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

Appraisal Stage | Date Prepared/Updated: 04-Jan-2018 | Report No: PIDISDSA22686



**BASIC INFORMATION**

**A. Basic Project Data**

Country Nepal	Project ID P158364	Project Name NP Modernization of Rani Jamara Kulariya Irrigation Scheme - Phase 2	Parent Project ID (if any)
Region SOUTH ASIA	Estimated Appraisal Date 18-Dec-2017	Estimated Board Date 13-Mar-2018	Practice Area (Lead) Water
Financing Instrument Investment Project Financing	Borrower(s) Nepal	Implementing Agency Department of Irrigation	

Proposed Development Objective(s)

The Project Development Objectives are to improve irrigation services and to promote improved farming practices for farmers in the irrigated areas of the Rani Jamara Kulariya Irrigation Scheme.

Components

Component 1: Scheme Modernization

Component 2: Strengthening Water Users Associations/Committees (WUAs/WUCs) and Agricultural Production Support

Component 3: Project Management

**Financing (in USD Million)**

Financing Source	Amount
Borrower	3.00
International Development Association (IDA)	66.00
Local Farmer Organizations	3.00
<b>Total Project Cost</b>	<b>72.00</b>

Environmental Assessment Category

B - Partial Assessment

Decision

The review did authorize the preparation to continue



Other Decision (as needed)

## B. Introduction and Context

### Country Context

#### Economic Situation

1. Over the past decade, Nepal's economy has performed reasonably well. Growth averaged 4.3 percent (at market prices) over 2005-15. Although declining as a share in the economy, agriculture continues to play a large role, contributing one third of value-added. The service sector has grown in importance, accounting for more than half of value-added in recent years. Industry in general, and manufacturing has grown more slowly and its relative share in the economy is falling. Similarly, exports continue to struggle, while imports are fueled by remittances which are around 30 percent of Gross Domestic Product (GDP). Inflation was in single digit for most of the past decade, with the peg of the Nepalese rupee to the Indian rupee providing a nominal anchor. Fiscal balances remained sustainable owing to strong revenue growth and modest spending. The incidence of poverty measured against the national poverty line fell by 19 percentage points from 2003/04 to 2010/11, and in 2010/11, 25 percent of the population was counted as poor. Most multidimensional indicators of poverty also showed improvements across regions in Nepal. However, these gains remain vulnerable to shocks and setbacks, like the 2015 earthquakes which were followed by trade disruptions resulting in the lowest economic growth in 14 years in 2016.

2. Economic activity, which rebounded strongly in FY2017, following two challenging years, has once again been disrupted by floods affecting more than one-third of the country. Rebound in FY2017 stemmed partly from a base effect, as well as a favorable monsoon boosting agricultural output and earthquake reconstruction gathering speed to raise investment. High inflation in the past two years has moderated sharply and has decelerated to 3.9 percent (y/y)<sup>2</sup> in November 2017. Government revenue continued to perform well, and spending has also picked up significantly in FY2017 compared to previous years. Nevertheless, ambitious expenditure targets envisioned in the budget have not been met and the quality of spending has not improved with 60 percent of the capital spending occurring in the last quarter. In the first quarter of the FY2018, the spending pressures have increased with the local elections, preparation for provincial and federal elections and implementation of federalism. Meanwhile, rapid credit growth in early 2017 has slowed but deposits growth has continued to decline, pushing up the interest rates. On the external side, the cumulative effect of a sharp trade balance deterioration and a slow growth of remittances, is putting pressures on the current account. Economic activity, which was expected to progress well in FY2018, has been affected by the worst floods in decades particularly affecting the agriculture output.

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<sup>1</sup> Recent data not available

<sup>2</sup> Year on year



### Political Situation

3. Elections for all three tiers (local, provincial and federal) of the state architecture defined by the new constitution were completed in December 2017, marking a protracted but successful conclusion of a political transition that began with the signing of the Comprehensive Peace Agreement in November 2006. At the sub-national level, funds, functions and functionaries hitherto managed by the central, district and village authorities are moving to seven provinces and 753 municipalities for which new legislation, institutions and administrative procedures are being formalized as constitutionally prescribed. Meanwhile, the central level authority is being streamlined with a focus on oversight. These exercises at state restructuring are expected to result in improved outreach and service delivery but will likely take time before they become fully operational.

### Sectoral and Institutional Context

#### Nepal Water Resources and Water Use Efficiency

4. The main water (consumptive) users in Nepal include agriculture, municipal, and industrial users, whereas the hydropower and recreation users are mostly instream users. The Ministry of Irrigation (Mol) is mandated to oversee the irrigation uses, while the Water and Energy Commission Secretariat (WECS), formed by staff from the Irrigation and Energy Ministries/Departments, oversees the cross-sectoral river basin/water resources management (WRM) aspects. Along the federalism process, the WECS proposes to become a stand-alone federal-level regulatory entity, with regional river-basin-level offices.

5. The total renewable water resources are around 220 km<sup>3</sup> per year; thus per capita is around 7,500 m<sup>3</sup> per year. Hence, on country average, Nepal is considered as naturally endowed with water resources. However, this resource endowment is largely untapped. The GDP per cubic meter of water is around US\$2–3 versus a potential US\$24 from the world's top producers. Much of the surface water either flows out of the country or evaporates/drains inland in 'system sinks' without being harnessed, mainly due to the lack of infrastructure for water diversion or pumping. The irrigation conveyance and on-farm/use efficiencies are low, and there is a need to balance water requirements across irrigation, hydropower, domestic, and industrial uses while maintaining the environmental flows for biodiversity and addressing the transboundary water effect.

