Combined Project Information Documents / Integrated Safeguards Datasheet (PID/ISDS)
## BASIC INFORMATION

### A. Basic Project Data

<table>
<thead>
<tr>
<th>Country</th>
<th>Project ID</th>
<th>Project Name</th>
<th>Parent Project ID (if any)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pakistan</td>
<td>P163474</td>
<td>Khyber Pakhthunkhwa Irrigated-Agriculture Improvement Project</td>
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</table>

<table>
<thead>
<tr>
<th>Region</th>
<th>Estimated Appraisal Date</th>
<th>Estimated Board Date</th>
<th>Practice Area (Lead)</th>
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<tbody>
<tr>
<td>SOUTH ASIA</td>
<td>01-May-2019</td>
<td>20-Jun-2019</td>
<td>Agriculture</td>
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<table>
<thead>
<tr>
<th>Financing Instrument</th>
<th>Borrower(s)</th>
<th>Implementing Agency</th>
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<tbody>
<tr>
<td>Investment Project Financing</td>
<td>The Islamic Republic of Pakistan</td>
<td>Department of Agriculture, Government of Khyber Pukhthukhwa</td>
</tr>
</tbody>
</table>

### Proposed Development Objective(s)

To improve the performance of irrigated agriculture for farmers in the project area.

### Components

- Improvement of Community Irrigation Systems
- Introduction of Modern Irrigation Systems
- Capacity Building and Strategic Studies
- Project Management and Monitoring
- Contingent Emergency Response

## PROJECT FINANCING DATA (US$, Millions)

### SUMMARY

<table>
<thead>
<tr>
<th>Total Project Cost</th>
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<tbody>
<tr>
<td>Total Financing</td>
<td>223.30</td>
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<tr>
<td>of which IBRD/IDA</td>
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<tr>
<td>Financing Gap</td>
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</table>

### DETAILS

- World Bank Group Financing
Non-World Bank Group Financing

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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<tbody>
<tr>
<td>Counterpart Funding</td>
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</tr>
<tr>
<td>Local Beneficiaries</td>
<td>48.30</td>
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</tbody>
</table>

Environmental Assessment Category

B-Partial Assessment

Have the Safeguards oversight and clearance functions been transferred to the Practice Manager? (Will not be disclosed)
Yes

Decision
The review did authorize the team to appraise and negotiate

B. Introduction and Context

Country Context
Pakistan, the sixth most populous country in the world, is at a crossroads. The economy accelerated with GDP growth of 5.8 percent in FY18 but is projected to slow to 3.4 percent in FY19 as fiscal and external imbalances are addressed. Poverty declined from 64.3 percent in 2001 to 24.3 percent in 2015, but inequality persists. The country ranks low on the 2018 Human Capital Index, at 134 out of 157 countries. Gender disparities continue, and female labor force participation was only 20.1 percent in 2018. Natural disasters and unreliable water and power supply constrain progress. After the onset of another boom and bust cycle, a new IMF program is under discussion. Growth is expected to gradually recover as structural reforms take effect and macroeconomic conditions improve. Pakistan will need to protect its poor and those just above the poverty line in the next few years through targeted safety nets. Over the medium to long term, Pakistan needs to invest more and better in human capital, raise more revenue, simplify ease of doing business, expand regional trade and exports, and manage its natural endowments sustainably.

Khyber Pakhtunkhwa (KP) province—Pakistan’s third-largest region, by population—has over the past eight years made progress in transitioning out of vulnerability and crises, leading to substantial poverty reduction. KP’s incidence of poverty fell from 73.8 percent in FY02 to 27 percent in FY14, the largest decrease in any province in Pakistan. However, parts of KP remain vulnerable to crises.
The integration of the former Federally Administered Tribal Areas (FATA) with KP creates new challenges and opportunities for the province. The challenge for KP will be to expand its development expenditures to cover the needs of both KP and erstwhile FATA. Given that erstwhile FATA is one of the poorest regions of Pakistan and is expected to retain its tax-exempt status for the next five years, this merger will affect KP’s fiscal situation and increase the need for development financing. The Khyber Pakhtunkhwa Tribal Districts Transition Framework, estimated to cost US$1.38 billion over three years (2018–2020), has a funding gap of US$726 million—nearly three-quarters of its financing requirement.

Agriculture is the backbone of Pakistan’s economy. As of 2017, the sector contributes 19 percent of GDP, employs 42 percent of the labor force, and accounts for up to 75 percent of foreign exchange earnings. Pakistan’s annual population growth rate remains high at 2.4 percent and the country is rapidly urbanizing, pressurizing the agriculture sector not only to increase production, but also to respond to changing and diversified food consumption patterns. In recognition of the sector’s importance for GDP growth, the government aims at stimulating agricultural growth by improving water productivity, supporting high-value crops (HVCs) and subsidizing inputs, etc.

In Khyber Pakhtunkhwa (KP), the agriculture sector provides livelihoods to 85 percent of the population. Agriculture accounts for 14 percent of the provincial GDP and employs 37 percent of the labor force. The total cultivated area in KP is 1.6 million ha (7 percent of the country’s total), half of which is rainfed. KP produces about 75 percent of the country’s tobacco, 17 percent of maize, 16 percent of barley, and 8 percent of sugarcane. However, the province is a net importer of agricultural produce and depends heavily on production from other provinces – especially from Punjab – for important food commodities such as wheat (64 percent import share), rice (74 percent), citrus (75 percent) and vegetables (90 percent). Promoting agricultural development and creating a vibrant rural economy is thus crucial for KP’s economic and social progress.

Climate change poses a significant risk to Pakistan. The Global Climate Risk Index ranks Pakistan among the top 10 most climate-vulnerable countries. Pakistan is regularly affected by extreme weather events – floods in 2010 caused damages of around US$10 billion in Pakistan and US$300 million to KP’s agriculture sector. A 2013 study by the World Bank found that the melting of the Hindu Kush-Karakoram-Himalayan glaciers could affect water flows into the Indus River system with implications for agricultural production. Climate change thus heightens the pressure to manage water resources with the utmost care. The agriculture sector, as both a contributor and major mitigator of greenhouse gas (GHG) emissions for the country, is indispensable in the government’s overall strategy to mitigate climate risks.

