

**INTEGRATED SAFEGUARDS DATA SHEET  
CONCEPT STAGE**

Report No.: 95297

**Date ISDS Prepared/Updated: March 10, 2015**

**I. BASIC INFORMATION**

**A. Basic Project Data**

Country: Nepal	Project ID: P154109	
	Additional Project ID (if any):	
Project Name: Upper Trishuli 1 Hydropower Project		
Task Team Leader: Sandeep Kohli		
Co-TTL: Patrice Claude Charles Caporossi		
Estimated Appraisal Date: n/a	Estimated Board Date: July 31, 2015	
Managing Unit: GEEDR	Lending Instrument: Guarantee	
Sector: Hydropower		
Theme: Mitigate acute and chronic power shortage		
IBRD Amount (US\$m.):		
IDA Amount (US\$m.):	\$100 million (Guarantee)	
GEF Amount (US\$m.):		
PCF Amount (US\$m.):		
Other financing amounts by source:		
Environmental Category: A		
Simplified Processing	Simple <input type="checkbox"/>	Repeater <input type="checkbox"/>
Is this a transferred project	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

**B. Project Objectives [from section 2 of PCN]:**

The PDO is to increase sustainable hydroelectricity generation to supply to NEA grid using public private financing.

**C. Project Description [from section 3 of PCN]:**

1. **Type.** The Upper Trishuli 1 hydropower project (“the Project”) is a 216MW run-of-river hydropower plant (3 units x 72MW). It will one of be Nepal’s largest hydropower plants with annual gross and net (saleable) generation respectively of 1,557 GWh and 1,440 GWh, (equivalent to a 76% plant factor). About 342 GWh (24%) would be produced in the dry season (low water, winter, about 4 months) and 76% in the wet season (high water, summer, about 8 months).
2. **Location.** The project is located in the Rasuwa district of Central Development Region of Nepal. The site is accessible by a 70km long black topped road named Pasang Lhamu Highway from Kathmandu to Trishuli Bazar. The road end of the project site is Mailun Dovan at a distance of 17km long gravel road via Shanti Bazar. The powerhouse and Surge Tank area would be located on the right bank of Trishuli River, which is accessed by foot trail from Mailun Dovan.

3. **Project components.** The Project includes: i) underground tunneling works of about 10km (intake, headrace); ii) an approximately 8km, 220kV transmission line; iii) an underground power house; iv) access roads totaling 19km; and (v) environmental and social management plan. A concrete weir with radial gates (as opposed to a regular dam) is proposed to create a head of 350 m of water. Construction period is about 5 years.

#### **D. Project location and salient physical characteristics relevant to the analysis of environmental and social risks and impacts (if known):**

The proposed Upper Trishuli-1 (UT-1) Hydropower Project is a 216 MW greenfield run-of-river facility located in the upper Trishuli Watershed, in the Rasuwa District in Central Nepal. It consists of a 56.3-meter-high, 77m wide diversion weir located 275 m downstream of the confluence of the Trishuli with the Bhotekosi River; underground tunneling works of about 10 km (intake, headrace); and an underground power station with three 72 MW Francis Turbines. The project's designed maximum diversion capacity is 76 cubic meters per second. At the normal operating level (1255 m), there will be a small, temporary storage reservoir with a surface area of 2.1 ha. As a run-of-river project, water storage times will be minimal to none, depending on the season. The project also includes the construction of a 19-km road from Mailung Dhovan to the intake site along the right (west) bank of the river, and other supporting infrastructure for construction and operation of the facility. For power transmission, the project will need to construct an approximately 8-km long 220kV double circuit transmission line to the Trishuli-3B substation located at Champani.

The project directly requires a total of approximately 96 hectares of land for its implementation. This direct area of influence straddles three village development committees (VDC): Haku, Dhunche and Ramche. Out of this total area, 76.6 ha correspond to forest land. Most of the forest is managed by Community Forest Groups and shows signs of significant degradation, compared to the more preserved Langtang National Park forest on the opposite (left) side of the river. Population density is low, and most of the local population is Tamang, a nationally-recognized marginalized indigenous group.

