DIGO JAL BIKAS (DJB) PROJECT: CONTEXT, APPROACH AND LEARNINGS

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OVERVIEW

- There is an urgent need to address water resources development plans in Western Nepal, a region that has much potential for economic development but is highly vulnerable to climate change impacts. It is also rich in natural resources, with many biodiversity hotspots and much scope for tourism.
- The DJB project, funded by USAID, sought to promote sustainable water resource development in the region by conducting multidisciplinary studies with numerous stakeholders, and by producing knowledge and tools aimed at helping decision-makers develop policies and plans that balance economic growth, social justice, and healthy ecosystems.
- Geographic focus: three basins in the Karnali and Sudurpaschim provinces of Nepal – the Karnali, Mohana, and the Mahakali.
- Project Objectives: *i) generate a sound knowledge base; ii) develop new tools, models, and approaches; and iii) support in developing integrated policy and management guidelines for water resources development and management.*

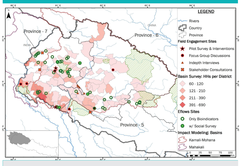
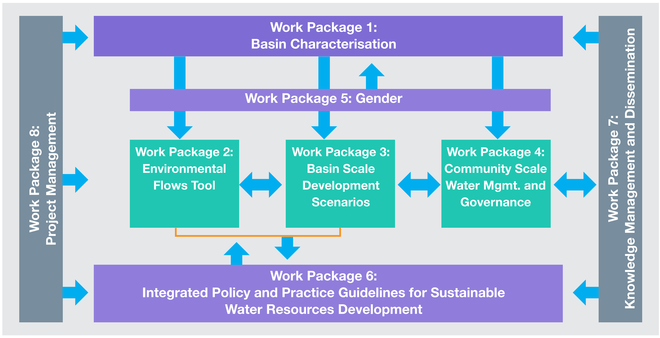


Figure 1: *DJB project area and foot prints in Western Nepal*

APPROACH

The DJB project adopted an integrated approach for developing a holistic knowledge base to support sustainable development and management of water resources. The project activities are structured under eight work packages (WPs) as shown in Fig. 2. It has adopted a two-tier approach:

- Analysing water resources availability under current and future conditions by linking hydrological and economic realities in a hydro-economic modelling at basin level to develop knowledgebase for policy and planning purpose;
- Analysing water-governance mechanisms and characterize constraining and facilitating factors at local level.



KEY LESSONS LEARNED

LOCAL LEVEL INTERVENTIONS

- Solutions need to fit the local context in bio-physical and social terms, as opposed to silver bullet solutions.

GENDER EQUALITY AND SOCIAL INCLUSION

- Needs to be integrated into water sector policies and practices, as the professional culture currently favors technocratic "fixes."
- River basin planning including hydropower and irrigation development requires informed and accountable decision-making with close involvement of key stakeholders across scales and sectors, including the diverse views of local communities.

BIO-PHYSICAL ASSESSMENT

- The basin's diverse agro-ecological zones (i.e., Trans-Himalayan zone, mountain, hills and Terai) have different bio-physical characteristics. Precipitation, for example, ranges from less than 500 mm in the Trans-Himalayas to over 2,000 mm in the mountain and hill regions
- Similarly, net water yield at mountain and hill region are more than two-fold compared to that in Trans-Himalayas zone.

PREPARING FOR THE FUTURE CLIMATE

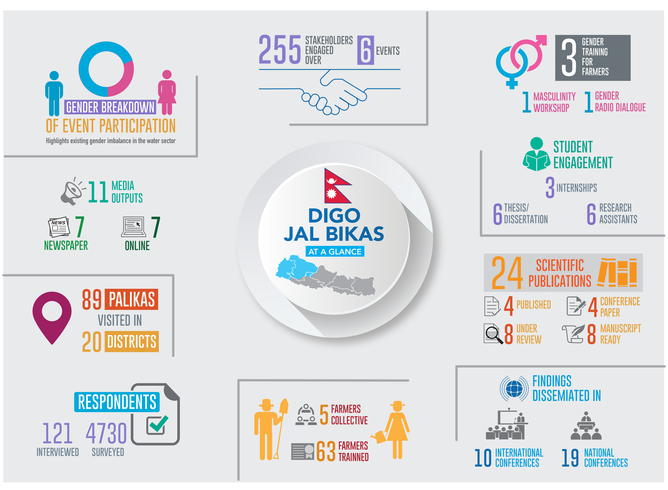
- Average temperatures and rainfall variability are projected to increase with climate change.
- Prolonged monsoon rains, and sporadic rain events in the drier months are projected. These changes and associated uncertainty should be incorporated into strategies and future plans for disaster risk reduction, infrastructure development, and livelihood improvement.
- Current dependency of agriculture on rainfall should be reduced given the projections for increased variability and uncertainty in rainfall. Interventions should emphasize integrated measures to increase natural and artificial recharge and storage of water.

TRADE-OFFS AND SYNERGIES TO EXPLORE MULTIPLE SCENARIOS FOR BASIN DEVELOPMENT THROUGH HEM

- The trade-off between hydropower and irrigation is limited, because storage improves year-round water availability for agricultural production.
- Large-scale plants generate more power and revenue than small ones designed for domestic demand and rural electrification, but there is a tradeoff between exporting energy to India versus using water for irrigation in the Terai.
- Environmental trade-offs need to be assessed in detail for specific projects. A better understanding of trade-offs will contribute to more transparent development dialogues across sectors and regions.

ENVIRONMENTAL FLOWS (EF) ASSESSMENT

- There is an urgent need to incorporate EFs in the development and management of hydropower and irrigation infrastructure to sustain river biodiversity, ecosystem services and livelihoods.
- The EF requirement should mimic the natural flow of the river, including both high and low flows
- The Environmental flows calculator for Western Nepal, developed in the project, can be applied to generate EF values for any river stretch



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