The new government, taking office in August 2018, has emphasized the instrumental role of agriculture in addressing the development challenges facing the country. The new government has made it clear that agriculture takes center-stage in its economic reform agenda. It aims to enhance the role of the private sector, invest in human capital and create more jobs along agricultural value chains. The government also released the National Water Policy in April 2018, which calls for concrete actions to improve water use efficiency, increase storage capacity, leverage new technologies, and develop a comprehensive regulatory framework for integrated water resource management.

Sectoral and Institutional Context

Inefficient Irrigation

The availability of water is crucial for Pakistan’s agriculture growth. Agriculture in Pakistan is almost wholly dependent on irrigation, with more than 90 percent of agricultural produce coming from irrigated lands. Annual rainfall in most parts of the country is less than 150 mm, with high evaporation rates ranging from 1,250 mm to 2,800 mm per annum. The sector consumes around 95 percent of the country’s water resources. At the same time, per capita availability of
usable water is decreasing, primarily because of population growth, but also because of pollution and inefficient use of water resources.

KP’s agriculture sector faces a water shortage due to the resource’s spatial and temporal distribution. This situation is further exacerbated by: (a) low surface water conveyance efficiency with most losses occurring in watercourses (W/Cs); (b) low on-farm water use efficiency; (c) poor operation and maintenance (O&M) and poor cost recovery; (d) water distribution inequities; (e) lack of storage capacity and control structures; and (f) limited public investment capacity. The result is low water productivity and environmental problems related to waterlogging and salinity.

Improving conveyance efficiency in watercourses is essential. A watercourse (average length = 2.5 km) is a community irrigation system, in which water is shared between users following a weekly rotation system called “warabandi”. Community watercourses connect to farmers’ fields through a complex system of channels and ditches. Water losses in watercourses are estimated at 40 percent, mainly through evaporation, spillage, seepage, and side leakage, etc. Watercourse lining becomes important as it helps improve conveyance efficiency up to 80 percent. The project will therefore provide support to watercourse improvement.

Improving water use efficiency in the field is equally important and contributes to the overall water balance. Flood irrigation is common in Pakistan but inherently inefficient mainly because of high rates of evaporation. The project will, therefore, support the introduction of high-efficiency irrigation system (HEIS) such as drips and sprinklers with application efficiency of up to 95 percent. In addition to evaporation losses, about 20 percent of irrigation water is wasted due to uneven fields, which leads to excessive water application to low-lying areas and under-irrigation of higher elevations. Therefore, the project will also support the introduction of precision land leveling (PLL). It is important to note that the main efficiencies of watercourse improvement and HEIS are found in reducing evaporation loss, rather than in groundwater recharge. This is because the “warabandi” system runs a constant wet-dry cycle between the head to tail, that does not allow enough time for seepage from the channels to contribute to groundwater in any event. Rather, the impact of HEIS comes from its ability to target and saturate the soil in the root zone from which water is drawn into the plants by osmosis on a continuous basis. It helps significantly reduce water lost to evaporation from soils, particularly when the distance between plants (such as cotton and orchard) is significant and large surfaces of soil are exposed to evaporation. Water savings from W/C rehabilitation and HEIS would be used within the watercourse command area and result in increased cropped area and yields.

Addressing climate change risks calls for a more resilient agriculture sector. Increasing water use efficiency will contribute to a greater resilience. Several studies suggest that, while climate change may decrease water runoff in the long run, in the short run, runoff may well increase due to accelerated melting of glaciers. In the absence of glaciers, massive storage in the Indus catchment would be lost, affecting available supplies and increasing year-to-year variations in flow volume. By better managing water demand (and helping to produce more crop per drop) and creating a system that can convert the seven-day turn system into a regular supply system, the resilience of KP’s agriculture sector will be significantly improved.

Low Productivity and Lack of Value Addition

Agro-climatic conditions in KP provide substantial opportunities for high-value crops, especially horticulture. However, yields of horticulture crops in KP are low – national average yields exceed that of KP’s by 78 percent, 52 percent and 45 percent for cabbage, cauliflower and citrus, respectively. Closing these yield gaps is likely to significantly increase the share of horticulture in the total cropped area in KP (currently around only 5 percent).
Value addition through processing is still at its infant stage in KP. Less than 10 percent of the total production of fruits and vegetables is processed in KP and post-harvest losses are significant. While lack of relevant skills, seasonal water shortages, limited financial resources, poor marketing facilities, and climate risk all play a role, the exact nature and role of these constraints merit further investigation. Experiences from Punjab and Sindh show that, following improvements in the availability and control of water (through watercourse improvement and adoption of modern irrigation technologies), farmers’ willingness and ability to diversify and produce for the market is greatly improved.

Gender Issues in Agriculture Sector

In KP, women are heavily involved in the agriculture sector, concentrated in husking and preserving agricultural produce in addition to caring for and rearing domesticated livestock. Gender discrimination is pervasive in Pakistan’s agriculture sector with most women in rural areas engaged as unpaid family workers. Women are also generally excluded from important agriculture-related decision-making process. The relationships between women’s economic status and a host of variables are important. For instance, the Food and Agriculture Organization (FAO) estimates that ensuring equal access to productive resources for women could raise agricultural output in developing countries by between 2.5 and 4 percent. The project will help better understand these relationships, and others – such as the interaction between the improvement of women’s economic status and gender-based violence (GBV). Based on a better understanding the dynamics of gender in agriculture in KP, the project will address some of the major gender gaps in the sector with the goal of improving gender equity.