6. **Agriculture, Despite Being the Mainstay of the Rural Economy, Suffers Low Productivity in the Crop Sector.** Agriculture is the mainstay of the rural economy and a source of income for the majority of Nepali with 66 percent of the population engaged in agriculture (small farmers constitute 80 percent of the rural population), 32 percent contribution to the GDP (Central Bureau of Statistics, FY16), and 50 percent contribution to exports earning.

7. Despite the importance of the agricultural sector, the level of income from agriculture is low by regional and international standards, particularly for the major cereal crops (lower than their potential yield by at least 50 percent). Thus, agriculture in Nepal has yet to exploit the full potential to contribute to improving the living standards and livelihood of the people.

8. Nepal's rural population comprises mainly smallholder farmers, and about 80 percent of the rural population ages 15 and above is engaged in agriculture. The unavailability of sustainable livelihood



opportunities in the rural areas has led to a large-scale exodus of the population to the cities and more recently to the Gulf region. The absence of able-bodied farm labor, continuation of traditional irrigation practice, and limited exposure to modern agriculture practices have led to reduced farm production. Existing farmers are generally unable to benefit from existing modern technologies and inputs.

9. The pressing priority is thus to improve agricultural productivity and foster diversification toward high-value products to secure food security for a growing population and to improve rural incomes.

10. **Public Investment in Improving Irrigation Is becoming Paramount for Transforming the Agriculture Sector.** The frail mountain terrain limits the agricultural potential area to 2.641 million ha, of which 1.77 million ha has irrigation potential. Irrigation systems in Nepal fall under four distinct categories: (a) traditional farmer-managed irrigation systems (FMIS) developed and managed by the communities; (b) a range of small to large-scale surface systems developed with full or partial support from the Government; (c) Government-developed tube well irrigation schemes; and (d) individually owned and operated tube wells and pumps, mostly utilizing shallow aquifers, streams, ponds, and dug wells.

11. At present, the total irrigated area stands at 1.39 million ha, of which only 42 percent has year-round irrigation. There is limited new land that can be brought under farming as most of the economically suitable lands for agriculture have already been exploited, mainly because of the substantial increase in Nepal's population in the past century, with the exception of some potential horizontal expansion in newly irrigated lands of around 0.35 million ha through investing in interbasin transfers (see the following section on the Government policy). Thus, the largest potential for increasing production is by providing better agricultural inputs and ensuring irrigation to the existing cultivated land, namely, a 'vertical expansion'. Modern agricultural practices require crop diversification, high-yielding varieties, improved fertilization, and reliable year-round irrigation.

12. Of the aforementioned improvements, improving irrigation is critical to agriculture both during the monsoon season, to overcome the periods of dry spells, and during the dry season, when rainfall is negligible. Agriculture is becoming even more vulnerable to water due to the erratic monsoon rain. Even recently, when precipitation during the monsoon reached 90–110 percent of its long-term average after two years of low rainfall, farmers got unreliable rainfall with both droughts and intense rainfall/floods often occurring in the same season. Thus, transforming the agriculture sector requires upgrading the irrigation systems to regulate the irrigation supply. Only by mobilizing public funding to invest in effective irrigation systems, farmers can focus on the complementary inter-farm/farm-level investments such as improving agricultural techniques and inputs and cropping intensity, thus transforming farming to more profitable levels.

### **Government Irrigation Policy and Irrigation Development Program**

13. The Government of Nepal (GoN) has thus recognized the lack of intensive cropping, inadequate supply and use of basic agricultural inputs such as fertilizer and improved seeds, and problems with deteriorated and inefficient irrigation systems.

14. The Agriculture Development Strategy (ADS) (2015) recognizes concentrated investment in irrigation as one of the means to accelerate agricultural growth. Also, one of the key targets of the ADS is to achieve 5 percent growth in agricultural gross domestic product (AGDP) by 2025 from the current 3



percent. To achieve this, the ADS plans to expand the area under year-round irrigation from the current 18 percent to 60 percent by 2025. Thus, irrigation is seen as a critical investment for national agricultural production and economic transformation.

15. The Department of Irrigation (DoI) is the lead agency in Nepal tasked with developing and improving irrigation infrastructure. The primary effort of the DoI has been to design and implement irrigation infrastructure to provide irrigation to potential new areas and to intervene in existing schemes to improve their irrigation efficiency and sustainability.

16. As the GoN internalized the concept of year-round irrigation through its Nepal Water Resource Strategy (2002) and National Water Plan (2005), the DoI aimed to provide year-round irrigation to vast potential areas to boost crop production, leading to food self-sufficiency, employment generation, and poverty reduction. There are four themes under this DoI goal:

- (a) Rehabilitate existing FMIS
- (b) Design and construct new irrigation schemes (including the Modernization of Rani Jamara Kulariya Irrigation Scheme - Phase 1 [MoRJKIP, P118179] and its proposed Phase 2)
- (c) Improve the agency-managed large-scale irrigation projects (IPs) and hand over their management to beneficiary farmers (the so-called irrigation management transfer [IMT]), either fully or below the main canal level
- (d) Expand the irrigation area horizontally by investing in 'interbasin water transfers'

17. Tables 1 and 2 reflect some of the DoI target indicators for the next five years, in incremental areas and crop yields.

**Table 1. DoI Target for the Incremental Irrigated Area by 2022**

Activity	Unit	Status	Target Increment after 5 Years
Increment in irrigated area by surface irrigation	ha	775,000	45,335
Increment in irrigated area by groundwater	ha	409,013	206,470
Increment in irrigated area by nonconventional irrigation methods (for example, solar pumping)	ha	5,865	21,100
Rehabilitation of FMIS	ha	202,299	71,500
Required financial resources	NPR, billions	—	147



**Table 2. Examples for the DoI’s Target Increase in Crop Production**

Before Intervention			After Intervention		
Irrigated Area	Hectare	Production (ton/ha)	Irrigated Area	Hectare	Production (ton/ha)
Rehabilitation of FMIS	67,000	Paddy 2.2	Rehabilitated area	67,000	Paddy 3.6
		Wheat 1.7			Wheat 2.7
		Maize 1.76			Maize 2.8
		Potato 7.8			Potato 13.0
IMT projects	102,590	Paddy 2.9	Management transferred to WUAs	102,590	Paddy 4.7
		Wheat 2			Wheat 3
		Maize 2.1			Maize 4.2
		Potato 10			Potato 18.1

*Note:* WUA = Water Users Association. Yields as reported by the World Bank-supported Irrigation and Water Resources Management Project (IWRMP, August 2016), which supports activities under both the FMIS and IMT categories.

**New Irrigation Schemes**

18. The DoI is entrusted with planning, designing, and implementing medium to large IPs mostly in the hills and Terai region. The Rani-Jamara-Kulariaya IP, Mahakali III, Babai IP, Sikta IP, and Bagmati IP are examples of such large undertakings. The development/modernization of medium to small schemes (below 300 ha in hills and below 2,000 ha in the Terai) are implemented by the Medium Irrigation Project (MIP) and the Non-Conventional Irrigation Technology Project (NITP). At present, the MIP has about 250 new IPs in the pipeline with a combined cultivable command area (CCA) of approximately 37,000 ha and the NITP has about 732 small new projects in the pipeline, especially in the hills/mountains, with the combined CCA of about 8,450 ha. The DoI intends to continue the development of feasible new irrigation schemes in the future. In addition, the DoI has started the use of solar energy to pump blue water to adjoining river terraces for irrigation. This activity has already been initiated along the Bheri corridor and is under consideration for the Babai River, and the DoI intends to expand its use to all feasible areas.

19. The Rani Jamara Kularia Irrigation Scheme (the ongoing World Bank-financed Phase 1 and the proposed Phase 2) is among the largest schemes in the entire country under the category of new schemes, and it benefits one of the poorest areas in the Terai in the southwest of the Karnali River basin.



### **Farmer Organizations and Participatory Irrigation Management (or ‘Joint Participatory Management’ [JPM])**

20. Nepal has a long tradition of FMIS in the hills, mountains, and the Terai. The FMIS cover about 70 percent of the 1.2 million ha of land with some form of irrigation infrastructure in the country. The hill FMIS are generally small compared to the FMIS in the medium to large irrigation systems in the Terai. A strong sense of ownership and hierarchical management system exists in the FMIS, often in some form of WUAs/Water Users Committees (WUCs), tasked with operation and maintenance (O&M) of the schemes, most of which is done through labor contribution.

21. However, improving irrigation services in the existing FMIS requires a combination of ‘hardware’ and ‘software’ solutions. The former involves rehabilitating and modernizing existing irrigation and drainage infrastructure to improve reliability of supply and expand the system of secondary and tertiary canals. The latter requires the development of more efficient mechanisms for managing the irrigation systems down to the field level, through a clear delineation of responsibilities between the Government and the WUAs in charge of delivering irrigation services to farmers. There is also a need to pool funding through Government and users’ contributions for O&M and asset replacement over time.

22. **Sector policy on cost sharing and participatory irrigation management (or JPM).** There is no solid nationwide policy on sector financing and irrigation service fees (ISF), as these aspects differ by the type of scheme, for example, agency managed, IMT, farmer managed, interbasin transfer, or unconventional. Generally, capital investments are borne by the GoN while farmers are expected to contribute to O&M through ISFs and in-kind. The GoN recognizes that irrigation system development and O&M cannot be duly performed without the consent and participation of WUAs/WUCs. The Irrigation Policy 2013 envisaged the farmers’ participation right from the planning stage to the O&M. The Irrigation Policy 2013 stated: “Government of Nepal shall maintain the irrigation infrastructure and operate sub-secondary to secondary level canals with participation of WUAs,” which clearly promulgates a participatory approach as one of its governing policies. For the development of tertiary and lower-order canals, the beneficiary farmers will have to share a certain percentage of the total development cost that can be in the form of labor, cash, or land. The WUAs/WUCs are supposed to play a vital role in disseminating the information to the general farmers regarding the irrigation and drainage system development plans and develop consensus on tentative alignment of canal network, offtake locations, and other infrastructure. Besides, they need to coordinate on land acquisition and resettlement issues, among others.

### **C. Proposed Development Objective(s)**

Development Objective(s) (From PAD)

The Project Development Objectives (PDOs) are to improve irrigation services and to promote improved farming practices for farmers in the irrigated areas of the Rani Jamara Kulariya Irrigation Scheme.

#### Key Results

- (1) Area provided with new/improved irrigation or drainage services (a Corporate Result Indicator): in hectares



- (2) Farmers reached with agricultural assets or services (a Corporate Result Indicator): in number, with the number of females as a supplemental indicator
- (3) Farmers adopting improved intensified cropping promoted under the project (a custom indicator): in percentage of target beneficiaries, with the number of females as a supplemental indicator

#### D. Project Description

23. The proposed operation is a second phase of the IDA-supported MoRJKIP (Phase 1) that closed on September 30, 2017. Initially, the two phases were prepared jointly as one operation, yet eventually it was decided to split them into two phases. Phase 1 focused on modernization of the higher-order irrigation infrastructure (intakes and feeder and branch canals, including related flood protection), enhancement of the capacity of WUAs to operate and maintain the improved/new irrigation infrastructure, and preparation and initiation of an agricultural development program. The proposed operation (Phase 2) will focus on modernization of the lower-order irrigation system (subbranches, tertiary canals, and watercourses) so that irrigation water can reach farmer fields with the optimal flows, continuation of the WUA/WUC support program, and implementation of a comprehensive agricultural improvement program.

24. The proposed Phase 2 complements Phase 1 because of two interrelated necessities:

- a. **First, below the main/conveyance system introduced by Phase 1, without Phase 2, the irrigation distribution efficiency and on-farm application efficiency would both continue to be very low compared to the global/regional norms.**
- b. **Second, the WUA's function is not supposed to stop at the main system level.** There is a need to utilize the immense potential for JPM in the RJK community, building on the creation and empowerment of WUAs attained under Phase 1, so that the WUAs can also have a major role in the O&M of the irrigation subsystem down to the farm level.

25. **Link with the GoN's policy to develop year-round irrigation.** In the project area, it is reported that during the non-monsoon/winter season many farmers seek jobs abroad due to the lack of lucrative winter cropping, and then they return to Nepal in the monsoon season to grow paddy. The project will help in tackling this problem by modernizing the irrigation system to increase cropping intensity from around 150 percent to 250 percent. Despite the absence of inter/intra-seasonal surface storage, the project seeks to meet the aforementioned GoN's year-round irrigation strategy through (a) modernizing the lower-order canal system to enable the operators/farmers to optimize the use of canal storage and soil moisture storage in reducing water losses and (b) extending the canal system to connect better with the Karnali River, compared to the pre-Phase 1 situation when the river often meandered away from the hand-dug approach canals, and thus water failed to adequately reach the branch canals in the winter season (forcing many farmers to grow only one crop in the monsoon season or resort to using groundwater in the winter season at a high pumping cost).

#### Project Components

26. The envisaged project components are as follows:



- **Component 1: Scheme Modernization (US\$52.9 million, of which US\$51.2 million IDA)** will support the construction and modernization of the lower-order irrigation infrastructure, including the subbranch canals, tertiary canals, and watercourses. The activities will include design and execution of irrigation and drainage subsystems below the branch canals and down to the field outlet levels, including not only the irrigation subsystems but also related river training and flood protection works, collector and tertiary drains, and control structures. This component will thus finance the following activities:
  1. Provision of technical assistance for design, monitoring of construction works and quality control, and implementation of the environmental management plan
  2. Construction, rehabilitation, and modernization of the lower-order irrigation infrastructure, including subbranch canals, tertiary canals, and watercourses
  3. Design and construction of flood and erosion protection system in the command area
  4. Improvement, upgrade, and maintenance of rural roads and construction of bridges for better access to the agricultural production areas
  5. Improvement and upgrading of service roads for better access for maintenance and operation of the canals and canal infrastructure
  
- **Component 2: Strengthening Water Users Associations/Committees (WUAs/WUCs) and Agricultural Production Support (US\$13.4 million, of which US\$11.3 million IDA)** will support two subcomponents: 2a: Strengthening WUAs/WUCs and 2b: Agricultural Production Support.
  - **Subcomponent 2a.** The activities will include carrying out a program of activities, including capacity building and training to strengthen WUAs/WUCs to assume responsibility for management, operation, and maintenance (MOM) of the modernized system, including proper and equitable distribution of water, water use, development, and implementation of MOM plans; setting ISFs; proper maintenance of records and accounts; promoting citizen engagement (CE) and gender mainstreaming for participatory irrigation management (that is, the aforementioned GoN's JPM program), a Gender Action Plan (GAP) as part of a Vulnerable Community Development Plan (VCDP), and participatory monitoring, learning, and evaluation. The GAP includes awareness raising, capacity development trainings, farmer field school (FFS), agriculture-based training, small farm machinery support to women members, compensation to femal-headed households (FHHs), and so on.
  
  - **Subcomponent 2b.** The subcomponent will carry out a series of agriculture-based activities in the project area, building on the capacity developed by Phase 1, which created the Agriculture Component Implementation Unit (ACIU) (under the Department of Agriculture [DoA]) at Tikapur. Phase 2 will support a value chain approach to internalize the gains made in Phase 1 and to sustain agricultural production through the promotion of climate-smart agriculture and livestock practices,



crop diversification, post-harvest support (storage, grading, and marketing), farmer training, production and block demonstrations and FFS, and other adaptive processes. The agricultural activities will be aligned with the ADS by focusing on high-value crops, taking advantage of the irrigation improvements. This subcomponent will thus finance extension and outreach services (including through sub-grants), technology adoption support (mainly through small performance-based subgrants), soil management practices, plant protection and seed testing mini-lab and equipment, mechanization support (through the provision of matching grants), post-harvest support and marketing (including through sub-grants), promotion of livestock activities for income generation and nutrition needs, support program for landless and marginalized poor people, support for marginal and public land including forestry and flood-affected public land<sup>3</sup>, training and study visits, and vehicles and logistics. Provision of matching grants will be made through an agreement between the ACIU and the eligible beneficiaries following a fair and transparent process as guided by the Project Implementation Manual (PIM) to be finalized by project effectiveness to ensure compliance with the fiduciary requirements.

- **Component 3: Project Management (US\$5.5 million, of which US\$3.5 million IDA, including goods, technical assistance, and capacity building)** will support activities to ensure effective project management, including fiduciary and safeguards management and monitoring and evaluation (M&E). This component will also finance the preparation of a potential future Phase 3 to cover the RJK-Lamki extension.

## E. Implementation

### Institutional and Implementation Arrangements

27. The DoI maintains the main responsibility of implementing the project. The Director General will be the focal person at the departmental level. The DoA will be the implementing agency for Subcomponent 2b.

28. The PIO at Tikapur continues to be the main office for the day-to-day management and implementation of the project. A small liaison office will be established in the DoI in Kathmandu to liaise with related agencies and stakeholders on behalf of the PIO. The PIO will be headed by a project manager, based in Tikapur, who will be assisted by staff in Social, Environmental, and Institutional; Technical; Procurement; and Financial Management (FM) Units. The Social, Environmental, and Institutional Unit, headed by a sociologist who will be deputed by the DoI, will have direct links with the WUAs to implement the institutional and capacity development program. A Local Environmental Monitoring Committee (LEMC), composed of local protected area agency, forest authority, nongovernmental organizations (NGOs), and so on, will visit the project area periodically for inspecting environmental management and facilitating coordination. The GoN will also engage an independent party for regular monitoring of the environmental compliance, management, and performance in the project. The frequency of these inputs may be revised during project implementation, depending on actual requirements.

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<sup>3</sup> These are unutilized or unmanaged lands that are not habituated by squatters and hence do not trigger involuntary resettlement.



29. The DoI and DoA have been successfully implementing Phase 1 through the PIO and ACIU, respectively. The DoI will have the overall responsibility for implementing the proposed project. The DoI will be the main implementing agency through the PIO in Tikapur, and the ACIU in Tikapur (which reports to both the PIO and DoA) will be responsible for implementing the agricultural activities. This will entail coordinated planning, implementing, and monitoring agricultural activities with the PIO, local government, and other actors in the project area; preparation of financial and progress reports; and submission of audit reports. The proposed implementation arrangements are identical to those in Phase 1. Project management for Phase 1 was consistently rated Satisfactory.

30. The project will not be affected by the ongoing federalism process, as the GoN intends to keep all such major projects under federal administration, particularly since the MoRJKIP is considered one of the projects of 'national pride'. Moreover, irrigation investment and management depend more on the hydrological than on the administrative boundaries.

31. The PIO located in Tikapur will be responsible for overall contractual management of civil works coordination with WUAs, agricultural agencies, forestry and environment departments, wildlife conservation, local agencies for roads, and district administration. Agricultural activities will be implemented through the AICU in close consultation with the PIO, WUAs, other stakeholders in the municipalities.

32. The agriculture service centers and agriculture contact points (ACPs), currently managed by the District Agriculture Development Offices, will eventually be implemented by the community agriculture service centers under respective municipalities. While the transition is expected to take place soon, it will take at least three to five years before these centers become fully functional. Thus, the main task of the ACIU will be to (a) continue to provide the extension services in the RJK command area during the transition and (b) support the establishment of these service centers and staff capacity to effectively deliver agricultural advisory services after project closure.

33. The Project Steering Committee, chaired by the Secretary of the MoI, will maintain the structure and composition. Membership includes senior management staff of the Ministry of Finance (MoF), Ministry of Agriculture Development, Ministry of Forests and Soil Conservation, Ministry of Environment, National Planning Commission, DoI, and DoA. The Steering Committee provides overall policy guidance and ensure coordination between related agencies to support the project.

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

Located in the Kailali District of the Far Western Development Region, the proposed project will cover eight Village Development Committees (VDCs) and Tikapur Municipality. Tikapur Municipality is the main market center in the project area. The existing Rani Jamara and Kulariya Irrigation scheme consists of three independent traditional irrigation systems constructed, operated and managed by the indigenous Tharu community. The ethnic composition of the project area includes Tharus as the dominant group (48 percent) followed by Chhetri (17 percent), Dalit (15 percent), Brahmin (10 percent), and others (7 percent). There are three WUAs and one central committee (federation) that has representations of the three WUAs. The proposed project is in the Terai (plain) area of Nepal. There are community and state forests in and around the project area. Nearest protected area is the Bardiya National Park, which is located across the source



river Karnali, in the east of the project area. The target area is the 14,300 ha of the Rani, Jamara, and Kulariya command area. Under the Phase 1, which focused on the river/ main system level, the Natural Habitats (OP/BP 4.04) was triggered because the Karnali River has protected and endangered aquatic species, including the Gangetic Dolphin, Marsh Mugger, and Gharial Crocodile. Also, the Bardiya National Park across the Karnali River and the Karnali River corridor (forests) is a wildlife movement route for especially elephants, tigers, and rhinos. As some of the Phase 1 works have been aligned along the fringes of forest areas, the OP/BP 4.36 on Forests was triggered and issues were addressed as part of the Environmental Management Plan (EMP). Client has commissioned an Environmental Assessment (EA), and Biodiversity Impact Assessment (BIA) of the Phase 2 to identify and assess impacts, and recommend measures for avoidance, minimization, and mitigation of potential adverse environmental impacts as well as to enhance positive impacts related to components 1 and 2 of the project.

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

Drona Raj Ghimire, Environmental Safeguards Specialist  
 Jun Zeng, Social Safeguards Specialist  
 Rekha Shreesh, Social Safeguards Specialist

**SAFEGUARD POLICIES THAT MIGHT APPLY**

Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	Potential adverse impacts on the natural environment and human health and safety are likely from the physical construction activities, and agricultural production support. EA, which contains EMP, for the modernization and agricultural production activities, has been prepared by the government and reviewed by the Bank. The EA / EMP, inter alia, covers issues related to labor and labor camps, and environmental, health, and safety (EHS) issues (following World Bank Groups’ EHS Guidelines).
Natural Habitats OP/BP 4.04	Yes	Karnali and Mohana Rivers are known to have important aquatic species (Gangetic Dolphin, Marsh Mugger, and Gharial crocodile). Occasional movement of wildlife has been reported in the adjoining forests. Indirect impacts on the natural habitat and biodiversity is likely. These impacts are



		assessed and appropriate mitigations identified in the BIA .
Forests OP/BP 4.36	Yes	There are community forests adjoining and within the project command area. Some sections of the main/feeder canal constructed in Phase I were located in the community forests. In Phase 2, the sub-branch canals, tertiary canals, and inter-farm water courses will be improved. There are small patches of forests in close to these structures. There is less chance of adverse impacts on forest than in the Phase 1. Nevertheless, indirect impacts on forests is likely (loss or degradation of the forest health or quality). The EA / EMP has assessed the potential impacts and proposed mitigations.
Pest Management OP 4.09	Yes	The Phase 2 emphasizes increasing and sustaining agricultural production by carrying out a series of agriculture-based activities, adopting value-chain-based approach. This is likely to introduce pesticides or increased use of pesticides (though project will not finance purchase of pesticide). The issues related to pesticide use and its impacts have been assessed, and an Integrated Pest Management Plan (IPMP) has been prepared which includes measures to mitigate any adverse impacts from the improper or increased use of pesticides.
Physical Cultural Resources OP/BP 4.11	No	Phase 1 did have adverse impacts on the Physical Cultural Resources (PCR), and EA of Phase 2 also did not indicate potential impacts on PCR. However, any chance-find of PCR will be handled following due procedure as required under OP4.01 and country regulations.
Indigenous Peoples OP/BP 4.10	Yes	The RJKIP project will be implemented in an area with Indigenous ethnic minorities. Tharus, indigenous to the area, are in a majority (48 percent) followed by other indigenous groups from the hill. The project areas are also comprised of other vulnerable groups such as Dalits, women-headed households. Social Assessment (SA) and vulnerable community development plan (VCDP) which includes Gender Action Plan (GAP) has been prepared for project.
Involuntary Resettlement OP/BP 4.12	Yes	Major issues of land acquisition are unlikely. However, the activities under components 1 and 2 may require small plots of land and have impacts on structures requiring relocation. Resettlement Policy



framework (RPF) for land acquisition and resettlement has been prepared. It provides a legal framework on involuntary resettlement. For three pilot sub-projects for which design is complete, SA indicated that there will be no impact or loss of private assets thus Resettlement Action Plan (RAP) is not required. However, during implementation if any loss of private asset or social impact due to project activity is noted, the project will manage such cases as per the RPF. In other remaining works, where project location is not fixed, policy framework will be the guiding document in preparation of RAP. RAP will include among others entitlement matrix, communication strategy and grievance redress mechanism (GRM).

Safety of Dams OP/BP 4.37

No

Project does not include construction of dam, or does not rely on existing dams.

Projects on International Waterways  
OP/BP 7.50

Yes

The scheme abstracts water from the Karnali River, a major left-bank tributary of the Ganges River. The Karnali River has its source in China and flows through Western Nepal into India (where it is called Ghaghara River before it joins the Ganges). The Karnali River is thus an international waterway for purposes of OP 7.50. Due to uncontrolled diversion of the Karnali River water into the main canals, there is typically excessive water entry, while there is no control of the water. The scheme in its current state has very low water use efficiency and large water losses through seepage and water logging.

OP 7.50 was triggered with Phase 1 as it focused on works on the river and main system. The proposed Phase 2 will complement Phase 1 in helping to reduce water abstraction from the Karnali River, by over 40 percent of the current water abstraction. In Phase 2, works on the sub-system and inter-farm level are not expected to cause any appreciable transboundary water impact. The system modernization is expected to reduce water abstraction (the hydro-module is currently as high as 3 liter/sec/hectare), thus will not impact the water flowing downstream.



An exception to the notification requirement under OP 7.50 was received from South Asia's Regional Vice President (RVP) on February 24, 2011.

Through a similar rationale under Phase 1, South Asia's RVP approved the exception to the notification for the proposed Phase 2 on November 29, 2017.

Projects in Disputed Areas OP/BP 7.60	No	Project is not located in a disputed area.
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### 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:

SA has been carried out during preparation of the project by the DoI. The SA indicates presence of ethnic and minority communities in the project area who are among the intended beneficiaries under the project. There is broad community support from the indigenous communities for the proposed project. The project has also been screened for possible adverse impacts including the three pilot sub-projects, for which design is complete, as a part of SA. Major issues of land acquisition are unlikely but activities planned under components 1 and 2 may require small plots of land and have impacts on structures and other private assets.

DoI has commissioned EA which contains EMP, BIA and IPMP which assess impacts on environment, bio-diversity/ natural habitat and issues related to increased or improper use of pesticide. From these assessments, the impacts appear of moderate types, which are manageable and can be mitigated to an acceptable level through the identified mitigation measures. The main anticipated adverse environmental impacts of the proposed modernization activities are related to: (i) disturbances and impacts resulting from construction activities (dust/ air pollution, labour camps, sanitation, etc); (ii) workers and communities health and safety issues; (iii) indirect or induced impacts and pressure on wildlife including terrestrial and aquatic life, and on forests; (iv) issues related to increased and/or improper use of pesticides; and (v) floods and silt/ sediment deposition that could adversely affect the project. EA/EMP, BIA and IPMP have been prepared to address those issues/ impacts.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area: Increase or improper use of chemical pesticide is a potential indirect impact in the long-run. The IPMP provides guidance measures to address this. The induced impacts on the natural habitat is also possible. The BIA contains bio-diversity management measures to address this issue. The catchment area degradation in the upstream of the command area could adversely affect the command area and canal due to deposition of silt. The degradation is not caused by the project.

Projects on International Waterways OP/BP 7.50: was triggered with Phase 1 as it focused on works on the river and main system. In Phase 2, works on the sub-system and inter-farm level are not expected to cause any appreciable transboundary water impact. The system modernization is expected to reduce water abstraction (the hydro-module is



currently as high as 3 liter/sec/hectare), thus will not impact the water flowing downstream. Through a similar rationale under Phase 1, an exception to the notification requirement under OP 7.50 was received from South Asia's RVP on February 24, 2011. South Asia's RVP approved the exception to the notification for the proposed Phase 2 on November 29, 2017.

**Climate Change:** The proposed project will contribute to both climate change mitigation and adaptation co-benefits. The climate co-benefits percentage has been assessed at 78 percent. The climate and disaster risk has been screened by the team. The exposures to climate and geophysical hazards at the project location, as identified by the screening, are: flooding, drought, and earthquake. The analysis indicates that the project components will all help in reducing the impact of such potential disaster risks.

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

This is Phase 2 of the project. No overall project level alternatives have been considered.

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 DoI has developed RPF in compliance with World Bank OP 4.12 which guides the detailed resettlement planning process. It describes the legal framework for this project on Involuntary resettlement, principles to be followed as well as mitigation strategies. It includes among others: entitlement matrix, communication strategy and GRM. For three pilot-schemes for which detailed design is complete, SA indicated that there will be no impact or loss of private assets due to project activity in the pilot schemes thus RAP is not required. However, during implementation, if any loss or impact on private asset is noted, then the project would have to manage such cases as per the RPF. For remaining schemes, RPF will guide the detailed involuntary resettlement planning process. Additionally, given that Phase 2 impact zone is defined, a VCDP in line with World Bank OP 4.10 has been prepared to address issues related to indigenous people and other vulnerable groups. VCDP which also includes GAP will cover mitigation measures and interventions related to vulnerable groups including Indigenous groups.

DoI has acquired experience in handling social safeguard activities through the ongoing MoRJKIP Phase 1. The DoI has implemented the RAP, with compensations paid for structures, housing, business disruption allowances, with additional support to vulnerable groups amongst the project-affected families (an independent firm has recently assessed the RAP implementation and the status of the affected individuals). The compensations were paid in accordance with the valuation criteria set by the Compensation Determination Committee established for the project. An Indigenous and Vulnerable Community Development Plan (IVCDP) was prepared however it could not be implemented under Phase 1 as there was change in community needs due to delay in implementation of the plan. A Senior Sociologist was appointed under Phase 1 to manage issues related to social safeguards but only in late stage of the project.

The DoI has prepared EA/ EMP to address the possible environmental impacts under the project. The EA/EMP has identified environmental mitigation measures corresponding to the impacts. In addition, DoI has also prepared IPMP and BIA in order to mitigate, manage/ address impacts on biodiversity and related to use of pesticide.

PIO will have a full-time environmental and social specialist, who will report regularly. A Local Environmental Monitoring Committee (LEMC) will make site visit to check environmental and social performance and provide feedback. Third party environmental compliance monitoring will be carried.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies,



with an emphasis on potentially affected people.

The SA identified the key stakeholders and carried out consultations over the project. The key stakeholders include local communities including indigenous people in the project area, their traditional management bodies of the irrigation system (WUA), water user groups, local administrations, and the DoI and its local government offices. Relevant consultation feedback was taken into consideration in preparing the project. A strategy has been developed and included in the SA, RPF and VCDP to guide information dissemination, communication and continued public consultation and participation during the project implementation. SA, RPF, and VCDP were disclosed in the DoI's website and a stakeholder consultation on the draft safeguard documents was organized. Feedback from consultation was taken into consideration while finalizing the safeguard documents.

Also during the EA, IPMP, and BIA preparation, project area communities and stakeholders including protected area authority, district forest office, community forest users groups, local municipalities, and WUA were consulted. The DoI has organized a stakeholder consultation on the draft safeguard documents, and has disclosed these reports through its public website. As required by the safeguard policies and documents, DoI will inform and further consult local stakeholders (affected people, Community Forest Users Groups, etc) during the implementation of the project.

Gender and Citizen Engagement have been incorporated into the project. Citizen engagement have been incorporated through component 2, by engaging the participation of water users in every cycle of the project from system design through implementation, and the JPM in the system's O&M after completion of the Command Area Development (CAD) activities. Additionally, a project level GRM system that involves community members in resolution of problems and disputes will be established.

In Nepal, institutional and structural barriers exist to exclude women from playing a meaningful and equitable role in society. Participation, control, and mobilization of public resources and activities generally fall within male domain thus minimize women roles in community. In irrigated agriculture sector, lack of land ownership is one of the key barrier for women's full participation and benefit from irrigation projects as (a) land entitlement is prerequisite to get formal membership in the WUA including formal voting right; (b) without formal membership, participation in key decisions related to the design, O&M, water management is restricted. The revised irrigation policy of GoN/MoI mandates the WUAs/WUCs to include women in their management by at least 33 percent. Despite this, women membership in WUAs/WUCs of Rani, Jamara, and Kulariya remains at 22.45 percent with representation in key positions either unmet or is nominated for mere tokenism. Labor contribution to the maintenance of source and sub-branch is skewed and often does not reciprocate with the area of land vs. labor contribution especially those who own only little land or female headed households. Despite women's significant labor contribution in agriculture, benefit accruing from the agriculture extension services are less obvious and information dissemination not adequate to women and land less.

A separate GAP has been prepared to address these gender gaps with relevant interventions and indicators for women's increased membership, meaningful participation and benefit from project activities.

The public consultation per OP/BP4.01 was held on December 14, 2017. The participants from all stakeholders were generally supportive of the project. The public consultation presentations, outcomes, and list of participants, were disclosed in country and in the Bank. The Annex 5 of the Project Appraisal Document presents a summary of the recommendations from the public consultation.



**B. Disclosure Requirements**

**Environmental Assessment/Audit/Management Plan/Other**

Date of receipt by the Bank	Date of submission for disclosure	For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors
27-Dec-2017	27-Dec-2017	

**"In country" Disclosure**

Nepal  
27-Dec-2017

Comments

**Resettlement Action Plan/Framework/Policy Process**

Date of receipt by the Bank	Date of submission for disclosure
27-Dec-2017	27-Dec-2017

**"In country" Disclosure**

Nepal  
27-Dec-2017

Comments

**Indigenous Peoples Development Plan/Framework**

Date of receipt by the Bank	Date of submission for disclosure
27-Dec-2017	27-Dec-2017

**"In country" Disclosure**

Nepal  
27-Dec-2017

Comments

**Pest Management Plan**

Was the document disclosed prior to appraisal?	Date of receipt by the Bank	Date of submission for disclosure
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Yes	27-Dec-2017	27-Dec-2017
<p><b>"In country" Disclosure</b>  Nepal  27-Dec-2017  Comments</p> <p><b>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.</b>  If in-country disclosure of any of the above documents is not expected, please explain why:</p> <p><b>C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting)</b></p> <p><b>OP/BP/GP 4.01 - Environment Assessment</b></p> <p>Does the project require a stand-alone EA (including EMP) report?  Yes</p> <p>If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?  Yes</p> <p>Are the cost and the accountabilities for the EMP incorporated in the credit/loan?  Yes</p> <p><b>OP/BP 4.04 - Natural Habitats</b></p> <p>Would the project result in any significant conversion or degradation of critical natural habitats?  No</p> <p>If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?  Yes</p> <p><b>OP 4.09 - Pest Management</b></p> <p>Does the EA adequately address the pest management issues?  Yes</p> <p>Is a separate PMP required?  Yes</p>		



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 4.10 - 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?

Yes

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?

Yes

#### **OP/BP 4.36 - Forests**

Has the sector-wide analysis of policy and institutional issues and constraints been carried out?

NA

Does the project design include satisfactory measures to overcome these constraints?

NA

Does the project finance commercial harvesting, and if so, does it include provisions for certification system?

No

#### **OP 7.50 - Projects on International Waterways**

Have the other riparians been notified of the project?

NA

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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**APPROVAL**

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Country Director:	Bigyan B. Pradhan	05-Jan-2018