The Trishuli watershed is one of the eight sub-basins of the Gandaki River basin, which covers an area 32,000 km<sup>2</sup> in central Nepal. The Trishuli watershed occupies 13% of the total Gandaki basin, and has the highest intensity of hydropower development within the basin, with 5 hydropower projects in operation, 9 under construction or with granted construction permits and another 19 in the planning phase which have obtained survey license. Once finished, the UT-1 project will be the hydropower facility with the highest generation capacity in the watershed.

#### **E. Borrower's Institutional Capacity for Effective SEMS:**

The project developer, Nepal Water & Energy Development Corporation (NWEDC), is lead-sponsored by the Korea South East Power Company ("KOSEP" or the "Lead Sponsor"), one of six wholly-owned power-generating subsidiaries of Korea Electric Power Corporation ("KEPCO"). KEPCO is a Fortune Global 500 company (Ranked 271) and among the world's top 10 power utilities, with power plants in Korea as well as overseas, notably in Pakistan and Nepal. IFC has worked with KEPCO and its subsidiaries across several projects (including Gulpur and Lower Spat Gah hydro in Pakistan, UT1 in Nepal, Fujeij wind farm in Jordan, etc.); as such, the company is familiar with the Performance Standard requirements.

KOSEP's partner firms in NWEDC include Jade Power, a Nepalese company, as well as Daelim Industrial and Kyeryong Construction. Jade Power has several decades of professional power development experience in Nepal. It is notably involved in the 400 MW Lower Arun and 600 MW Upper

Marsyangdi projects. Daelim Industrial has been consistently ranked top 5 among the Korean construction companies by dollar amount of contacts over the past five decades. It has extensive experience with civil work/tunneling, and has highly skilled and experience manpower in its construction business. Kyeryong Construction is a Korea-based company mainly engaged in the architectural and civil engineering industry. It has achieved a steady growth domestically over the past few years, and is poised to grow further with its overseas expansion efforts, most notably in Russia, and in Nepal through the Project.

Through IFC Infraventures, IFC has furthermore been co-developing the Project as a shareholder with approximately 15% stake since signing of the Joint Development Agreement (“JDA”) with KOSEP in March 2012. IFC has played an instrumental role in helping develop the Project and has provided substantial technical support including on environmental and social aspects, and developing the NWEDC consortium’s environmental and social management systems, in line with the Performance Standards.

NWEDC’s capacity and systems for effective Social and Environmental Management of the proposed project will be further evaluated by the World Bank and IFC during the project preparation and appraisal process, and capacity strengthening measures will be designed and agreed to ensure effective systems in line with Performance Standards requirements.

**F. Environmental and Social Safeguards Specialists on the Team:**

- Pablo Cardinale (IFC)
- Abishek Singh (IFC)
- James Orehmie Monday (GENDR)
- Chaohua Zhang (GSURR)
- Leanne Farrell (GENDR)
- Drona Ghimire (GENDR)

**II. PERFORMANCE STANDARDS THAT MIGHT APPLY**

<b>Performance Standards (<i>please explain why</i>)</b>	<b>Yes</b>	<b>No</b>	<b>TBD</b>
<b>PS 1: Assessment and Management of Environmental and Social Risks and Impacts</b>	<b>X</b>		
<p>According to IFC’s Policy on Environmental and Social Sustainability, this Project is a Category A operation, as it could potentially generate significant adverse environmental and social impacts, that are diverse and irreversible. Potential environmental, social, and health and safety (ESHS) issues associated with this Project include: (a) the acquisition of approximately 96-ha of land, (b) the economic displacement of 40 Tamang households and physical displacement of 5-6 houses (final numbers yet to be confirmed), mainly composed of the marginalized indigenous group Adivasi/Janjati, (c) significant conversion of natural riparian and aquatic habitat in the 11-kilometer dewatered section of the Trishuli river where the water will be diverted from the weir to the power-house, and (d) impaired upstream and downstream aquatic and riparian connectivity/ migration from the barrier effect caused by the diversion weir. Additionally, there could be significant environmental and social impacts associated with (e) the influx of the temporary construction work-force, (f) excavation and disposal soil from approximately 10 kilometers of tunnel, (g) construction of 19 kilometers of new road to connect the powerhouse with the dam site, and (h) occupational health and safety risks associated with construction and excavation works. In addition, given the ambitious plans for hydropower development in the Trishuli river, potential cumulative impacts will also need to be assessed and managed.</p> <p>The Project proponent, Nepal Water &amp; Energy Development Corporation (NWEDC), commissioned an ESIA in 2011 of the proposed project in line with national standards. With support from IFC’s</p>			

<b>Performance Standards (please explain why)</b>	<b>Yes</b>	<b>No</b>	<b>TBD</b>
<p>InfraVentures program, this ESIA was independently reviewed, and several additional studies and action plans have been developed, or are under development, to bring the environmental and social assessment and management aspects of the project in line with the IFC Performance Standards. The additional studies completed include complementary environmental and social baseline studies, GIS Mapping and Spatial Analysis, Cumulative Impacts Assessment, and Environmental Flows Assessment. Based on the findings of these additional studies, the following additional plans are currently being prepared to close the major outstanding gaps in the plans proposed by the initial ESIA: Environmental and Social Management System, Environmental Flows Management Plan, Land Acquisition and Livelihood Restoration Plan, Vulnerable and Indigenous Peoples Plan, Cumulative Impacts Management Plan, Biodiversity and Wildlife Conservation Management Plan, Reforestation Plan, Catchment Area Management and Treatment Plan, and comprehensive Environmental and Social Management Plan (ESMP) covering both Construction and Operation stages. With respect to the Transmission Line, an Initial Environmental Evaluation (IEE) has been completed in accordance with national standards, based on the preliminary alignment. During the course of project appraisal, the World Bank together with the IFC will carefully assess the ESIA, transmission line IEE, supplemental studies and management plans, and determine if additional gaps exist which require further work in accordance with Performance Standards.</p> <p>Some stakeholder consultations were undertaken as part of the 2011 ESIA work, but were found to be insufficient to meet Performance Standards requirements, in particular with respect to the Tamang indigenous people in the project area. Additional consultations, including ten Focus Group Discussions with ethnic minorities and women, as well as interviews with households and individuals with various positions in local civil society, were carried out as part of the supplemental social baseline. Additional engagement activities are planned prior to project approval. The Construction ESMP will include a community relations and grievance mechanism, and the sponsor's Environmental and Social Management System will also include a Stakeholder Engagement Plan for ongoing engagement throughout the life of the project.</p>			
<b>PS 2: Labor and Working Conditions</b>	<b>X</b>		
<p>A substantial workforce will be required for the construction and operation of the project. Thus proper worker management is needed. Workforce, Worker Accommodations/Camps, Work Sites and Occupational Health and Safety (OHS) Management Plans will be included in the Construction ESMP, to outline measures to protect workers and promote safe and healthy working conditions in line with this Performance Standard.</p>			
<b>PS 3: Resource Efficiency and Pollution Prevention</b>	<b>X</b>		
<p>The ESIA process has identified various project impacts on air quality, water quality, solid waste, and noise level, etc. The main pollution issues associated with construction relate to use/disposal of material excavated from the tunneling as well as with the appropriate management of the tunneling process waste water. Appropriate measures to prevent, minimize, mitigate, manage and monitor pollution and emissions during all phases of project development will be included in the ESMP. A full GHG emissions and climate risk assessment is being conducted as part of InfraVentures financing. Once in operations, no significant GHG emissions are expected from this project, given its run-of-river nature and the short reservoir retention times.</p>			
<b>PS 4: Community Health, Safety, and Security</b>	<b>X</b>		
<p>The ESMP will include a Health Management Plan to address matters regarding the health and wellbeing of construction workers, project staff and nearby communities. There will also be Transport/Road Safety and Logistics Management Plans with measures to ensure safety of nearby communities and road users during construction. Safety measures for Dam Breakage/ Structural Integrity, Safety Management and Emergency Response Plans will also be developed. The Safety and Emergency Response Plans will include procedures to respond to accidental leaks, spills, emissions, fires, and other unforeseen impacts or</p>			

<b>Performance Standards (please explain why)</b>	<b>Yes</b>	<b>No</b>	<b>TBD</b>
issues. Issues pertaining to management of security personnel will also be appropriately specified in line with this Performance Standard.			
<b>PS 5: Land Acquisition and Involuntary Resettlement</b>	<b>X</b>		
Based on preliminary planning activities completed, the land requirement of the project (not including the transmission line) is estimated to be around 96 ha, including 76 ha government-owned land (mostly community forests), ~5 ha of private land, and 15ha of Guthi/trust land. This land acquisition will affect about 40 households or project affected families (PAFs). These PAFs are owners or tenants on agricultural land. Additionally, 5-6cases of physical displacement have been identified. The amount of land acquisition will be further checked and updated with additional field survey work. Field surveys also indicate that the project owner has already purchased some of the lands. The planning consultant is conducting a review of the purchase and will develop necessary measures to address any gaps that are identified. Additionally, a Land Acquisition and Livelihood Restoration Management Plan is being developed in accordance with IFC Performance Standard 5.			
<b>PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources</b>	<b>X</b>		
Expected project impacts to terrestrial habitats and biodiversity include direct loss of vegetation and trees in areas to be cleared, as well as indirect impacts such as added pressure and harvesting by increased population (i.e. influx of workers), increased sedimentation and erosion during construction, etc. Local wildlife will be affected by the loss of terrestrial habitat and by the disturbance and displacement during the various construction activities. During operations, the reduction of flow in the diversion reach can have negative impacts on riparian habitats, on which some bird species depend. Indirectly, the project could have impacts on the overall habitat availability and connectivity for terrestrial fauna in the area by fragmenting the river corridor and by hindering altitudinal migration due to the construction of the access road at mid-slope. While most of the project's direct footprint will be on community managed forests that are highly intervened and degraded by human activity, a small amount of land (est. 2.3 ha) will be required within the Langtang National Park, which are of significantly higher conservation quality and can be considered natural habitat. No critically endangered species were identified in the project area, but a number of species with conservation significance were identified in field surveys. A Biodiversity and Wildlife Conservation Management Plan and a Reforestation Plan will therefore be required to minimize the loss of local biodiversity, compensate for the loss of forest and guarantee the continuation of ecosystem services for local communities.			
The project will also directly impact aquatic habitats and biodiversity, including significant conversion of natural riparian and aquatic habitat in the 11-kilometer-dewatered section of the Trishuli river between the weir and power-house, and impaired upstream and downstream aquatic and riparian connectivity/migration from the barrier effect caused by the diversion weir. An Environmental Flows Management Plan will be prepared and implemented to guarantee that downstream flows are managed in a way that maintains the key ecological functions and viable aquatic habitats in the diversion reach, remaining knowledge gaps on aquatic habitats in the Project area are addressed, and appropriate mitigation measures are put in place for the impacts of hydrological alteration and barrier effect associated with the Project's operation.			
<b>PS 7: Indigenous Peoples</b>	<b>X</b>		
The Project area is predominantly inhabited by Tamangs; a marginalized indigenous group ( <i>Janajati</i> ) recognized by the Nepal Federation of Indigenous Nationalities (NEFIN). They account for about 97% of the affected population. The rest belong to other Adivasi Janajati and cast groups. The primary occupation of these communities is subsistence agriculture. Consultations were carried out with these communities in early planning surveys. Further consultations will be carried out with local stakeholders, including the Adivasi Janajati communities over their support for this project in line with the FPIC policy requirement. An Indigenous Peoples Plan is being prepared in line with Performance Standard 7. At the			

<b>Performance Standards (please explain why)</b>	<b>Yes</b>	<b>No</b>	<b>TBD</b>
same time, the planning consultant is looking into the proposed benefit-sharing mechanisms as well as the project potential for local community support. These will be further discussed, finalized in consultation with the primary stakeholders and considered into the project design.			
<b>PS 8: Cultural Heritage</b>	<b>X</b>		
The initial ESIA, as well as the socioeconomic baseline carried out as part of the supplementary ESIA, identified several temples, gumpas (monasteries), and other cultural or religious sites in the area of influence of the project. It is not yet confirmed if project construction will impact one or more of these sites, or intervene community access. If such impacts are confirmed, appropriate measures will be determined in consultation with local communities and specified in the Construction ESMP to ensure that, the sites are shifted to an appropriate location and/or appropriate measures are taken to guarantee access by local people. Cultural Heritage Chance-Finds Procedures outlining requirements in case of discovery of sites or artifacts with archeological or historical value during the construction phase are also specified in the Construction ESMP. The Cumulative Impact Assessment also notes a potential cumulative effect on cultural resources from the development of cascading hydropower projects in the watershed, including on access to templates and gumpas as well as through changes to water availability and quality required for religious ceremonies and cremations on the Trishuli river. Coordination with local communities to minimize such impacts and disruptions of cultural/religious activities is recommended, especially during holiday periods. No cremation or other religious sites relying on water resources from the Trishuli river are identified within the direct area of influence of UT-1.			

### III. SAFEGUARD PREPARATION PLAN

- A. Target date for the Quality Enhancement Review (QER), at which time the ESRS would be disclosed and the PAD-stage ISDS would be prepared: April 27, 2015
- B. For Category C or Category FI projects that do not require an ESRS, the target date for preparing the PAD-stage ISDS: n/a
- C. Time frame for launching and completing the safeguard-related studies that may be needed. The specific studies and their timing<sup>1</sup> should be specified in the PAD-stage ISDS:

ESIA supplementary studies are expected to be completed by February 2015.


In addition, OP 7.50 on International Waterways also applies to the project, as this policy lies outside the scope of safeguard policies that are substituted with World Bank Performance Standards for Private Sector Activities as per OP 4.03. In accordance with the policy and as agreed between the Bank and IFC, a joint riparian notification process is being followed consistent with both Bank and IFC procedures. A single notification was sent on February 27, 2015 on behalf of the project sponsor to the respective country governments of all upstream and downstream riparians (e.g., China, India, and Bangladesh) as per requirements under OP 7.50, as well as to the corresponding World Bank Group Executive Directors as per IFC notification requirements. In accordance with World Bank and IFC policies, the country

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<sup>1</sup> Reminder: The Bank's Access to Information Policy requires that safeguard-related documents be disclosed before appraisal (i) at the InfoShop and (ii) in-country, at publicly accessible locations and in a form and language that are accessible to potentially affected persons.

governments and/or Executive Directors have until March 31, 2015 to raise any comment regarding the project to the World Bank Group.

#### IV. APPROVALS

<i>Signed and submitted by:</i>		
<b>Task Team Leader:</b>	<b>Name</b> Sandeep Kohli	<b>Date</b> March 10, 2015
<i>Approved by:</i>		
<b>Regional Safeguards Coordinator:</b>	<b>Name</b> Francis Fragano	<b>Date</b> March 10, 2015
<b>Comments:</b>		
<b>Sector Manager:</b>	<b>Name</b> Julia Bucknall 	<b>Date</b> March 24, 2015
<b>Comments:</b>		