Laying the Foundations for a Paradigm Shift

Increasing productivity and improving the competitiveness of KP’s agriculture sector requires a paradigm shift towards greater private sector engagement for sustainability. While the project tackles head-on the inefficiencies of the on-farm water management (OFWM) system to reduce water losses and increase climate resilience, it also supports the groundwork for fostering commercial agriculture, linking smallholders to markets and stimulating the development of private sector service providers. Efforts to push forward the shift, represented in the Government’s priorities and strategies delineated above, are reflected in the project’s use of the WBG’s maximize finance for development (MFD) approach to (a) optimize the allocation of limited public financial resources, and (b) identify opportunities for crowding-in private sector financing, using experience from existing similar projects.

The project’s support to introduction of modern irrigation technologies lies firmly on the MFD spectrum of using public investments to reduce private sector risks. Similar projects in other provinces, such as Punjab, have convincingly demonstrated the important role played by the public sector in catalyzing what is now a dynamic and vibrant private market for precision land leveling services – after almost 10 years’ support from the World Bank and the Government – which no longer requires any public funding support. Currently, the uptake of modern irrigation technologies in KP is low since farmers perceive it as risky. Mitigating risk for private sector investment – from farmers to large agribusinesses – is at the heart of the MFD approach and is used in the project to reduce the risk associated with these technologies. That same risk perception constrains the financial sector from lending to the agriculture sector, which further compromises technology adoption. In KP, for example, the financial sector allocates less than 5 percent of financial resources to the agriculture sector and most of it concentrates on agricultural manufacturing and large-scale operations.

Achieving the paradigm shift from both supply and demand angles is a requirement for change. The project contributes to the paradigm shift not only because it will improve water use efficiency, which leads to higher productivity and greater competitiveness, but also because it will help to lay the groundwork for greater market integration for
smallholders who make up 96 percent of KP farmers. The project addresses the issues of on-farm inefficiency in both water conveyance and water application by carefully designed interventions that effectively reduce water loss in watercourse delivery and in field application. In addition, the project will contribute to the capacity building of farmers and government institutions, value chains profiling, and assessment of end-market requirements for future investments in market connectivity.

Water Users’ Associations (WUAs) are in the driver’s seat of watercourse improvement and community water resource management. The key to success of watercourse improvement programs in Pakistan, and indeed globally, is farmers’ participation in WUAs. The provisions of the Khyber Pakhtunkhwa Water Users’ Association Act 1981 form the basis of the formation of WUAs in KP (see Annex 2 for details). The law requires that a majority (51 percent) of the landholders on a watercourse become members of a WUA. In the past four decades or so, the KP Department of Agriculture has rehabilitated more than 25,000 watercourses and hence created a wealth of knowledge about and experiences with WUAs. The project is expected to work with approximately 20,000 WUAs, emphasizing community mobilization, post-completion O&M, and the introduction of modern irrigation technologies.

C. Proposed Development Objective(s)

Development Objective(s) (From PAD)

To improve the performance of irrigated agriculture for farmers in the project area.

Key Results

The achievement of the PDO will be measured by the following indicators:

- IND1: Reduction in water losses (m3);
- IND2: Water productivity at farm level (kg/m3);
- IND3: Production area for high-value crops (ha);
- IND4: Private capital investment mobilized (US$ million).
- IND5: Project beneficiaries: farmers reached with agricultural assets or services (and percentage share of women);

D. Project Description

The project will introduce a set of customized activities, such as rehabilitating community watercourses, establishing water users’ associations, introducing modern irrigation technologies, strengthening farmers’ capacities, and filling knowledge gaps on agricultural market opportunities and constraints, to effectively address these challenges. These activities will be implemented through a market-oriented approach by leveraging private sector capital investment. The expected outcomes include an improved and more climate-resilient community water management system, increased water and agricultural productivity, and strengthened ability to diversify cropping structure in response to better understood market opportunities. By improving the performance of KP’s irrigated agriculture in these ways, the project will contribute to a more vibrant and dynamic rural economy in KP. The project has the following components:

Component A: Improvement of Community Irrigation Systems (US$140.7 million, IDA US$109.7 million). This component will improve the on-farm water supply in irrigated areas. There are two systems the project supports: watercourses in canal command areas and those in non-canal areas, also known as ‘civil canal’. The component will
support four types of watercourse improvements for: (a) watercourses in canal-irrigated areas; (b) large-scale (around 3 cusecs) watercourses in non-canal irrigated areas; (c) regular-scale watercourses in non-canal irrigated areas; and (d) piped water schemes in non-canal areas run from tubewells or springs, tanks or pumping from rivers and channels.

Component B: Introduction of Modern Irrigation Technologies (US$44.0 million, IDA US$26.8 million). This Component will provide support to farmers for the adoption of modern irrigation technologies to increase on-farm water application efficiency. It has three subcomponents: (i) Subcomponent B1: Installation of High-efficiency Irrigation Systems (HEIS) (US$13.6 million, IDA US$8.1 million); (ii) Subcomponent B2: Construction of On-Farm Water Storage Tanks and Ponds (US$23.2 million, IDA US$17.4 million); (iii) Subcomponent B3: Strengthening Private Precision Land Leveling Service in Private Sector (US$7.3 million, IDA US$1.3 million).

Component C: Capacity Building and Establishing Knowledge Base for Future Inclusive Growth (US$12.5 million, all IDA). This Component has two subcomponents aimed at building capacity to optimize the investments in Components A and B and to lay the groundwork for profitable market linkages for the agricultural sector. There are two subcomponents: (i) Subcomponent C1: Capacity Building for Farmers and Government Institutions (US$7.5 million); (ii) Subcomponent C2: Establishing Knowledge Base for Future Inclusive Growth (US$5 million).

Component D: Project Management and Monitoring (US$26 million, all IDA). This component will ensure that all project activities are implemented effectively and in a timely manner. The complexity of institutional merging and streamlining former FATA into the KP system explains the relatively high cost of the Component. For example, three Regional Directors will be appointed to ensure smooth and effective project implementation in a region that includes both traditional KP areas and newly merged FATA areas. The Component consists of three subcomponents: (i) Subcomponent D1: Project Management, Operations, and Administration (US$14 million) includes farmer mobilization, surveys, engineering designs, implementation supervision, assistance to farmers and suppliers, and quality control of the works carried out by farmers and suppliers/vendors; (ii) Subcomponent D2: Project Implementation Supervision Consultancy (US$10 million) consists of project oversight by third-party consultants who would also provide technical assistance and training support; (iii) Subcomponent D3: Monitoring and Evaluation Consultancy (M&E) (US$2 million) An independent M&E consultant will undertake activities under this component.

Component E: Contingent Emergency Response (US$0). This component supports preparedness and rapid response to disaster, emergency, and/or catastrophic events, as needed. The provisional zero-cost for this component will allow for the rapid reallocation of credit proceeds from other components under streamlined procurement and disbursement procedures. The following table summarizes the project costing and financing.

### E. Implementation

#### Institutional and Implementation Arrangements

The Director General On-farm Water Management (DGOFWM) of the Government of KP (GoKP) would be responsible for the implementation of the project and act as the Project Director (PD). The OFWM Directorate (i.e., Project Management Unit, PMU) has demonstrated its capacity by implementing several World Bank, ADB, USAID, and JICA financed similar projects in the past. To improve coordination across all layers of the Government, a Project Steering Committee (PSC) will be constituted with membership from all concerned provincial Departments. Furthermore, a Project Leadership Committee (PLC), chaired by the Secretary Agriculture, and a Project Implementation Committee (PIC), chaired by DGOFWM, will also be established.
The DGOFWM reports to the Secretary Agriculture of the GoKP. As the Project Director (PD), the DGOFWM would be responsible for all aspects of the project, including implementation, procurement, financial management, and oversight of the technical assistance and training program, etc. The DGOFWM would be supported by one Director Water Management Headquarters (DWMHQ) and three Deputy Directors located at Headquarters (DD (HQs)) responsible for HEIS, PLL, W/Cs improvement, and capacity building for value addition, respectively. A unit of support services will also be established, including specialists in procurement, financial management, accounting, public information, and safeguards (social and environment), etc. All positions would be assigned staff from within the Department, except the DD Budget Finance, who may come from the Budget Accounts and Audit Department. The staff from DGOFWM may be given additional training and assistance for carrying out their assignments. If staff cannot be identified at the start of the Project, such positions may be filled with technical expertise available at Shared Services Unit (SSU) of GoKP. The SSU will be established under Finance Department of GoKP to provide cross cutting support to development projects financed by the World Bank. The available functional support planned to be supported by SSU include fiduciary, safeguard, procurement, monitoring and evaluation, and communication.

The Project will have three Regional Directors (RDs): an RD South West Region, covering districts and merged FATA areas from Kohat to Dera Ismail Khan with an office in a selected city; an RD Central Region, covering central parts of KP and the newly merged FATA areas with an office in a selected city; and an RD North covering Batagram, Kohistan, Swat, Dir and Chitral along with FATA and the Provincially Administered Tribal Areas (PATA) areas, with an office in a selected city. The RDs will have two technical staff and support staff as required. Under the RD would be the District Offices (OFWM) in each district.

The District Office (OFWM) would be responsible for supervision, coordination and internal monitoring at the district level. The District Officer will have field staff, such as Water Management Officers (WMOs) sub-engineers, rodman and field assistants, and office staff such as office assistants, computer operators and support staff. In districts where HEIS systems start off, the relevant capacity will be enhanced by posting HEIS experts.

The project will play an important role in the integration of the newly merged FATA areas into the KP administration and offices will be established in former FATA areas. The DGOFWM will carry out an assessment of staffing needs and location of offices in newly merged FATA districts. The project will assist in establishing office buildings as well as staffing (in the first two years) from Component D as needed.

F. Project location and Salient physical characteristics relevant to the safeguard analysis (if known)

The project will be implemented in various districts of KP. The land cover of KP changes from north to south. The Province sits primarily on the Iranian plateau and comprises the junction where the slopes of the Hindu Kush mountains on the Eurasian plate give way to the Indus-watered hills approaching South Asia. Geographically, the province could be divided into four agro-ecological zones on the basis climatic conditions covering temperature, rainfall, altitude and topography as developed by Environmental Protection Agency of KP: (a) Zone A – Northern Mountains covering districts of Buner, Shangla, Upper and Lower Dir, Swat and Chitral. (b) Zone B – Sub Humid Mountain covering districts of Haripur, Batagram, Mansehra, Abbottabad, Kohistan and Torghar. (c) Zone C – Central Valley Plains covering districts of Peshawar, Mardan, Charshada and Nowshera. (d) Zone D – Piedmont Plains (including Suleiman) covering districts of Bannu, karak, Lakki Marwat, Tank and DI Khan. The project activities are province wide and thus covered all four agro-ecological zones but largely concentrated in areas with are mostly used for agriculture and livestock grazing. These areas have been already transformed and there are neither forests areas nor natural habitats involved. Indus River and its tributaries are the main source of water for agriculture in the
Province. Other major rivers that crisscross the province are Kabul, Swat, Kunar, Siran, Panjkora, Bara, Kurram, Dor, Haro, Gomal and Zhob.

### G. Environmental and Social Safeguards Specialists on the Team

Zahid Shakeel Ahmad, Environmental Specialist  
Marcelo Hector Acerbi, Environmental Specialist  
Babar Naseem Khan, Social Specialist

### SAFEGUARD POLICIES THAT MIGHT APPLY

<table>
<thead>
<tr>
<th>Safeguard Policies</th>
<th>Triggered?</th>
<th>Explanation (Optional)</th>
</tr>
</thead>
</table>
| Environmental Assessment OP/BP 4.01         | Yes        | The project activities involve irrigation infrastructure improvement of existing facilities such as watercourse improvement / lining in canal and non-canals command areas, under component A.  
Whereas under component B, the activities will focus on adoption of efficient water-use technologies such as High Efficiency Irrigation Systems (HEIS), Precision Land Leveling (PLL), and construction of small water storage tanks. The component C will invest on increasing agriculture productivity and farmers’ income through strengthening farmers’ capacities on farming (particularly on high value crops) and marketing. The key activities planned to be undertaken include: (i) Farmer Field Schools (FFS) on improved farming practices, including innovative technology, introducing a set of customized technology package, small-scale storage facilities; and small processing equipment and machines etc.  
Some of these activities mostly under Component A and B are expected to cause some adverse environmental impacts. Overall, most of the impacts are expected to be during the construction phase and are likely to be temporary in nature and reversible. Consequently, the policy has been triggered. The project has been categorized as Category B because the expected environmental impacts can be managed by the implementation of |
conventional environmental management plans related to the enhancements of irrigation systems. The irrigation infrastructure improvement will overall improve irrigation efficiencies and help in ensuring availability of designed water flows at the tail-end of watercourses. Improved infrastructure will not change the designed water allocations. Typical negative impacts associated with civil works financed by the project include noise, air, soil and water pollution due to dust and exhaust emission and other wastes; vegetation clearance; damage to the existing infrastructures such as rural roads, temporary water stoppages for irrigation, community and worker health and safety risks, etc. During operation, some potential adverse impacts are forecasted such as water pollution (caused by external factors to the project) and spreading diseases by human and animal wastes, pesticides use potentially causing water and soil pollution, excessive application of irrigation water causing leaching of soil nutrients and changes in soil characteristics, etc.

The project has prepared an ESMF using a framework approach as the scope and location of project activities are not known by project appraisal and will be identified during implementation. ESMF has adequately identified the potential impacts and provided guidance on generic mitigation measures to be implemented to offset the adverse environmental impacts. The ESMF has clearly established the procedures and methodologies for the environmental planning, assessment, review, and monitoring while implementing project activities; besides guiding on preparation of subproject/site specific ESMP(s). During the project implementation and under the guidance of ESMF, the project will prepare Environmental and Social Impact Assessments (ESIA) along with ESMPs preparation that will determine the potential environmental and social impacts of the proposed project activities (rehabilitation and improvement of watercourses in Component A and installation of HEIS in Component B). These assessments will identify health and safety issues, recommend implementable mitigation measures for each of the adverse environmental impacts; and
recommend measures to enhance the project’s environmentally positive impacts as narrated earlier. The ESIs will include an Environmental and Social Management Plan (ESMP) by which all of the mitigation and enhancement measures prescribed above will be carried out. The ESMP will describe how the mitigation and enhancement measures will be monitored, controlled and managed to ensure their effectiveness by providing institutional hierarchy for their implementation.

ESMF has been disclosed in-country by the Government on its website on April 2, 2019.

<table>
<thead>
<tr>
<th>Performance Standards for Private Sector Activities OP/BP 4.03</th>
<th>No</th>
<th>This policy is not triggered as this is not a private sector led project.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Habitats OP/BP 4.04</td>
<td>No</td>
<td>Most of physical infrastructure investments financed by the project are rehabilitation and improvement of the existing infrastructures (water canals), installation of high efficiency irrigation systems, that will happen in an already transformed environment and small-water storage tanks will take place on the existing agricultural lands. These activities are not expected to convert or degrade natural habitats. Therefore, the policy is not triggered.</td>
</tr>
<tr>
<td>Forests OP/BP 4.36</td>
<td>No</td>
<td>The project is not expected to impact forests and associated ecosystems in the target area as envisaged in the policy. Therefore, the policy is not triggered. Most of physical infrastructure investments financed by the project are rehabilitation and improvement of the existing infrastructures (water canals), installation of high efficiency irrigation systems, that will happen in an already transformed environment.</td>
</tr>
<tr>
<td>Pest Management OP 4.09</td>
<td>Yes</td>
<td>The project will not support purchase of pesticides. However, the policy is triggered because the project interventions may lead to substantially increased use of pesticides and subsequent environmental impacts. The project has prepared an IPMF as a separate safeguards document for the project activities under both component A (watercourse improvements) &amp; B (installation of HEIS). The IPMF has broadly identified anticipated negative impacts caused due to increased use of pesticides as a result of improved irrigation water availability. Apart from giving policy and regulatory framework for pesticides use, the IPMF adequately covered pest management</td>
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approaches, pesticides use and management (safe handling, storage, transport and criteria for pesticides selection); and procedures for monitoring and evaluation of IPMF implementation. For IPMF implementation in the field, OFWM will make use of available staff, expertise and experience of Agriculture Extension services – a section under the same Agriculture Department; to ensure better coordination and effective compliance.

IPMF has been disclosed in-country by the client on its website on April 2, 2019.

<table>
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<tr>
<th>Physical Cultural Resources OP/BP 4.11</th>
<th>Yes</th>
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<tbody>
<tr>
<td>The policy is triggered as precautionary measure as the project activities shall largely be implemented in/at already transformed areas and there is not likely to come across /impact on physical cultural resources (PCRs). However Chance find procedures are therefore included in ESMF.</td>
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<th>Indigenous Peoples OP/BP 4.10</th>
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<tr>
<td>The project area extends across KP, including Chitral district which is home to the Kalash who are recognized as Indigenous People (IP); hence, OP 4.10 is triggered. An Indigenous Peoples Planning Framework (IPPF) for interventions in Chitral district will be prepared, consulted upon, and disclosed publicly on the client’s website (in-country) and by the Bank prior to appraisal. Indigenous Peoples Plans (IPPs), if required, will be prepared for specific project locations. Given the cultural sensitivity and tribal nature of the area, the social assessment will carefully assess potential project impacts on IPs and mitigation measures including grievance redress mechanism will be developed through free prior and informed consultation as required under OP4.10.</td>
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<th>Involuntary Resettlement OP/BP 4.12</th>
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<tbody>
<tr>
<td>Small parcels of land will be required for project interventions. In most cases land needs will be met through Community or Voluntary Land Donations (VLD), the procedures for which will be laid out in the ESMF. In few cases small parcels may need to be acquired e.g. watercourses construction in new command areas (e.g. Bazai etc.). Certain interventions e.g. rehabilitation of existing water courses, may involve minor temporary impacts on livelihoods (due to restricted access; temporary dislocation) which could require small scale compensation. However, the impacts are not</td>
<td></td>
</tr>
</tbody>
</table>
The project is not expected to have any large scale, significant and/or irreversible negative social and environmental impacts. Hence OP 4.12 on Involuntary Resettlement has been triggered. A Resettlement Policy Framework (RPF), and Resettlement Action Plans (RAPs) for actual sites that may have been identified, will be prepared, consulted upon, and disclosed publicly on the client’s website (in-country) and by the Bank prior to appraisal.

This policy is not triggered. The project will not directly finance rehabilitation of existing dams or construction of new dams. Water sources to be utilized are situated at the tertiary (farm) level of the whole canal system and far away from the original sources. Therefore they will not be affected by the performance of existing dams. Water storage tanks to be financed by the project are small reservoirs constructed on-farm by individual farmers for his/her farm needs.

The proposed project activities are located in the command area of tributaries of Indus river, which is an international water way (river). The proposed project activities under component A and B qualify to trigger this policy. However, the nature of works envisaged under the proposed project: a) will not adversely affect the quality or quantity of water flows to other riparian; and b) will not be adversely affected by other riparian’s water use. Therefore, the Project falls within the exception to the notification requirements of OP 7.50, and this exception has been cleared by the World Bank’s legal team, Country Management Unit, and Agriculture Global Practice Management, and has been approved by the Regional Vice President.

There are no disputed areas as defined in the Policy where project interventions are to be undertaken and therefore this policy is not triggered.

### KEY SAFEGUARD POLICY ISSUES AND THEIR MANAGEMENT

#### A. Summary of Key Safeguard Issues

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

   The project is not expected to have any large scale, significant and/or irreversible negative social and environmental impacts.
impacts.
Watercourse improvement/lining under component “A” could potentially have adverse environmental impacts during construction activities such as: air, water and soil pollution, soil erosion, improper disposal of excavated earth and surplus construction material, temporary diversion of channels left unattended, cutting of tree, shrubs and disturbance of vegetation. Siltation/clogging of watercourses/channels could result due to improper maintenance; thus stopping or reducing the water flows for irrigation; reduced groundwater recharge because of lined channels. Other potential impacts include the increase in the use of pesticides due to improved availability of irrigation water; and health and safety issues related to construction, traffic movement, and increased use of pesticides. Potential negative environmental impacts related to the “installation of high efficiency irrigation systems – HEIS- and construction of water ponds” under Component “B”; include: soil erosion or subsidence from improper construction or siting; damage to soil structure because of soil compaction leading to lower agricultural productivity, and contamination of soil as a result of using heavy machinery for installation of HEIS and other construction activities; and improper disposal of construction material and other wastes. Vehicles and machinery used for installation of HEIS, if ill maintained/or operated with inappropriate fuel, may cause air, water and noise pollution and health hazard for workers, farmers, and community around. HEIS may also potentially lead to salt build up in the crop root zone since the leaching is unlikely to take place with the controlled irrigation.

Most of the identified adverse impacts are however temporary and reversible in nature and can be addressed by taking appropriate mitigation measures; such as: proper disposal of construction material, compensatory tree plantation against cutting, adopting better design options, awareness raising of farmers for judicious use of water and pesticides and opting integrated pest management practices, limiting the canal lining up to 50% of total length for avoiding ground water depletion, proper maintenance of machinery and equipment, and restricting working hours during day time for avoiding excessive air and noise pollution; avoiding environmental hotspots for siting and project related activities; and occasional flood irrigation in fields where high efficiency irrigation systems are installed to avoid salt build-up in soil.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:

Long term impacts will largely be positive since the project activities shall further improve the business as usual condition, conserve water, strengthen and modernize agriculture practices.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

The “No project” scenario is considered the only alternative option. The watercourses are already in dilapidated conditions causing huge water losses; reduced availability of irrigation water resulting into the lesser agriculture produce and affecting livelihoods of farmers. If the situation remains the same in case of “No Project”, the conditions shall further worsen. Hence the alternative was rejected; and the project activities shall be implemented as designed which will be essential to avoid and minimize the adverse impacts under the existing operational conditions of the irrigation system at by project’s baseline in April 2019.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.

The Government of KP through its Directorate of On-Farm Management (OFWM) of Agriculture Department has prepared an Environmental and Social Management Framework (ESMF) as the final design and location of project activities are not precisely known. The ESMF adequately identified the potential adverse environmental impacts against each sub-component/activities and suggest generic mitigation measures.

The ESMF sets out the principles to be respected in formulating an Environmental and Social Management Plan (ESMP); which takes into account the details of the project/subprojects once known. ESMF also suggests the
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Methodology for ESMP formulation and includes: (i) scoping, (ii) site survey and data collection, (iii) screening, (iv) impact assessment; and (v) preparation of ESMP. ESMF sufficiently describes how to implement the laid down methodology. For instance: before implementation, all sub-projects shall be screened for environmental and social impacts using a “Rapid Assessment Checklist” provided in the ESMF. The screening process will include: assessing impacts; examining alternatives to minimize the negative impacts; enhancing positive impacts; and compensating for adverse impacts. The results of screening shall determine the safeguard requirements (ESMP preparation, using simple checklists describing standard management measures; or no further action) to mitigate the environmental impacts.

Consistent with the World Bank OP8.00 (Rapid Response to Crises and Emergencies) the project activities (support to preparedness and rapid response to disaster, emergency, and/or catastrophic events, as needed) under component E shall have to comply with Bank safeguard and disclosure policies, but with flexibility criteria to be agreed with the World Bank if the emergency materializes. The ESMF formulated has put a system in place to ensure that PIU includes expertise and capacity to screen the interventions falling under this emergency category by using the already existing tools of ESMF but under an emergency context. As guided by ESMF project will use an Environmental and Social Screening Checklist to ensure that the type of investments to be financed will be consistent with the World Bank Category B projects.

Further, for ensuring safeguard compliance in the field during execution, the ESMF provides clear guidance and procedures for inclusion in the “Technical Specifications of Contracts”. The specific clauses propose mandatory requirements such as: the contractor and his staff/employees shall adhere to the mitigation measures set down and take all other measures required by the Engineer to prevent harm, and to minimize the impact of his operations on the environment including, among others: removal of surplus material, proper handling of excavation and borrow pit treatments, regular maintenance of machinery and limiting operations during day hours for avoiding excessive noise and air pollution etc.

ESMF proposed a comprehensive institutional arrangement that is well synergetic with the overall project implementation arrangements. The Project Director PIU will be responsible for the environment safeguard performance at project level. He will oversee compliance with the safeguard documents throughout the project period. Till the time, the project and PIU become fully operational, the OFWM has notified an experienced and senior level officer to act as a E&S Safeguard Focal Person for taking care of safeguard related aspects and interacting with the Bank and other stakeholders when needed. A dedicated full time Environment Specialist will be positioned in PIU and S/He will be responsible for all safeguard related issues such as: subproject screening; development of subproject specific Environmental and Social Management Plans (ESMPs) and their effective implementation as per guidance provided in the ESMF. S/He will also be responsible for internal monitoring and progress reporting. The achieving effective safeguard compliance, the PIU through Environment Specialist and E&S focal persons in the field shall further support community participation and consultations at all stages, from sub-project identification to completion.

OFWM has also prepared an Integrated Pest Management Framework (IPMF). Preparation of IPMF adequately made use of existing literatures, laws, rules and regulation pertaining to the agriculture, pests and pesticides. IPMF was also benefited from the consultation findings and direct feedback from implementing entities, farmers, extensions workers and pesticides dealers in the project area. The IPMF clearly sets out the generic mitigation measures and recommendations to offset the adverse environmental impacts likely to occur due to increased use of pesticides in case of improved availability of irrigation water due to project interventions. The measures suggested include, bio; social, cultural and mechanical means for controlling pests with the judicious use of pesticides. The capacity building activities for IMPF include: conducting trainings and awareness sessions at all levels from IAs, departments, WUAs and with farmers. The training/sessions shall cover safe use and handling of pesticides, basics of IPM, bio-control agent, conducting farmers field schools (FFS), and technical assistance for upgrading existing labs/equipment.
The implementing entity OFWM (Agriculture Department) currently does not have staff or an organizational structure specifically focusing on E&S safeguard related issues. However at department level, OFWM has some experience in district DI Khan, where environmental safeguard requirements were complied with while implementing a USAID funded project. OFWM also has a strong province-wide presence in terms of district offices and agriculture related field staff. The technical staff of Agriculture extension wing of the department has good knowledge and experience in handling pests for agriculture research and extension services, soil and water quality tests and managing allied facilities (laboratories and equipment). OFWM has planned to capitalize this experience for implementing safeguard requirements particularly IPMF. Preparation of the KPIIP safeguard documents has raised the awareness, created needed ownership; and brought good understanding on WB safeguard requirements; which would eventually helpful in implementing the documents in the field by OFWMs. The OFWM has nominated a senior officer as an E&S Focal Person for coordination and deal with the environmental related aspects of the project. The PIU will appoint a dedicated Environment Specialist in PIU for ensuring implementation, monitoring compliance, and reporting on safeguard requirements. In addition to conducting necessary training/orientation to relevant field staff; the project shall facilitate the exposure visits to similar projects in Punjab and Sindh for better understanding of Environment related implications and mitigation measures.

The provincial Environment Protection Agency (KP EPA), established under the Environmental Protection Ordinance 1983, has been empowered to receive and review the environmental assessment reports of the proposed projects and subprojects, and provide approval. Some of the key functions of KP EPA include: administer and implement the PEPA Act 1997, its rules and regulations, review of IEE/EIA, preparation of procedures and guidelines; assist local councils/authorities, and other government agencies in execution of projects; and establish a system for surveys, monitoring, examination and inspection to combat pollution. Complying with local laws and acts; project will share all safeguard documents including the periodic progress reports with KP EPA on regular basis. Consistent with its mandate, KP EPA shall oversee and monitor the compliance of safeguard documents prepared by the project.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

As a part of ESMF preparation a detailed stakeholder analysis was conducted to identify project stakeholders and their stakes on the basis of their ability to influence the project, or their vulnerability to be negatively impacted from it and also to ensure that no relevant groups are excluded from the consultation. Identified stakeholders were grouped into two broad categories; (a) Institutional/ departmental stakeholders; and (b) community stakeholders for accomplishing consultation. Institutional/ departments include: KP Irrigation department, Agriculture department, agriculture extension services, livestock extension; and OFWM directorate. These were represented by key officers and field officials of concerned department that were most relevant to the project activities. The community stakeholders include representatives of farming community and Water Users Associations (WUAs). The consultation was done with both male (154) and female farmers (44). The consultation process was carried out in 5 districts including: Peshawar, Swat, Haripur, DI Khan and Chitral districts over a period of 10 days in November-2018 and 7 days in December-2018 to assess environmental and social safeguard issues related to proposed project activities. Consultations were conducted on project interventions through meetings, Focus Group Discussions (FGDs) and used both structured questionnaire and informal discussions. The districts selected closely represent the geo-physical diversity of the overall province; and also most of the project activities are expected to be concentrated here. In addition, a consultative workshop was also held in Peshawar – the provincial capital – on April 11, 2019 with notable participation from the identified stakeholders. Institutional stakeholders showed largely their satisfaction over project design/project activities and opined that the
The project will not cause any significant negative impact on the environment. The suggestions include: awareness raising of farmers through Farmers Field School for HEIS and laser land leveling, capacity building and training of staff, pests control through integrated pest management techniques, expanded scope of work for similar activities, employing better quality inputs such as seeds and vaccination need to be considered, climate resilient agriculture should be the part of project design.

Concerns shown include: higher maintenance cost of HEIS, environmental problem due to medical waste generated through artificial insemination. The weakness of water user associations (WUAs) is a big concern for the OFWM directorate, which sees strengthening of the associations as one of the important means to bolster water use efficiency. Insufficient human capacity and social cohesion were cited by the directorate as the main causes of non-functionality of the WUAs.

Consultations with Communities/farmers show that insufficient water availability leads farmers to ground water use which is not regulated. Farmers also noticed that reduced water availability negatively affects sanitation. To improve water use efficiency farmers proposed measures such as crop rotation; cultivation of off-season crops and vegetables; use of land leveling, high efficiency irrigation system and water storage tanks; and improvement in drainage and lining. Many farmers recognize vegetables and fruits as high-value crops and are willing to cultivate them to increase income. They did not seem to be conscious of what would be involved in earning income in the modern economy, beyond production. The farmers appeared less concerned on WUAs.

Concerns shown by farmers include: cultivation and irrigation on steep slopes that are likely to result in soil degradation or erosion; (accordingly recommended terrace farming for such terrains, particularly in Swat and Chitral districts); climate change impacts like rise in temperature and changes in precipitation in intensity, timing and frequency are causing adverse impacts on water availability, agriculture and livestock. The farmers have noticed accordingly the decrease in vegetation; deterioration in crop health; slower tree growth; quality deterioration of drinking water and sanitation; reduction in groundwater recharge; increase in heavy floods; and drying up of springs. The suggestions given and concerned raised by different stakeholders were noted and responded by the safeguard team. For instance it was told that likely adverse impacts (soil erosion, waste handling etc.) are adequately identified in the ESMF and appropriate measures shall be ensured by the project. Further, the project design itself addresses most of the farmers concern through its proposed capacity building/training activities particularly under Component C.

The safeguard documents (ESMF. IPMF), along with Urdu translation, were disclosed by the OFWM on its official website (http://ofwm.kp.gov.pk/page/kpiaip) on April 2, 2019. Hard copies of these were shared with relevant stakeholders and were placed in the field offices located in various districts. The copies shall also be maintained in the PIU/district offices and will be shared with provincial Environmental Protection Agency (EPA) for their information and compliance monitoring.

B. Disclosure Requirements (N.B. The sections below appear only if corresponding safeguard policy is triggered)

<table>
<thead>
<tr>
<th>Environmental Assessment/Audit/Management Plan/Other</th>
<th>Date of receipt by the Bank</th>
<th>Date of submission for disclosure</th>
<th>For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors</th>
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<tr>
<td></td>
<td>16-Apr-2019</td>
<td>18-Apr-2019</td>
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"In country" Disclosure
<table>
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<th>Resettlement Action Plan/Framework/Policy Process</th>
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<th>Date of submission for disclosure</th>
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<tbody>
<tr>
<td></td>
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"In country" Disclosure
Pakistan
02-Apr-2019

Comments
http://ofwm.kp.gov.pk/page/kpiaip

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<th>Indigenous Peoples Development Plan/Framework</th>
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"In country" Disclosure
Pakistan
02-Apr-2019

Comments
http://ofwm.kp.gov.pk/page/kpiaip

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<tr>
<th>Pest Management Plan</th>
<th>Date of receipt by the Bank</th>
<th>Date of submission for disclosure</th>
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</thead>
<tbody>
<tr>
<td>was the document disclosed prior to appraisal?</td>
<td>Yes</td>
<td>16-Apr-2019</td>
</tr>
</tbody>
</table>

"In country" Disclosure
Pakistan
02-Apr-2019

Comments
http://ofwm.kp.gov.pk/page/kpiaip
If the project triggers the Pest Management and/or Physical Cultural Resources policies, the respective issues are to be addressed and disclosed as part of the Environmental Assessment/Audit/or EMP.

If in-country disclosure of any of the above documents is not expected, please explain why:
N/A.

C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting) (N.B. The sections below appear only if corresponding safeguard policy is triggered)

### OP/BP/GP 4.01 - Environment Assessment

Does the project require a stand-alone EA (including EMP) report?  
Yes

If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?  
No

Are the cost and the accountabilities for the EMP incorporated in the credit/loan?  
Yes

### OP 4.09 - Pest Management

Does the EA adequately address the pest management issues?  
Yes

Is a separate PMP required?  
Yes

If yes, has the PMP been reviewed and approved by a safeguards specialist or PM?  Are PMP requirements included in project design?  If yes, does the project team include a Pest Management Specialist?  
Yes

### OP/BP 4.11 - Physical Cultural Resources

Does the EA include adequate measures related to cultural property?  
Yes

Does the credit/loan incorporate mechanisms to mitigate the potential adverse impacts on cultural property?  
Yes

### OP/BP 4.10 - Indigenous Peoples

Has a separate Indigenous Peoples Plan/Planning Framework (as appropriate) been prepared in consultation with affected Indigenous Peoples?  
Yes

If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?  
No
If the whole project is designed to benefit IP, has the design been reviewed and approved by the Regional Social Development Unit or Practice Manager?

NA

**OP/BP 4.12 - Involuntary Resettlement**

Has a resettlement plan/abbreviated plan/policy framework/process framework (as appropriate) been prepared?

Yes

If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?

No

Is physical displacement/relocation expected?

No

Is economic displacement expected? (loss of assets or access to assets that leads to loss of income sources or other means of livelihoods)

TBD

**OP 7.50 - Projects on International Waterways**

Have the other riparians been notified of the project?

No

If the project falls under one of the exceptions to the notification requirement, has this been cleared with the Legal Department, and the memo to the RVP prepared and sent?

Yes

Has the RVP approved such an exception?

Yes

**The World Bank Policy on Disclosure of Information**

Have relevant safeguard policies documents been sent to the World Bank for disclosure?

Yes

Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?

Yes
All Safeguard Policies

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?
Yes

Have costs related to safeguard policy measures been included in the project cost?
Yes

Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?
Yes

Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?
Yes

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Approved By

Safeguards Advisor:

Practice Manager/Manager:

Country Director: