1. Country and Sector Background

Madhya Pradesh Water Sector Restructuring Project (MPWSRP) is consistent with the Country Assistance Strategy (CAS) goal of poverty reduction and growth and has been formulated following three core strategic CAS principles: (i) selectivity (focus on states that are implementing wide-ranging reform programs); (ii) partnerships (at the Government of India (GOI) and the State-levels and with other donors who are also adopting state focus strategy); and (iii) programmatic approach (taking a long-term perspective to match instruments to the nature and content of programs pursued). The CAS focuses on strengthening the enabling environment for development and growth, and supporting critical interventions of special benefit to the poor. Critical program priorities include improving government effectiveness through fiscal and governance reform and decentralization and promoting private-sector led growth. The latter includes attaining faster rural growth by accelerating pro-poor rural development through more effective program delivery mechanisms and beneficiary participation. The proposed project would substantially reform the water sector and irrigation sub-sector to maximize productivity of water, in a people-centered integrated river basin approach, to improve rural and urban livelihoods.

The economy of Madhya Pradesh (MP) (population of 60 million with an estimated 44% living below the poverty line), is dominated by agriculture which accounts for 35% of the State Growth Development Product (GDP), and 80% of employment. More than one third of the population belong to socially and economically disadvantaged groups consisting of scheduled tribes (20%) and scheduled castes (15%), one of the highest in India. The proportion of the poor is substantially higher among the tribal population. Poverty also has gender dimensions. Sustainable management of water and related natural resources with stakeholder participation and consideration of social and gender issues is one of the key challenges in poverty reduction and economic growth in the State.

With poverty reduction as its primary policy objective, Government of Madhya Pradesh (GoMP) has embarked on far-reaching policy reforms in the public sector encompassing fiscal management, governance, and decentralization, with the support of the Public Resource Management loan and its related Technical Assistance Grant provided by the Asian Development Bank (ADB). The proposed investment would directly contribute to, and strengthen, the overall fiscal and governance reform program
through measures designed for institutional restructuring and improved performance of restructured irrigation and drainage entities. Reforms in the irrigation sector are crucial for the success of the overall reform program in MP given the dominance of agriculture in the state's economy. Agricultural intensification and diversification to be supported under this proposed intervention would contribute to creation of both additional on-farm and off-farm employment and create the enabling environment for private sector participation in this sector. Thus the project would contribute to the poverty reduction and sustainable growth strategies of the CAS.

Background

There are ten river systems (Mahi, Chambal, Sindh, Betwa, Ken, Tons, Sonn, Narmada, Wainganga and Tapi) in Madhya Pradesh. All, except Sindh are part of inter-state river systems. The Sindh system is a tributary of the Chambal and joins the Chambal near the border with Uttar Pradesh State. Chambal, Betwa and Ken are tributaries of the Yamuna which is part of the Ganges Basin. Tons and Sonn are tributaries of the Ganges. These rivers flow north originating from the central plateau of MP. Wainganaga is a tributary of the Godavari flowing southeast to the Bay of Bengal. Narmada, Mahi and Tapi are west flowing river systems terminating in the Arabian Sea.

With annual rainfall ranging from 800mm to 1600 mm from west to east, occurring in three to four monsoon months, most water courses remain nearly dry from January to June. As a result, water availability depends critically on the extent of water storage from surface water structures and aquifer
Substantial efforts have been made to augment water availability by constructing surface water storages. This option is getting constrained due to increasing social, environmental and financial costs. Increased attention is required to promote more efficient use of available water resources in the different basins. Agriculture, the largest economic sector employing 80% of the labor force, is the major user of water followed by domestic and industrial sectors. Even though irrigation is critically needed, only about one-third of the sown area is irrigated. In the future the intersectoral demands for water would substantially increase with increasing living standards and industrialization which could severely hamper expansion of irrigated agriculture to these rainfed areas.

Groundwater exploitation for irrigation has caused widespread decline in the groundwater table across the state. On the other hand, performance of surface water schemes has been poor with less than 50% of the created potential being utilized due largely to degraded infrastructure caused by poor maintenance, inappropriate operation and lack of ownership by the farmers and other stakeholders. Groundwater depletion is causing problems for domestic consumers. Water quality is an emerging issue with salinity intrusions, high concentration of fluoride in deep aquifers and deteriorating surface water quality due to untreated urban discharge and growing incidence of waterborne diseases.

There are large areas of degraded land in the catchment areas with substantial implications for water resources management due to siltation of reservoirs, watercourses and irrigation canals. While commendable progress is emerging, coordination of water agencies and those responsible for the management of watershed program is lacking and integrated and strategic approaches are required. Therefore, promoting sustainable and efficient water use while addressing the cross-sectoral linkages and concerns is a major challenge facing the water sector.

The surface irrigation systems have been classified based on the command areas associated with each, as minor (upto 2000 ha), medium (Between 2000 ha and 10,000 ha), and major (all schemes with commands greater than 10,000 ha). The distribution of these schemes and the potential created and actual irrigated areas are summarized in the table below.

In addition, there are a number of tanks and village ponds. Some of these tanks, constructed during the Chandela Dynasty, are more than 1,000 years old. These are referred to as Chandela tanks and are located in the Betwa and Ken Sub-basins. There are government-owned lift irrigation schemes primarily lifting surface water. A small number of groundwater pumps operated by GoMP are also there; however, most groundwater is developed by farmers themselves.

The huge difference between irrigation potential created and utilized is due to several factors: poor system maintenance and operation leading to poor water service delivery, low water use efficiency due to wastage at the field level, over design in some cases due to inadequate or unreliable hydrologic and other database, and in recent years reallocation of stored water for drinking purposes. Thus integrated resource management with such tools as water entitlements at a certain reliability and quality for each use is necessary to ensure sustained productivity of water for each designated use. Such an approach is necessary to address the overriding problem in MP of the low economic and social productivity and efficiency of water use.

Agriculture sector growth is essential to alleviate poverty and increase incomes. Given the frequent occurrence of droughts, delayed on-set of monsoons intensification and expansion of irrigated agriculture is necessary for such growth and sustainable increase in rural incomes. Sustainable productivity increases with increased cropping intensity and cultivation of high-value crops require, as a pre-requisite, a well-functioning, fiscally sustainable irrigation and drainage system integrated with appropriate agricultural inputs and processes.
Water use for agriculture cannot be considered in isolation of other uses, which requires an integrated approach for sustainable water resources planning, management and operation in a river basin/sub-basin framework. Due to competition from increasing demands for agricultural, domestic, power, industrial, environmental and other uses, allocation of water for these purposes in the appropriate quantity and quality will become increasingly difficult.

**Issues**

The main water sector issues are:

- Lack of effective institutional coordination and particularly collaboration, among departments in different sub-sectors which significantly affects the return on and sustainability of the State’s massive investment in water supply and irrigation infrastructure. The water using sub-sectors plan, invest and operate disjointedly, resulting in inefficient use of natural and financial resources. Integrated Water Resources Management (IWRM) is possible only if there is a substantial restructuring of the sector institutions and policies.
- Inadequate mechanisms and knowledge base for planning, allocating, developing, and managing water resources in each basin taking into account social and environmental issues.
- Lack of appropriate legal, regulatory and administrative framework required for a financially sustainable water sector.

The main irrigation and drainage sub-sector issues are:

- Lack of effective user participation and private sector involvement leading to poor services, heavy subsidies and lack of accountability. These, combined with a lack of effective consultation by the Irrigation Departments with the stakeholders in the appraisal, design, construction and management of irrigation systems have resulted in poor system performance, low cost recovery, a fiscally constrained Irrigation Department that is unable to finance adequate maintenance, effective operations and services, or needed system rehabilitation, remodeling or investment.
- Low productivity of water due to the unreliable irrigation supply and inadequate extension services resulting in poor adoption of available agricultural technology, inputs and diversification.
- Lack of adequate and appropriate human resources in the subsector, including badly needed critical management skills, particularly in the technical organizations that are expected to manage water and provide improved water services in the future.
- Large establishment costs in the subsector take up a substantial portion of the state budget leaving only a small amount for operations and maintenance.
- Lack of adequate resources which is constraining substantial investments required to rehabilitate and modernize the dilapidated irrigation and drainage infrastructure and to expand irrigated agriculture.

**Government Actions**

**Government of India (GOI):**

GOI strategy has been articulated through the GOI/World Bank India: Water Resources Management (WRM) Sector review (1998) "Initiating and Sustaining Water Sector Reforms" (Report Number 18356-IN) and the revised National Water Policy issued in 2002. The key features of the policy and strategy include:
(a) comprehensive planning and management of water resources on a multi-sectoral and river basin basis, including incorporation of environmental management practices for resource protection and sustainability;
(b) focus on irrigation as a critical tool for augmenting agricultural production and on efficiency of use and effectiveness of irrigation services;
(c) reforming and restructuring Government water institutions to commercially oriented, effective and efficient agencies;
(d) user participation and public-private partnerships; and
(e) need for apex institutions to handle intersectoral water allocation requirements.

Government of Madhya Pradesh (GoMP):

Several key actions are being taken by GoMP to address the above issues in the water sector and irrigation sub-sector. These actions are based on the strategy of maximizing water productivity in the state.

GoMP constituted a State Water Resources Utilization Committee in 1973 to consider the schemes of the various departments where they impinge on a common source of supply and to evolve an integrated approach to the projects with a view to obtaining optimum utilization of the water resources. The committee comprises the Chief Secretary, Secretaries of Agriculture, Public Health, Industry, Irrigation, Chief Engineer of the concerned river basin and the Secretary of the Control Board for Major projects who is also the Deputy Secretary to Government. Substantive issues related to water allocation, planning, and management cannot be handled by a committee of bureaucrats meeting on an ad hoc basis. A structured enterprise with legal, administrative and fiduciary authority is required. However, this committee can be considered as a first generation reform in apex water institutions in the state.

Upward revision of water charges to one of the highest in India;

- Establishment and operationalization of Water Users Associations (WUAs) throughout the State through elections after passing the participatory Irrigation management (PIM) Act in 1999. Following its prompt response to the Panchayat Raj Act, MP has taken a number of concrete steps to confirm its commitment to people-centered development. Most significant among them is this PIM approach. The first stage involving the establishment of WUAs at 466 major, 158 medium and 846 minor schemes is complete;
- Establishment of Dam Safety Assurance program (including independent Dam Safety Panels and a separate Directorate for Dam Safety);
- Strengthening and modernizing hydrological data collection and associated analytical capacity to improve the knowledge base;
- Measures to initiate Fiscal Responsibility and Deliverables Accountability (FRDA) in the Water Resources Department (WRD) operations;
- Studies for privatization of individual schemes; both the FRDA and this effort are aimed at reducing overhead costs and freeing up resources for investments in socially responsive development; and Preparation of a Draft State Water Policy.

What would the proposed investment address?

The project would address all of the issues stated above and would focus on (i) institutional and policy framework development for state-wide integrated water resources management in a river basin framework; (ii) irrigation and drainage sub-sector reform among the various water-related sub-sectors; (iii) investments in irrigation and drainage infrastructure essential to improve scheme performance; (iv) building public-private partnerships critical for future sustainable optimal performance of the irrigation and drainage sub-sector; and (v) agricultural intensification and diversification including aquaculture.

2. Objectives
The project development objective is to improve productivity of water\(^1\) for the enhancement of socially and environmentally-sustainable growth and poverty reduction in selected focus basins (Chambal, Sindh, Betwa, Ken and Tons) of Madhya Pradesh.

3. Rationale for Bank Involvement

The key rationale for Bank involvement in this project include:

- Bank Commitment to improve economic growth and alleviate poverty in India in the latest CAS and consistency with its new Bank WRM Strategy and principles of engagement in the irrigation and drainage sector in India.
- MP is an important State from a poverty viewpoint and where water resources management is a key factor in its economy. The State has demonstrated its commitment to many reforms and a new Government is eager to demonstrate the benefits of reforms.
- The Bank has experience with similar reform projects in the region and other states in India (Uttar Pradesh, Rajasthan, and Tamil Nadu). The Bank would bring its global knowledge and experience to assist GoMP in its major reform program for the water sector and irrigation sub-sector. This support is particularly important in the areas of holistic river basin planning, tariff setting, tradeable water rights, investment rationalization, knowledge-base and decision support systems development, institutional reforms and capacity building, water services delivery improvement, public-private partnerships, and participatory irrigation management. Lessons learned in other countries in the unbundling and commercialization of public-sector service agencies would be adapted and introduced to MP. The Bank has developed appropriate strategies for assistance to Andhra Pradesh and Uttar Pradesh to enable them to undertake a long-term program of fiscal and governance reforms in key sectors. Such strategies would be developed for MP water sector as well from experience gained in these states. Synergy would be achieved through Bank’s experience in participatory and decentralized approaches being adopted under the MP DPIP in the focus basins.
- The Bank is already involved with other related projects in MP (including the Hydrology Project, District Poverty Initiatives Project, proposed Hydrology Phase-II Project)
- Synergy would also be achieved with the efforts of development partners, such as the ADB and Department of International Development (DFID). ADB is assisting the state in undertaking important state-wide reforms in public expenditure management, civil service reforms, and with large investments in infrastructure (roads, power, urban services). The ADB has also been involved in the preparatory work for this project through a technical assistance grant. DFID has expressed interest in working in the MP water sector with the Bank, particularly in the reform areas.
- There has been a request from the Department of Economic Affairs (DEA) and the MP Government to have the Bank as a partner in the Sector.

4. Description

\(^1\) "Productivity of water" is defined here as the sum of the net multi-sectoral benefits per unit of water use in a riverbasin framework. This would include the net benefits of irrigated agriculture, fisheries, hydropower, drinking water, industries, navigation, and environmental and other community uses of water. It encapsulates the principles of integrated water resources management (IWRM) in an economic development framework. Inherent in this objective is that water ought to be put to an optimal combination of beneficial uses across sectors. Water is a critical parameter that affects and is affected by many critical economic sectors that hold the key to alleviating poverty, particularly in rural areas.
The proposed project components provide support for institutional reforms in water resources management as well as for irrigation service delivery and complementary investments in improving and modernizing physical assets as described below:

**Component A: Water Resources Management – Institutions and Instruments (US$7.6 Million)**

This component would support the establishment and operationalization of the proposed planning, allocation and regulatory institutions and instruments at the State and basin-levels.

**At the State-level:** An institution (State Water Resources Agency (SWaRA)), would be developed for environmentally and socially sustainable inter-sectoral water allocation with optimal water resources management in a basin context throughout the State. The project would support the development of mechanisms to establish, administer and monitor water rights/entitlements. This agency would be carved out of the existing WRD with multi-disciplinary skills in the fields of hydrology, hydrogeology, engineering, economics, social sciences, environment, agriculture, surveying, computing, water law and planning. SWaRA would be supported by a technical unit (State Water Resources Data and Analysis Center (SWaRDAC)), which would collate, verify, analyze and disseminate information needed for integrated water resources management and basin planning. The project would provide the necessary hardware, software, consultants, initial operating costs, and related training and study tours.

A central autonomous agency (State Water Tariff/Rights Regulatory Commission (SWaTReC)), would be established to review and monitor water sector costs and revenues, and to rationalize and set bulk water user fees to enable the sector institutions to be financially self-sustaining. A Water Rights administration mechanism will also be established. Legal expertise required to set up such a commission together with support for hardware, software and initial operating costs would be provided by the project.

**At the Basin-level:** The Singh Basin Development and Management Board (SBDMB) and Tons Basin Development and Management Board (TBDMB) would be created (under the umbrella of SWaRA) and strengthened to operationalize the concept of integrated water resources management in a basin framework with decentralized basin development and management. These Boards are expected to be focal points for “shared vision” water resources planning and management in the selected basins. Basin boards would also regulate pollution of natural water bodies in the basin through regulatory and market-driven approaches in coordination with the enforcement mechanisms of the MP State Pollution Control Board. Support would be provided for infrastructure, technical advisory services and initial operating costs. The structure and work methodology of these Boards would be outlined during appraisal and later modified as required based on experience gained during implementation.

**Component B: Service Delivery – Irrigation and Drainage Institutions (US$37.7 Million)**

This component would support measures related to delivering reliable irrigation services at reasonable cost by financially-self sustaining entities.

**Irrigation line agency reforms.** The current WRD would be restructured to handle irrigation and drainage operations using modern techniques and business processes. Equipment and training (including technical, as well as change management capacity building) would be provided to assist GoMP in improving and modernizing the functioning of irrigation and drainage sub-sector
institutions. The project would support rightsizing and right-skilling of the department and the implementation of a comprehensive Information Management System and decision support tools, building on a good computer and communications network.

Management of Irrigation and Drainage (I&D) Schemes: Support would be provided for piloting various management options which would include but not limited to: (i) leasing part or whole scheme to a private sector operator; (ii) transfer to WUAs and their federations; (iii) transfer to a financially-decentralized irrigation/drainage/fisheries entity; and (iv) specialized crop zone management by private sector. GoMP is already moving ahead with experimentation on bringing the private sector into its irrigation and drainage operations. Support would be provided for measures to introduce, encourage and strengthen public-private partnerships to reduce costs and attract investments in the sector. A special focus would be on equipping the existing WUAs in the project areas with the skills necessary to perform more effectively. Special studies would be supported to develop workable institutional models, including Panchayati Raj Institutions for the unbundled operations.

Component C: Improving productivity of selected existing irrigation and drainage assets in five basins (US$375 Million)

This component would operationalize the concepts and provide the necessary investments in five basins (Chambal, Sindh, Betwa, Ken and Tons) for (i) reliable delivery of water measured and supplied on an appropriate volumetric basis in the irrigation systems of these basins to improve system performance, cost recovery and accountability of the service provider; (ii) an outcome-oriented approach with integrated sustainable agricultural intensification and diversification; and (iii) improved operation and management of the irrigation and drainage schemes, including participatory user management and private sector participation.

Asset Modernization: Most of the assets created for utilizing the water resources of these five basins for irrigation are in a dilapidated condition with an increasing gap between the potential created and utilized. In the minor schemes, the gap is 70% and in the medium and major schemes the gap is about 50%. Investment support would be provided to rehabilitate and modernize irrigation and drainage infrastructure in 640 minor schemes, 20 medium schemes and five major schemes which would close the gap and provide irrigation for about 300,000 ha. Support would be provided to design and install volumetric delivery mechanisms, electronic and other measuring devices, and computerized operations and management information systems required for real-time operations. Prior to carrying out the improvements, an appropriate knowledge base would be built (detailed topographic and asset surveys and GIS development), and detailed consultations with WUAs and fisherfolk and other stakeholders together with social and environmental analyses would be carried out. Asset rehabilitation would be on a demand-driven basis and community involvement would be ensured through extensive consultations with the already-operational WUAs. Such upgraded systems can be operated and maintained by a well-trained organizational set-up of water user associations, fishermen’s cooperatives and private sector operators in addition to line agency operations and management. It is proposed to rehabilitate and modernize all irrigation assets in the five basins on a demand-driven basis with 10% to 15% of the investment cost contribution from the stakeholders which would be kept in a fund and utilized by the WUAs for the maintenance of the schemes at appropriate levels after modernization.

Agricultural intensification and diversification (including extension services for intensification and diversification, horticulture, livestock, integrated pest and nutrient management): through collaboration of line agencies and the private sector would be supported under a farming systems approach. In MP, even though substantial diversified cropping systems are already in place, there is considerable scope for intensification and further diversification to horticulture and other high value
crops. Fodder crops coupled with breed upgradation would improve the milk production in the
villages located in the irrigation commands. Support for extension, study tours and other training for
farmers and on-farm trials for agriculture and horticulture, and promotion of environmentally
sustainable techniques, improvements in livestock management and knowledge
dissemination/outreach through village kiosks would be provided. Livestock improvement as part of
agricultural diversification efforts would be supported under the project. It is proposed to provide
assistance to improve inter-agency coordination amongst various line agencies operating in the APC
Branch and the WRD.

**Fisheries development:** In MP several of the waterbodies created by WRD assets are already being
utilized for fisheries under different arrangements. It is possible to improve the production
considerably from these and other village ponds located in the commands of the schemes. It is
proposed to provide technical assistance and investment support required for this purpose.

**Component D: Project Management Support (US$6.0 Million)**

The project activities would be coordinated by a multi-disciplinary Project Activities Coordination Unit
(PICU). Support would be provided to assist the PICU with its role in facilitating and guiding the
implementation and monitoring of all project activities, ensuring synergy and coordination amongst
activities and agencies implementing these activities, preparing consolidated reports and facilitating
training. PICU would be responsible for baseline surveys and environmental, social and other
assessments starting from project preparation period and update of such information throughout project
implementation and be responsible for project monitoring and evaluation in addition to direct
implementing agencies for technical, social, institutional and economic issues. Project implementation
would be supported by appropriate financing for project coordination, monitoring and evaluation and
reporting. Consultancy services required for the implementation of the project components and for the
preparation of feasibility studies and designs of further irrigation and drainage infrastructure have been
budgeted under this component.

5. Financing

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<td>INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT</td>
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<td><strong>Total</strong></td>
<td><strong>426</strong></td>
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6. Implementation

The project will be implemented over a period of six years. The main implementing agency will be the
WRD of the GoMP with management support and co-ordination provided by the multi-disciplinary PICU.
PICU chairman will report to a Project Steering Committee (PSC) which will review the progress of the
MP WSRP and provide strategic directions, guidance on policy matters and resolve conflicts, if any,
amongst the participating agencies. The PSC will be chaired by the Chief Secretary and comprise the
Principal Secretaries Finance, Planning, WRD and other participating departments. A smaller subset of
this committee comprising the Chief Secretary, the Principal Secretaries Finance, Planning and WRD, the
chairman of PICU and the Procurement Specialist of PICU is being constituted as an empowered
committee with cabinet approval to expedite decisions on all procurements and administrative aspects of
the project.
PICU will be assisted by a team of international standard experts in specific disciplines. The Chief Engineer (CE) of each basin will be assisted by a team of national level experts in specific disciplines. The scheme modernization will be handled at the division level through the Scheme Productivity Improvement Group formed under each Executive Engineer (EE) using existing staff and other deputed staff from other line agencies an Non-Governmental Organizations (NGOs) to be contracted. A schematic below shows the proposed implementation arrangements.

Water resources planning, allocation and integrated water resources management would be carried out by the State and Basin-level Water Resources Development and Management Entities (including the State Water Resources Agency and the Basin Boards). Irrigation and drainage reform and investment program would be carried out by the MP WRD together with the farmer organizations and the private sector. Rationalized tariff setting and introduction of formal water rights/markets would be through the tariff regulator. Other agencies involved would be Water and Land Management Institute (WALMI) for training and WUA support and all the departments in the Agriculture Production Commissioner (APC) branch of GoMP. Effective consultative arrangements involving farmers would be established early on to allow farmer input into the preparation of feasibility studies and designs for the modernization of irrigation and drainage infrastructure allowing for conjunctive use of groundwater and surface water.

A detailed Project Implementation Plan (PIP) has been prepared by PICU and an operational manual is under preparation. Investments would be guided by the recommendations of the environmental and social assessment, technical assessment, economic assessment, and guidelines for procurement and financial management. Appropriate systems would be put in place to ensure that this happens (including appropriate staffing/consultants, training, business process restructuring, computerized monitoring systems, third-party supervision on particular aspects, frequent Bank supervision, frequent consultation, joint walkthroughs, Memorandum of Understanding (MOUs), Social and Environmental Framework Framework Implementation etc.).
7. Sustainability

The project sustainability would be pursued through the following:

- The project would initiate a long-term flexible reform program necessary to improve and sustain the productivity of water, irrigated agriculture, fisheries and related areas. At the end of this phase of the project, institutions necessary for holistic water development and management would be in place. The pricing of water would be taken out of the political domain and entrusted to an independent tariff regulator. This would minimize risks associated with inadequate water charges being imposed due to political constraints. The introduction of water rights and its administration should see an improvement in the sustainable management of water in the State. The reform measures proposed for the irrigation and drainage sub-sector would improve the fiscal sustainability of the institutions currently operating in this sub-sector. Modernization of systems, volumetric delivery and sale of water, public-private participation, agricultural intensification, diversification, fisheries development in the reservoirs and village ponds would promote improved water use efficiency and productivity, billing and cost recovery would result in a sustainable growth environment.
- Working through existing government agencies and WUAs rather than working in an enclave separate implementation agency. Building partnerships with other government agencies, NGOs, private sector, academia, and other donors in this project.
- Extensive consultation framework for the project (including stakeholder meetings, joint walkthroughs, MOUs) to ensure local client participation and acceptance of proposed investments.
- Emphasis on mainstreaming reform concepts into business process (e.g. through revision of Irrigation Manuals, extensive training and knowledge sharing, building appropriate knowledge bases, tools and processes, etc.).
- Requiring continuing commitment from GoMP to finance investments and for further support.
- Having a programmatic framework for this investment in which future investments would be evaluated on the performance of this investment.
- Documenting project lessons and further requirements through an intensive monitoring and evaluation (M&E) system.

8. Lessons Learned from Past Operations in the Country/Sector

Key lessons learned from related interventions around the world and in the region as outlined below, have been reviewed and incorporated into the proposed project design and approach:

**Support for Reforms**
Experience internationally and in India have indicated that: (i) reforms must penetrate deeply into institutions and change must be comprehensive and on a number of fronts simultaneously, and new business concepts must be introduced in irrigation and drainage operations and management; (ii) mindsets and behavior of sector personnel, politicians, civil society, clients of the water utilities and the bureaucrats must be dealt with in light of the full complexity of the problems in the water sector and the irrigation sub-sector; (iii) institutional reforms need to be complemented with physical infrastructure improvements; (iv) it is necessary to have autonomous, cost-efficient, financially self-sufficient, well-managed and user-oriented irrigation and drainage entities to deliver efficient and reliable services. These entities must have an adequate revenue base, realistic tariffs, and the ability to collect and retain those tariffs for them to have sufficient revenues to be financially self-sufficient;
and (v) subsidies should be transparent if provided to the user so that the utility can operate on standard business terms.

The above cannot be achieved by stand-alone investments lasting a few years. Careful nurturing of reforms over the longer term is necessary.

**Separation of Water Resources Management and I&D Functions**
Lessons from around the world have indicated the value of separating the functions of overall water resources management from irrigation and drainage service delivery. These functions are currently intertwined in organizations such as the WRD, with substantial conflict-of-interest issues (with the agency responsible for 90% of water consumption also responsible for the management of the resource with other competing demands) and little emphasis on water resources management in its true sense.

**Emphasis on Institutional Capacity Building**
Experience has also shown that the functional strengthening of WRM and service delivery are to be accompanied by adequate institutional capacity building in both areas. This requires adequate training, exposure and motivation; development of adequate knowledge bases and appropriate use of Information Technology (IT), Management Information System (MIS), Geographic Information System (GIS), Decision Support System (DSS), and Information kiosks as part of business processes; rightsizing and rights killing of the institutions.

**Participation of stakeholders**
Participation and ownership of farmers and their organizations is critical for sustainable irrigation and agricultural drainage operations.

**Project implementation effectiveness**
Lessons learned regarding key features that enhance implementation effectiveness such as (i) minimizing turnover of senior staff through dialog that would be initiated with GoMP to ensure senior staff assigned to the project would have the required tenure in their posts to implement the project properly; (ii) establishing strong procurement and fiduciary capacity in the implementing agencies; (iii) ensuring timely counterpart funding through the establishment of appropriate fund-flow mechanisms; (iv) technical, economic, environment and social appraisal of each scheme modernization; and (v) participatory monitoring and evaluation of the project on a continuous basis assisted by third party supervision mechanisms.

9. Safeguard Policies (including public consultation)

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<td><strong>Environmental Assessment</strong> (OP/BP/GP 4.01)</td>
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<td>Forests (OP/BP 4.36)</td>
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Safeguard Policies Triggered by the Project
Although the physical investments will be primarily of a rehabilitation type and are not expected to result in any major adverse environmental or social impacts, an Environmental Category A classification has been adopted given the spatial scale of investment, the new nature of some of the activities, and the number of Bank safeguard policies triggered.

10. List of Factual Technical Documents

11. Contact point
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Fax: (202) 522-1500
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* By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas