Implementation Support [US\$50] million.

This component would finance activities required for project implementation. These would include incremental operating costs as well as the cost of operating Bihar Aapada Punarwas Evam Punarnirman Society (BAPEPS) and for outside consultancies required for preparation and supervision of specific activities.

Safeguard Policies that might apply.

The safeguards that may be triggered can be found in the table below. As this project is the second phase of an ongoing Kosi flood rehabilitation program, work has already been completed regarding the design and supervision of Bank safeguards in parts of the project area. Under the first phase program an Environmental and Social Management Framework (ESMF) was created, which defines the implementation and supervision of project safeguards. Under this Phase II operation, the ESMF will be updated and augmented to incorporate new project activities. This will be made publicly available more than 120 days before the project is approved.

IV. Safeguard Policies that might apply

Safeguard Policies Triggered by the Project	Yes	No	TBD
Environmental Assessment OP/BP 4.01	X		
Natural Habitats OP/BP 4.04		X	
Forests OP/BP 4.36		X	
Pest Management OP 4.09		X	
Physical Cultural Resources OP/BP 4.11	X		
Indigenous Peoples OP/BP 4.10		X	
Involuntary Resettlement OP/BP 4.12	X		
Safety of Dams OP/BP 4.37		X	
Projects on International Waterways OP/BP 7.50	X		
Projects in Disputed Areas OP/BP 7.60		X	

V. Tentative financing

Financing Source	Amount
BORROWER/RECIPIENT	250.00
International Development Association (IDA)	750.00
Total	1000.00

VI. Contact point

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