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PROGRAM NAME: SUSTAINABLE, JUST AND PRODUCTIVE WATER RESOURCES DEVELOPMENT IN WESTERN NEPAL (DIGO JAL BIKAS)

Year 3 Annual Report - MAIN REPORT

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EXECUTIVE SUMMARY

The "Digo Jal Bikas (DJB)" project (April 2016 - March 2019) aimed at creating evidence and developing a knowledgebase to promote sustainable water resources development in Western Nepal. The main purpose was to strive to balance economic growth, social justice, and healthy, resilient ecosystems in the future development of Western Nepal. It contributed directly to IR2.3 of the USAID Nepal Country Development Cooperation Strategy (2014-18). The project activities for all three years were implemented as per the work plan approved at the beginning of the respective year. This annual performance report describes the status of outputs as outlined in the year-3 work plan. All planned outputs were successfully achieved and the Work Package (WP) specific summary is provided hereunder;

WP1 – Basin Characterization: This WP aimed at characterizing bio-physical, socio-economic, and policy-institutional aspects of the basins in Western Nepal. The specified outputs for year-3 were to submit five manuscripts in peer-reviewed scientific journals and update the project database. By the end of March 2019, eight manuscripts have been developed; out of which, one is already published, five are under review, and two are under internal review. Furthermore, the database is regularly updated and maintained in the project's internal shared drive. In year-3, simulated discharge, water balance, and projected future climate data were added in the database. The data will be available in public domain through IWMI's water data portal (http://waterdata.iwmi.org/) after submission of final project report in June, 2019. Training courses are being planned for targeted stakeholders to facilitate use and uptake of project generated data, tools, and models. The training programs will be completed before June, 2019.

WP2– Environmental Flow Assessment and Tool Development: The WP2 aims at developing a desktop tool for Environmental Flows (E-flows). Seven outputs were envisioned in the year-3 work plan. They included draft/final reports related to E-flows assessment in the project area, development of three (3) manuscripts, and development/application of improved tools for ecological assessment. All the reports and manuscripts are completed. In addition, a blog on balancing people and energy in the Karnali Basin has also been published

(https://www.thethirdpole.net/en/2018/08/20/balancing-people-and-power-in-the-karnali-basin/). Furthermore, the Western Nepal Environmental Flow Calculator has been developed as a desktop tool to assess E-flows for the rivers in Western Nepal using a hydrological approach as well as a holistic approach. The tool was demonstrated multiple times to colleagues from PAANI and USAID and also shared with a wider group of relevant stakeholders through the dissemination workshop held in mid-March, 2019.

WP3 – Basin-scale Development Scenarios: Identifying and evaluating future water development pathways and trade-offs using hydro-economic models were carried out under this WP. The outputs outlined in the year-3 work plan include conducting stakeholders' consultation workshops, developing a hydro-economic model, and producing a final report on hydro-economic modelling (HEM). The hydro-economic model for the western Nepal has been prepared in consultation with both national and local level stakeholders and will be made available in the public domain through IWMI's water data portal (http://waterdata.iwmi.org/) after the related publications have been published. A journal article focused on future visions for western Nepal has been accepted for publication in an international journal and another manuscript on the hydro-economic modelling work is under development.

WP4 – Local Water Governance and Management: The year-3 plan of WP4 aimed at implementing context-specific techno-social interventions and evaluating their effectiveness for improved water management at the farm scale. Interventions at the three communities were implemented in April, 2018 and monitored until February 2019. The evaluation report was prepared in March 2019. Furthermore, one journal manuscript is ready for submission and two more manuscripts are under development. The other dissemination products/activities include presentations in 8th Asian Regional Conference of ICID, 2 news articles in Nepali, one case study, and one photo story on the intervention process.

WP5 – Gender: The year-3 work plan under WP planned to enhance awareness and capacity of key stakeholders in the water sector and develop scientific manuscripts. Accordingly, a dialogue on masculinity was conducted in May 2018, efforts were made to increase participation of women in the multi-stakeholder participatory process. Furthermore, a gender-focused radio program was conducted and Three manuscripts for international journals have been prepared.

WP6/WP7/WP8 – Integrated Policy and Practice Guidelines, Knowledge Management/Dissemination, and Project Management: The project has been developing a knowledgebase that provides a basis for the PAANI project to develop integrated policy and practice guidelines. In addition, inputs were provided to following the following nationalpolicies and plans - 1) The 15th National Plan being developed by the National Planning Commission; 2) Climate Change Policy (2019) being finalized by the government to submit to the Parliament. We also participated in all the meetings that were organized by USAID and partners on natural resources management. We are continuously providing inputs to IWMA project activities. As of March 2019, 22 journal manuscripts have been developed, 4 out of them are already published; three conference papers were published in year-3, 5 blogs/op-eds were published; 30 presentations were made at various national and international forums; DJB activities were featured through 11 news article in popular media and three episodes of the Aankhijhyal programs (https://www.youtube.com/watch?v=NRKYb1m9zwU&feature=youtu.be; https://www.youtube.com/watch?v=SvERmbCOF4s&t=1s; https://youtu.be/JsVHbMXUhag) on national TV. Furthermore, nine (9) project-organized workshops/meetings were conducted; at least 10 regular project meetings were held and participated in at least 24 USAID (or partners) organized meetings.

ABBREVIATIONS AND ACRONYMS

CSO	Community Support Organization
DHM	Department of Hydrology and Meteorology
DJB	Digo Jal Bikas
DOED	Department of Electricity Development
DoI	Department of Irrigation
DOLIDAR	Department of Local Infrastructure Development and Agriculture Roads
DSCWM	Department of Soil Conservation and Watershed Management
DWIDM	Department of Water-Induced Disaster Prevention Management
E-Flows	Environmental Flows
FGD	Focal Group Discussion
GESI	Gender Equity and Social Inclusion
HEM	Hydro-Economic Modeling
GO	Government Organization
IMD	Indian Meteorological Department
I/NGO	International/Non-Governmental Organization
IWMA	Integrated Watershed Management Activity
IWMI	International Water Management Institute
KCAP	Knowledge, Capacity, Attitude and Practice
KII	Key Informant Interview
M&E	Monitoring and Evaluation
MoFSC	Ministry of Forest and Soil Conservation
MOSTE	Ministry of Science, Technology and Environment
NFEJ	Nepal Federation of Environmental Journalists
NPC	National Planning Commission
NWCF	Nepal Water Conservation Foundation
PAANI	Program for Natural Aquatic Resources Improvement
RCM	Regional Circulation Model

SWAT	Soil and Water Assessment Tool
TAC	Technical Advisory Committee
USAID	United States Agency for International Development
WECS	Water and Energy Commission Secretariat
WP	Work Package

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1. PROGRAM OVERVIEW/SUMMARY

Program Name:	Sustainable, Just and Productive Water Resources Development in Western Nepal ("Digo Jal Bikas")
Activity Start Date and End Date:	April 1, 2016 – March 31, 2019
Name of Prime Implementing Partner:	International Water Management Institute (IWMI)
[Contract/Agreement] Number:	AID -367-IO-16-00002
Name of Subcontractors/Sub-awardees:	Duke University Kathmandu University Nepal Water Conservation Foundation (NWCF)
Major Counterpart Organizations	Department of Water Resources and Irrigation(DWRI) Water and Energy Commission Secretariat (WECS) National Planning Commission (NPC)
Geographic Coverage (landscape, province(s) and countries)	Karnali, Mahakali and Mohana Basins
Reporting Period:	April 1, 2018– March 30, 2019

The overall goal of the USAID's "Sustainable, Just and Productive Water Resources Development in Western Nepal" (hereafter, Digo Jal Bikas or DJB) project, implemented by a consortium led by the International Water Management Institute (IWMI), is to promote sustainable water resources development and management in Western Nepal through balancing economic growth, social justice and healthy, resilient ecosystems. The project contributes directly to IR2.3 of the USAID Nepal Country Development Cooperation Strategy (2014-18), focusing on means to increasing the resilience of targeted natural resources and consequently improving the livelihoods that are dependent on them.

The geographic focus of this project is the basins and sub-basins in the Karnali and Sudurpaschim Provinces of Nepal, with a particular focus on the Karnali, Mahakali and Mohana River Basins (Fig.1).

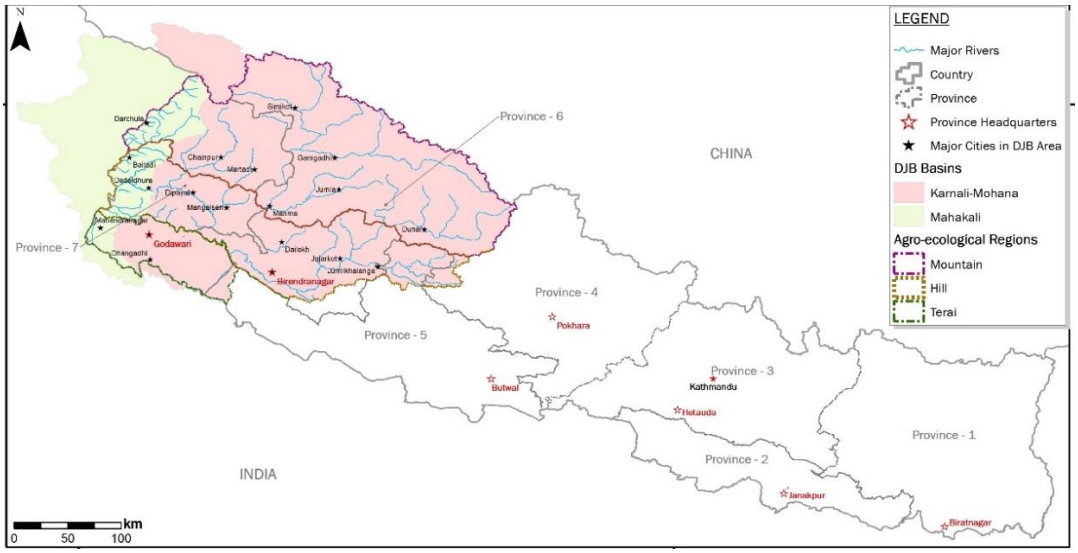

Figure 1: The study region – Karnali-Mohana and Mahakali river basins. DJB is "Digo Jal Bikas".

DJB project has three objectives to achieve this larger goal:

1. Construction of a sound knowledgebase on the current state of water resources and impacts of climate change as well as other drivers of future change in Western Nepal to identify key information and knowledge gaps. This includes a comprehensive database that captures the socio-economic, biophysical, and hydro-climatic (current and future) characteristics of the three basins; and mapping of all water-related infrastructures.

2. Development and application of tools, models and approaches for sustainable water resources development under current state and future scenarios at the basin and local community scales. In particular, tools will be developed to simulate hydrology and environmental flows (E-flows) necessary to maintain the integrity of ecosystems and their services. This information will then be used for hydro-economical modelling at basin scale to explore water allocation under future scenarios, including climate change, of different water resources development options and the resulting trade-offs. The multi-scale approach (i.e., basin, sub-basin, and local community) for improved water management and water governance will be explored.

3. Support for the development of integrated policy and practice guidelines on options and technologies for sustainable water infrastructure development for government and local communities. These guidelines will be designed to promote best practice in water-related

infrastructure development (e.g. hydropower, irrigation, water storage) at different scales, which supports local communities and protects the resilience of ecosystems and their services. The aforementioned knowledgebase, tools, models and approaches will underpin these guidelines, which will be developed with input from government and community stakeholders, as well as donors and investors. The policy and practice guidelines will be formulated in collaboration with the PAANI program.

To address the project objectives, and guided by the above research questions, six core Work Packages (WP) and two supporting WPs have been developed (Table 1)

Table 1: Work packages (WPs)

Core work packages	
WP1	Basin characterization
WP2	Environmental flow assessment and tool development
WP3	Basin-scale development scenarios
WP4	Watershed/village water governance and management
WP5	Gender
WP6	Integrated policy and practice guidelines
Supporting work packages	
WP7	Knowledge management and dissemination
WP8	Project management

The following stakeholders were engaged during this project. They represent both next and end users of the project's products, tools and knowledge.

- Public and private sector agencies and multilateral investors who evaluate, design and implement water resources development projects and investment programs.
- National, provincial, and local level water and energy management agencies, e.g. Ministry/Department of Water Resources and Irrigation, Ministry/Department of Agriculture, Ministry of Forests and Soil Conservation, Water and Energy Commission Secretariat and the Department of Soil Conservation and Watershed Management, Ministry of Science Technology and Environment (MOSTE), Ministry of Federal Affairs and Local Development and Department

of Local Infrastructure Development and Agricultural Roads (DOLIDAR), District Development Committees (DDCs) and Village Development Committees (VDCs).

- Conservation groups that want to establish environmentally sustainable water resources planning and management.
- Women and men in farmer and fisher communities that will be affected by climate change and water management decisions in the basin.

2. REVIEW OF M&E TARGETS

A review of achievements against targeted M&E indicators is provided in Table 2.

Table 2: Target against achievement as per the M&E plan

Narrative Summary	*Indicators*	Year 3 Targets	*Status (as of end of March, 2019)*	Deviation narrative for under/over achievement of each indicator's target
Outcomes		FY18/19		
1. A sound knowledge base on the current state of ecosystems and their services in West Nepal evidentially used by relevant parties	C. Changes in ecosystems knowledge and practice by key stakeholders (% of stakeholders)	70%	70% Achievement –Above Average - A Dissemination workshop was help in March, 2019. A KCAP (Knowledge, Capacity, Attitude, Practice) baseline survey was carried out in Year 1 (baseline) and at the dissemination workshop in March, 2019 (Year 3). A series of 15 types of information related to integrated water resources were listed and respondents were asked to rate their access on a scale of 1-5 (where 1 equals no access and 5 complete access). Information on gender, biodiversity, tourism and river health were slightly less accessible in the baseline survey but in the third year both biodiversity and gender were scored as above average in terms of access. Only access to information on Tourism and River Health were below average. Within future basin development, hydropower, agriculture and local level	Achieved

Narrative Summary	*Indicators*	Year 3 Targets	*Status (as of end of March, 2019)*	Deviation narrative for under/over achievement of each indicator's target
			information, which were scored least accessible in the baseline survey, also increased to above average accessibility. The increase in scores for the information access is a very positive development and can be an impact of the DJB project activities. -The hydrological models and environmental flows (EFs) developed in the project for the Karnali, Mahakali and Mohana basins have been used in the National Irrigation Master Plan developed by Department of Water Resources and Irrigation (DWRI) -The project team has contributed to the Water Resources Policy (Draft) as well as Climate Change Policy (Draft)	
2. Environmental flows (E-flows) allocations are integral part of river management practice informing future water resource planning and development	D. E-Flows integrated into water resource planning and development	Updated results of KCAP survey	KCAP baseline survey was carried out in Year 1 and in Year 3. Compared to the baseline survey, there was an increase in integration of information from the areas of climate change, agriculture development, biodiversity, gender and local and national development, which all scored above average. This could be viewed as an impact of the DJB project as these were the topics, which were especially highlighted in the last 3 years. E-Flows are assimilated in the National Irrigation Master Plans developed by DWRI	Achieved.

Narrative Summary	*Indicators*	Year 3 Targets	*Status (as of end of March, 2019)*	Deviation narrative for under/over achievement of each indicator's target
3. Increased and improved knowledge of tradeoffs in water resource development opportunities resulting from the application of hydro-economic models	E. Governments and other key stakeholders demonstrate knowledge of model strengths and limitations and capacity	Updated results of KCAP survey	KCAP baseline survey was carried out in Year 1 and end-line in March, 2019. Compared to the baseline survey, there was an increase in integration of information from the areas of climate Change, Ag. development, biodiversity, gender and local and national development, which all scored above average. This could be viewed as an impact of the DJB project as these were the topics, which were especially highlighted in the last 3 years.	Achieved.
	I. Number of institutions with improved capacity to assess or address climate change risks supported by USG assistance (USAID CC Adaptation Indicator EG11.2)	10 (DOI, DoED, NEA, NPC, WECS, water-related ministries, etc.)	45 institutions, including DoI, DoED, and WECS have participated in the DJB events (e.g. 3 sessions of Hydro-Economic Modelling workshops; Masculinity workshop; and Town hall meeting) organized during Apr-Sep 2018 aimed at enhancing knowledgebase and therefore capacity in the mentioned areas	Overachievement: The target was set with the aim of including selected government institutions from central level. However, given the increased level of collaborative works with PAANI/ NEFEJ as well as more number of consultative workshops that planned originally (3 compared to 1 planned), more organizations could

Narrative Summary	*Indicators*	Year 3 Targets	*Status (as of end of March, 2019)*	Deviation narrative for under/over achievement of each indicator's target
				be engaged at both national and local levels and from government as well as non-governmental organizations.
4.Local communities in the project study area adopt practical technologies and land/water management approaches that improve water productivity, protect ecosystems and achieve more equitable water governance, which enable them to cope with and adapt to future climatic and socioeconomic pressures	F. Adoption levels of key technologies (% or number of people adopting new technologies)	Follow-up survey of impact assessment	Techno-social interventions aimed at improving water management at three pilot locations are already implemented. The evaluation of interventions showed that people have benefited from the techno-social interventions and have expressed interest to continue. (**Annex-11**) Furthermore, all equipment/ instruments used in the research are handed to community and representative of local government.	Achieved.
	G. Number of people using climate information or implementing risk-reducing actions to improve resilience to climate change as supported by USG assistance (USAID CC Adaptation Indicator EG11.6)	100	175 (based on participants attending following DJB events – hydro-economic modelling workshops (3 episodes), town hall meeting on "gender and irrigation", and masculinities workshop)	Overachieved: The target was set with the assumption of lower number of participants in farmers group as well as the events. However, members in the farming groups increased to 63 (original plan was 45), number of DJB events increased and number of

Narrative Summary	*Indicators*	Year 3 Targets	*Status (as of end of March, 2019)*	Deviation narrative for under/over achievement of each indicator's target
				participants also increased due to collaboration with PAANI and NEFEJ for Town Hall meeting in Kailali. This led to increase in number of participants.
5. Greater awareness and capacity of key stakeholders in the water sector to consider and address unequal capabilities to benefit from and influence water resources planning and management across gender, caste, class and ethnicity at local and basin levels.	H. Evidence of gender and equity targeting in key policies, plans and implementation strategies	Updated results of KCAP survey	KCAP baseline survey was carried out in Year 1 and end-line in March, 2019. In the year 3 survey, 94% agreed, 0% disagreed and 8 remained neutral when asked if gender is well considered in the policy of their organization. These scores are higher than in the baseline survey where 73 % agreed and 3% disagreed, the rest remaining neutral to the same question. When asked if women have fewer chances than men to be promoted in the irrigation/hydropower sector, 23% completely agreed, 35 % agreed to some extent, 10% remained neutral, 10% somewhat agreed and 23% disagreed. In the base line survey, 11% completely agreed, 25% agreed to some extent, 22% remained neutral, 11% somewhat agreed and 31% did not agree. The difference in opinion to this question could demonstrate higher levels of gender sensitization. 90% of the respondents in the	Achieved

Narrative Summary	*Indicators*	Year 3 Targets	*Status (as of end of March, 2019)*	Deviation narrative for under/over achievement of each indicator's target
			year 3 survey also agreed that water resource development could move forward more easily if we could address issues related to social inclusion and inequities. In the baseline survey 84% had agreed to the same question. Gender specific input has been provided in the National Water Resources Policy under preparation by WECS	
6. Improve the knowledgebase to develop integrated policy and management guidelines	I. Number of institutions with improved capacity to assess or address climate change risks supported by USG assistance (USAID CC Adaptation Indicator EG11.2)	13 (WECS; DoED; DoA; DDC/VDC; TU; KU)	45 institutions, including DoI, DoED, and WECS have participated in the DJB events (e.g. 3 sessions of Hydro-Economic Modelling workshops; Masculinity workshop; and Town hall meeting) organized during Apr-Sep 2018 aimed at enhancing knowledgebase and therefore capacity in the mentioned areas	Overachievement: The target was set with the aim of including selected government institutions from central level. However, given the increased level of collaborative works with PAANI/ NEFEJ as well as more number of consultative workshops that planned originally (3 compared to 1 planned), more organizations could be engaged at both national and local

Narrative Summary	*Indicators*	Year 3 Targets	*Status (as of end of March, 2019)*	Deviation narrative for under/over achievement of each indicator's target
				levels and from government as well as non-governmental organizations.
Key Outputs				
1.1. Updated database collating all relevant spatial and temporal data on freshwater ecosystems in the study basins, including both natural characteristics and artificial structures and practices, to feed into online system	1.1.1 Database developed 1.1.2 Number and type of users of database	Database developed in year-1 and updated continuously Review of usage	Database is developed, updated, and stored in IWMI's internal shared drive. The database will be available in public domain through IWMI's water data portal (http://www.iwmi.cgiar.org/2018/06/water-data-portal/) in near future. Due to budget cut, a dedicated river basin information system for the project basins, which was planned originally, was cancelled. Therefore, tracking on usage of data was not relevant.	Achieved
1.2. Fully calibrated and validated hydrological model of the 3-basins (Karnali, Mohana, Mahakali)	1.2.1 Calibrated and validated hydrological model	Calibrated and validated models	Fully calibrated and validated models for Karnali-Mohana and Mahakali river basins are developed. It has been used in "National Irrigation Master Plan" developed by the DWRI.	Overachievement- The models are adopted by the DWRI for the Irrigation Master Plan, which are expected to be finalized by April, 2019. This outcome/ impact was not planned in the project deliverables.

Narrative Summary	*Indicators*	Year 3 Targets	*Status (as of end of March, 2019)*	Deviation narrative for under/over achievement of each indicator's target
1.3. Report on hydrological model set-up, model performance, and current and future status of water resources	1.3.1 Report completed	Model reports, submission of papers for journals	Report on modeling is completed. From the report, three scientific papers are developed for international journals; 1 is already published and 2 are under review.	Achieved/ Completed
1.4. Final report on policy review and institutional analysis at the basin	1.4.1 Report comprised of systematic policy clusters and institutional analysis	Report produced	The report was produced in Year 1 and a journal article based on the review has been published in Geoforum Journal.	Achieved/ Completed
1.5. Final report on power-relation mapping	1.5.1 Report prepared	Report produced	A manuscript titled "Putting Power and Politics Central in Nepal Water Governance" is prepared and currently under review.	Achieved/ Completed
1.6. Nepal hydropower development discourse	1.6.1 Report prepared	Report produced	A manuscript titled "Spatial Politics and Local Alliances Shaping Nepal Hydropower" is prepared and is currently under review.	Achieved/ Completed
1.7. Report with policy recommendations for improved basin governance based on political economy analysis, governance and institutional reviews focusing on the intersection of land-water-energy-environment, and	1.7.1 Report prepared / Inclusiveness of policy recommendations 1.7.2 Effectiveness of policy recommendations	Report produced Review of application of report	The report with policy recommendations are prepared. A synthesis will be included in the Final Project Report due in June, 2019. As the final report will be submitted to USAID by the end of June 2019, review of application of the report at this stage is not relevant.	Achieved/ Completed

Narrative Summary	*Indicators*	Year 3 Targets	*Status (as of end of March, 2019)*	Deviation narrative for under/over achievement of each indicator's target
incorporating gender issues				
2.1. A report with an inventory of livelihood, cultural/religious benefits from the river inhabitants of the basin as well as recommendation for incorporating various needs in water allocation planning	2.1.1 Report / supportive database produced	Report/data produced	Draft report was prepared in Year 2. A manuscript titled "Whose river is it: An assessment of livelihood and cultural water flow requirements for the Karnali" is under review with an international Journal.	Achieved/ Completed
2.2. An Inventory of the bio-indicator invertebrate taxa to serve as control for different conditions	2.2.1 Inventory with relevant recommendations	Report produced	Samples are collected, analyzed, and interpreted. A list of flow dependent benthic macroinvertebrates was developed. The results were also presented in the 8th Asian Regional Conference of ICID, held in early May in Kathmandu.	Achieved/ Completed
	2.2.2 Biotic index tool functional and evidence of use	Review of usage of tool	Since the development of the tool took longer than expected, it could not be kept in public domain to track the usage of tool.	
2.3. A desktop tool to calculate E-flows in Nepal and illustration of its application in west Nepal which will include relationships between water flows	2.3.1 Desktop tool functional and evidence of use	Desktop tool produced	The tool is already developed. It is available to install in any computer.	Achieved/ Completed
	2.3.2 Utility of tool in its	Review of usage of tool	The tool will be available in public domain after final report is submitted in June 2019.	

Narrative Summary	*Indicators*	Year 3 Targets	*Status (as of end of March, 2019)*	Deviation narrative for under/over achievement of each indicator's target
and river typologies, indicator species and assemblages, and cultural and livelihood metrics.	application in West Nepal		Therefore, it is not possible to review usage of the tool. However, it has been demonstrated in the DJB dissemination workshop held on 13th March, 2019. It was also demonstrated to colleagues at USAID, and PAANI.	
2.4. Workshop(s) focused on E-flow tool, their application in Nepalese context, and appropriate institutional set-up to implement E-flow allocations in Nepal	2.4.1 Workshop carried out successfully 2.4.2 Institution set-up established	Workshop report	Workshop was held on 22nd August, 2017.The report was prepared, and shared with all the stakeholders/ participants.	Achieved/ Completed
2.5. Recommendations for incorporating environmental water allocations into national water resources planning and on institutional arrangements for implementation	2.5.1 Report with relevant recommendations	Report produced	The report with policy recommendations are prepared. A synthesis will be included in the Final Project Report due in June, 2019.	Achieved/ Completed
3.1. Database of development plans	3.1.1. Database developed	-	The option database was developed in Year 1.	Achieved/ Completed
3.2. Trend database (including constraints/limits to those trends) and report	3.2.1. Trend database produced	-	The trend database was developed in Year 1.	Achieved/ Completed

Narrative Summary	*Indicators*	Year 3 Targets	*Status (as of end of March, 2019)*	Deviation narrative for under/over achievement of each indicator's target
3.3. Scenario database	3.3.1. Scenario database prepared with 3-4 detailed scenarios outlined	-	The scenarios report with a set of scenarios was produced after tradeoff arena workshop held on 1st August, 2017. A manuscript titled "The role of hydropower in visions of water resources development for the rivers in Western Nepal" is accepted for publication in International Journal of Water Resources Development	Achieved/ Completed
3.4. Working paper on hydro-economic modelling framework; Hydro-economic model database	3.4.1. Working paper on framework developed 3.4.2. Hydro-economic database developed	- Complete database	The draft paper was developed in Year 1 and updated and processed for publishing as IWMI working paper. Database is developed and available in the project's internally shared drive.	Achieved/ Completed
3.5. Proceedings/Report of the workshop	3.5.1. Workshop effectively carried-out	Workshop report	Tradeoff arena workshop was held on 1st August, 2017, report was produced and shared with stakeholders. Furthermore, follow-up workshop to get feedback on hydro-economic model results was held in June 2018 (3-episodes) and the report was shared in earlier reporting period.	Achieved/ Completed
3.6. Hydrology and infrastructure scenario analysis for predicting economic impacts (including distributional) on	3.7.1 Options paper prepared	Options paper produced	The options paper draft is prepared and is under internal review before submission to the journal. A short report of the same is available as **Annex-10** of this report.	Achieved/ Completed

Narrative Summary	*Indicators*	Year 3 Targets	*Status (as of end of March, 2019)*	Deviation narrative for under/over achievement of each indicator's target
sectors and households in an options database.	3.7.2 Quality/veracity of scenarios	Scenarios are verified	The scenarios were verified/modified after the tradeoff arena workshop.	
3.7 Development of hydro-economic models (HEMs) to explore resource development options.	3.8.1 Models developed 3.8.2 Relevance and quality of models	Model is developed Model quality is verified	The model development as well as report preparation is completed. The results were shared to the stakeholders during the final dissemination workshop held on 13th March 2019 in Kathmandu.	Achieved/ Completed
4.1. Comprehensive report on the facilitating as well as constraining factors on access/use of different water resources within the community	4.1.1. Report on the biophysical, social and cultural challenges to water access within the study sites	-	Final report is produced.	Achieved/ Completed
4.2. A report on political economy analysis at local level	4.2.1. Report produced	-	The report was prepared in March 2018 and included as Annex of Year-end report submitted in April 2018. More synthesized version of local political economy analysis is included in Output 1.5.	Achieved/ Completed
4.3. A status report on right systems within a wider context of agrarian structure	4.3.1. Report assessing the different rights systems in relation to decision making system/processes in WR management	-	The report is completed and included as an Annex of the report submitted in earlier reporting period.	Achieved/ Completed

Narrative Summary	*Indicators*	Year 3 Targets	*Status (as of end of March, 2019)*	Deviation narrative for under/over achievement of each indicator's target
4.4. A report with mapping of existing institutional (formal/informal) arrangements and their power relationship at different scales	4.4.1. Comprehensive assessment of (water) governance structure and processes at local government level	-	It is included as a part of Output 4.3.	Achieved/ Completed
4.5. Situation analysis / baseline report of three case study villages	4.5.1. Report of baseline in three target villages produced	-	Pilot sites were selected in Year 1 and baseline analysis report produced in Year 2.	Achieved/ Completed
4.6. Feasibility analyses of local level pilots: new efficient pumping technologies; farmer cooperatives who jointly invest in irrigation equipment; drip and sprinkler systems to reduce water use per season	4.6.1. Effectiveness of pilots	Effectiveness of interventions evaluated	A set of interventions as designed and implemented in Year 2; monitoring continued in year-3, and evaluation report is completed in March, 2019 (please refer **Annex-11** of this report)	Achieved/ Completed
5.1. An analytical framework to analyze and integrate gender across scales in the water sector	5.1.1. Analytical framework produced	-	GESI plan and analysis framework developed in Year 1.	Achieved/ Completed
5.2. Other WP consider inequalities by gender, caste, ethnicity and	5.2.1. Number of project outputs	All project outputs have	GESI analyses are incorporated in other WP outputs.	Achieved/ Completed

Narrative Summary	*Indicators*	Year 3 Targets	*Status (as of end of March, 2019)*	Deviation narrative for under/over achievement of each indicator's target
class in roles, responsibilities, impacts and trade-offs for women and men in water access and water resource planning and development processes	with clear gender analysis	clear analysis of gender		
5.3. Increased participation of women in the multi-stakeholder participatory process for exploring WR development pathways and trade-offs	5.5.1. Percentage of female participants in activities/event	25%	Female participation in the DJB events organized in Year 3 (Hydro-economic modeling workshops; masculinity workshop; town hall meeting on "gender and irrigation", dissemination workshops and formation of 5 farmers' groups) is 50.9% on an average, including participation at DJB final dissemination workshop held on 13th March, 2019..	Overachieved: We were able to convince more women-farmers to be a part of collectives, which resulted women participation in five farmers group to 63.5% (40/63 persons). Furthermore, the town-hall meeting which was not envisioned to that size also showed up participation of 73.6% of women participation due to effective collaboration with PAANI & NEFEJ.

Narrative Summary	*Indicators*	Year 3 Targets	*Status (as of end of March, 2019)*	Deviation narrative for under/over achievement of each indicator's target
5.4. Radio programmes with a specific session on gender	5.4.1. Radio program report	Report produced	This activity was conducted in the form of Town Hall meeting in Kailali in April 2018 in collaboration with PAANI & NEFEJ. The activity report has been produced.	Achieved/ Completed
5.5. Dialogues on masculinities in the water sector organized in Kathmandu	5.6.1. Documentation of dialogues	Report/Blog produced	The workshop titled "Unpacking Masculinity" was conducted in the first half of May, 2018. A blog based on that was produced (https://wle.cgiar.org/thrive/2018/06/26/why-we-need-discuss-masculinity-water-sector).	Achieved/ Completed
5.6. Gender-specific recommendations for sustainable water resource development planning in Nepal under current and future conditions.	5.3.1. Set of policy recommendations	Report with gender-specific recommendations produced	A report titled "Gendered characteristics of water governance decision-making structures and processes" was prepared in January 2018. A draft of the policy-brief is also prepared.	Overachievement: Provided gender related recommendations to the National Water Resources Policy drafted by WECS, which is one of the major impacts
5.7. Mainstreaming gender in the integrated policy and practice guidelines (WP6)	5.8.1. Evidence of mainstreaming	-	It is to be done in collaboration with PAANI. Our outputs are expected to be used by PAANI in developing policy documents. We are providing inputs as and when required.	Completed
5.8. Research report and peer-reviewed paper	5.9.1. Report on a selected topic on gender	Report(s)/Paper (s) produced	Following manuscripts are developed. • Shrestha G., Clement F. (2019). Unravelling gendered practices in Nepal water Bureaucracies. Water Policy, Under Review. • Shrestha G., Pakhtigian E.L., Jeuland M. (2019). Women who do not migrate: Social interactions and participation in Western	Achieved/ Completed

Narrative Summary	*Indicators*	Year 3 Targets	*Status (as of end of March, 2019)*	Deviation narrative for under/over achievement of each indicator's target
			Nepal. Journal of Rural Studies, Under Review. • Shrestha G. et al. (2019). Gender, Social Capital and Collective commons. Under Development .(**Annex-12**)	
6.1 Publically available website hosted by a government department and database consisting of datasets and maps, e-flow calculator, analysis reports, and other outputs from each of the work packages	6.1.1 Website is online and being used regularly	Visitors to website increased by 60%	Project website (http://djb.iwmi.org/) was developed in Year 1 and is regularly updated.	This target was modified and downsized due to the budget cut in year 1. We therefore decided to only focus on developing a project website, where the outputs of the project would be posted. Plans for developing a larger database and linking it to an official website was canceled during the first year. The project database is online and most of the reports and papers have been uploaded. The project data will be uploaded once the project team has had

Narrative Summary	*Indicators*	Year 3 Targets	*Status (as of end of March, 2019)*	Deviation narrative for under/over achievement of each indicator's target
				a chance publish their papers.
6.2 Presentation of scientific information in popular forms for targeted dissemination: community-based materials, videos, training materials, sourcebooks.	6.2.1 Number of different forms of popular presentation of scientific information	3 (for Year 3 only) and 10 in total (year 1 to 3)	Published three (5) blogs/newspaper articles and delivered 10 presentations at 30 national/ international conferences/workshops in Year 3 only. In total at least 15 blogs/newspaper articles have been published, DJB activities are covered through 11 news pieces.	Overachievement: Due to international events organized in Nepal itself (e.g. 8the regional conference on irrigation and drainage), more researchers engaged with DJB project could present their research to a wide range of audience. It was also due to availability of communication personnel pooled from other resources and support from IWMI's communications team from HQ.

3. IMPLEMENTATION STATUS/PROGRESS

The project activities for Year 3 (April 2018 – March 2019) were outlined in the Year 3 work plan submitted to USAID in April 2018. The following sub-sections summarize implementation status of the outputs specified in the Year 3 work plan.

3.1 Work Package 1: Basin Characterization

This work package (WP) aims to characterize bio-physical, socio-economic, hydro-climatic, and policy-institutional characteristics of the Karnali-Mohana and Mahakali river basins. As per the Year 3 work plan, four outputs were envisioned under this WP. The implementation progress of each output is summarized in Table 3 below.

Table 3: Progress against target outputs for WP1

Output	**1.1**	**Two manuscripts for peer-reviewed journals**
Indicator	1.1.1	Manuscript submitted to journal(s)
Progress		Four manuscripts are developed for peer-reviewed journals and their status are provided hereunder; • Pandey V.P., Dhaubanjar S., Bharati L., Thapa B.R. (2019). Hydrological response to Chamelia watershed under climate change in Mahakali Basin, Western Nepal. Science of the Total Environment, 650 (1): 365-383. (https://www.sciencedirect.com/science/article/pii/S0048969718334892). • Dhaubanjar S., Pandey V.P., Bharati L. (2019). Climate futures for Western Nepal based on Regional Climate Models in the CORDEX-SA". Climatic Change. (Status: 1st Round of Review is Received; Revision on Progress). • Pandey V.P., Dhaubanjar S., Bharati L., Thapa B.R. (2019). Modeling hydrology in large basins using multi-site calibration approach: A case of Karnali-Mohana Basin, Western Nepal. Journal of Hydro-Environmental Research, Under Review. [**Annex-1**] • Pandey V.P., Dhaubanjar S., Bharati L., Thapa B.R. (2019). Climate change and spatio-temporal distribution of water availability in Karnali-Mohana Basin, Western Nepal. Stochastic Environmental Research and Risk Assessment, Under Review. [**Annex-2**]

		• Dhaubanjar S. et al. (2019). Unpacking climate change. (Status: Under development).
Implement-ation challenges		• N/A
Stakeholder involvement in delivery		• We are considering for a training session on hydrological modeling and climate change analysis for government staff and other interested stakeholders. Currently, looking for possibilities for pooling required resources.
Output	**1.2**	**A manuscript related to climate-shocks and adaptation from basin-wide survey for peer-reviewed journal**
Indicator	1.2.1	Manuscript submitted to journal
Progress		• The manuscript is ready and undergoing final round of internal reviews before submission. Please refer **Annex-3** for the manuscript.
Implement-ation challenges		• N/A
Stakeholder involvement in delivery		• More than 3,600 household surveys were conducted as part of basin-wide survey. The manuscript is prepared based on the response from the respondents as well as backed by analysis of biophysical data (e.g., trends in rainfall, temperature, etc.).
Output	**1.3**	**Updated database (biophysical/socio-economic/ climatic, water infrastructures, etc.) to feed into online system**
Indicator	1.3.1	Database updated and functional
Progress		• The database developed during Years 1 and 2 have been updated with simulated discharge, water balance, and climate projection data. The data are stored in project's internal share-drive.
Implement-ation challenges		• Due to budget cuts, we could not prepare an online project database. The project data is being continually uploaded into the IWMI water data portal (http://waterdata.iwmi.org/). Currently, only project members have access. At the end of the project, the database will be accessible to wider audience through IWMI water data portal.
Stakeholder involvement in delivery		• Department of Hydrology and Meteorology (DHM, Government of Nepal) – for hydro-meteorological data

		• Indian Meteorological Department (IMD) – for meteorological data of Indian side of the Mahakali Basin • Local communities at three pilot sites (Kuti, Mellek and Punebata) – for socio-economic data • Key Informants, participants of focal group discussion (FGD) and respondents of household survey questionnaire – for socio-economic characteristics of the basin obtained from basin-wide survey • Department of Electricity Development (DoED) – their web-based database for location and details of hydropower projects • Department of Water Resources and Irrigation (DWRI) – their website as well as officers (e.g., Dr. Rajan Bhattarai, Mr. Bashu Dev Lohanee, etc.) for details of irrigation projects • CORDEX South Asia – for future climate data
Output	**1.4**	**Two manuscripts related to power mapping analysis and hydropower discourse for peer-reviewed Journal(s)**
Indicator	1.4.1	Manuscripts submitted to journal(s)
Progress		Following two manuscripts are developed under this output; • Diana S., Karki E. (2019). Spatial Politics and Local Alliances Shaping Nepal Hydropower. World Development Journal, Under Review. • Diana S., Karki E., Bastakoti R. (2019). Putting Power and Politics Central in Nepal Water Governance. Water Alternatives Journal, Under Review [**Annex-4**]
Implement-ation challenges		• N/A
Stakeholder involvement in delivery		• We conducted key informant interviews with government staff, leaders from political parties, academics, NGOs, international donors, thus capturing their view and insights on water governance in Nepal in general and with regard to hydropower development in particular.
Cross-Cutting Issues		
Linkages		• Data from localized dynamics in hydropower development are linked with earlier data collected during the basin-wide survey, which Emma Karki had presented at ESP conference in India in October, 2019.

Challenges and Lessons	• N/A
Gender	• Effort was put into interviewing both male and female stakeholders
Sustainability	• Publications in international journals and blogs will ensure that the research results are accessible to the global public. • All the data generated from the project will be saved and maintained in IWMI's open access database. • Engagement with key decision-makers in the water sector through personal interactions and workshops/conferences will ensure capacity building and influence. • Key findings are incorporated into national level policy documents and guidelines, e.g. Irrigation Master Plan for Nepal.
Environmental Compliance	• N/A
Policy and Governance Support	• Water Resources Policy (WECS), National Irrigation Master Plan (DOI)
Local Capacity Development	• The DJB team is considering to conduct training programs for government officials and other stakeholders on using climate futures and hydrological models. It would be carried out once we are able to generate additional resources.
Science, Technology and Innovation issues and impacts	• Spatially distributed hydrological models of the Karnali-Mohana and Mahakali basins have been developed for the first time in Nepal. Climate futures for Western Nepal are developed. Four journal articles are developed based on the modeling studies.

3.2 Work Package 2: Environmental Flow Assessment and Tool Development

This WP aims to develop a desktop tool for Environmental Flows (E-flows) assessment. As per the Year 3 work plan, seven outputs were envisioned under this WP. The implementation progress of each output is summarized in Table 4 below.

Table 4: Progress against target outputs for WP2

Output	**2.1**	**A report with an inventory of biological indicators and river health of Karnali River**
Indicator	2.1.1	Report/Supportive database produced
Progress		• A report on river health of Karnali, Mahakali and Mohana basins is prepared. It was submitted as **Annex-5** of the Progress Report submitted in October, 2018. The report consists of determination of river quality class of study sites for each season. Seasonal variation in macro-invertebrate composition is also presented in the report. • Based on the results, a paper was presented at the 8th Asian Regional Conference on ICID held during 2-4 May 2018 in Kathmandu, Nepal.
Implement-ation challenges/ Risks/Oppor tunities		• Since the biotic index and protocols are designed to assess the impact of organic pollution on aquatic biodiversity, particularly, benthic macroinvertebrates, river quality classes did not change much across the seasons in study sites although significant amount of water abstraction occurred at some sites. Opportunities could be modification of the protocol for appropriately assessing the impact of altered hydrological regimes on river health.
Stakeholder involvement in delivery		• A workshop on E-Flows was conducted and stakeholder feedback was incorporated into the study methodology
Output	**2.2**	**A manuscript for peer-reviewed journal**
Indicator	2.2.1	Manuscript submitted to a journal
Progress		Following paper has been already accepted for publication in Ecological Indicator Journal • Tachamo Shah R.D., Sharma S. (2019). Water diversion induced changes in aquatic biodiversity in monsoon-dominated rivers of Western Himalaya, Nepal. Ecological Indicators [**Annex-5**] • Selected results were also presented in the 4th International Water Conference held during 27-31 January 2019 in Kaukata, Bangladesh.
Implement-ation challenges/ Risks/Oppor tunities		• Since the biotic index and protocols are designed to assess the impact of organic pollution on aquatic biodiversity, particularly, benthic macroinvertebrates, river quality classes did not change much across the seasons in study sites although significant amount of water abstraction occurred at some sites. Opportunities could be modification of the protocol for appropriately assessing the impact of altered hydrological regimes on river health.

Stakeholder involvement in delivery		• A workshop on E-Flows was conducted in the last year and stakeholder feedback was incorporated into the study methodology
Output	**2.3**	**A report on invertebrate biodiversity in relation to various flow regimes in western Nepal**
Indicator	2.3.1	Report / supportive database (a list of indicator taxa that are sensitive to altered hydrological regimes) produced
Progress		• A report on invertebrate biodiversity in relation to various flow regimes in Western Nepal is and supportive database is completed. It is included in **Annex-5**.
Implement-ation challenges		• N/A
Stakeholder involvement in delivery		• A workshop on E-Flows was conducted in the last year and stakeholder feedback was incorporated into the study methodology
Output	**2.4**	**Application and improve biotic index to assess the ecological status of flow altered streams and rivers**
Indicator	2.4.1	Inventory with relevant recommendations
	2.4.2	Biotic index tool functional and evidence of use
Progress		• Identification of macroinvertebrates and analysis has been completed • Existing RSA protocol for assessing the ecological status of rivers affected by hydro-morphological disturbances has been revised. [**Annex-6**]
Implement-ation challenges		• Lack of testing of revised method would challenge its effective implementation in river assessment. • Suitability of index depends on inclusion of biota from a region. Since the data were collected only from western region, its application in other river systems or eastern/central Nepal could be less appropriate. Collection of data at wider geographical scales and increase number of data set could overcome its limitation.
Stakeholder involvement in delivery		• A workshop on E-Flows was conducted in the last year and stakeholder feedback was incorporated into the study methodology
Output	**2.5**	**Research publication in relation to E-flows for the rivers of Western Nepal**

Indicator	2.5.1	Research publication produced
Progress		• Research Publication – status and associated document as **Annex-7**. • Western Nepal E-flows calculator has been developed as a Desktop Tool to assess Environmental Flows in Western Nepal. A technical manual to use the tools is provided in **Annex-8**. The tool will be available in public domain through IWMI water data portal (http://www.iwmi.cgiar.org/2018/06/water-data-portal/) in near future.
Implement-ation challenges		• N/A
Stakeholder involvement in delivery		• A workshop on E-Flows was conducted in the last year and stakeholder feedback was incorporated into the study methodology
Output	**2.6**	**A Final Draft Report: River ecology and relevance to e-flow in Karnali River Basin**
Indicator	2.6.1	Draft report submitted
Progress		• This is completed and also includes outputs 2.1 & 2.3 [**Annex-7**]
Implement-ation challenges		• Not relevant at this stage
Stakeholder involvement in delivery		• N/A
Output	**2.7**	**Report and/or paper on social requirements of E-Flow based on focal group discussions and surveys**
Indicator	2.7.1	Report or paper submitted
Progress		• A manuscript titled "Whose river is it: An assessment of livelihood and cultural water flow requirements for the Karnali" is under review with Ecology and Society Journal. [**Annex-9**] • A blog titled "Balancing people and energy in the Karnali Basin" was published on 20th August 2018 in The Thirdpole (https://www.thethirdpole.net/en/2018/08/20/balancing-people-and-power-in-the-karnali-basin/).
Implement-ation challenges		• We were only able to collect depth data, nothing on flow, which might have been an asset to strengthen our analysis.

		• The data collection points did not include the upper Himalayan Region and the main stem of the Karnali, which would have made the analysis more thorough for the Karnali Basin.
Stakeholder involvement in delivery		• A workshop on E-Flows was conducted in the last year and stakeholder feedback was incorporated into the study methodology
Cross-Cutting Issues		
Linkages		• The information generated can be of use for water utility associated to livelihood, basin characterization WP1. • E-flows information has also been used in the development of the hydro-economic model that assesses synergies and tradeoffs in water use and development
Challenges and Lessons		• Post analysis field trip for the test of improved method would help to revise the methods suited to the river systems addressing altered flow regimes.
Gender		• The social survey has included both male and female interviewees
Sustainability		• Stakeholders have been trained and knowledge disseminated regarding this method.
Environmental Compliance		• No issues
Policy and Governance Support		• Would be of use to set environmental flow requirements for preservation and conservation of aquatic biodiversity
Local Capacity Development		• N/A
Science, Technology and Innovation issues and impacts		• Biotic index advancement • First ever development of environmental flow assessment in the Karnali Basin

3.3 Work Package 3: Basin Scale Development Scenarios

This WP aims identifying and evaluating trade-offs of future water development pathways by developing and applying hydro-economic model for Karnali-Mohana and Mahakali river basins. The Year 3 work plan has envisioned four outputs under this WP. The implementation progress of each output is summarized in Table 5 below.

Table 5: Progress against target outputs for WP3

Output	**3.1**	**Hydro-economic modeling (HEM) report with initial findings from collected data regarding water resource use trade-offs**
Indicator	3.1.1	• Report/supportive database produced
Progress	3.1.1	• After meeting with stakeholders in June of 2018, WP3 has worked to incorporate their feedback into many aspects of the HEM work--the model itself (data and assumptions), the scenarios modeled, and the results presentation. • In particular, during these stakeholder meetings there was much discussion regarding the use of e-flows and the assumptions that went into the sensitivity analyses of e-flows in the HEM. Accordingly, we have increased our reporting of sensitivity analysis using e-flows and improved on the e-flow inputs themselves. Specifically, instead of using a 10% e-flow rule of thumb, as is currently the norm for policy, we have incorporated e-flows calculated from E-flows calculator developed in this study (Output-2.5 above). • The final report of HEM work (**Annex-10**) is completed with inputs from other members in DJB team. The results have been used to develop journal article (**Output 3.3**) • The results are shared in the dissemination workshop held on 13th March, 2019 in Kathmandu.
Implement-ation challenges		• While the stakeholders brought up several insightful limitations to the HEM work regarding the data inputs and assumptions, some of these limitations are outside the scope of this modeling exercise. For example, stakeholders were interested in the inclusion of groundwater in the HEM, yet the groundwater data we found from the Groundwater Development Board were incomplete and outdated. Thus, given current groundwater availability, we have limited the HEM analysis to surface water trade-offs. Similarly, there was discussion at the meetings regarding the monthly time step and the implications of this for interpreting the results. It is not feasible to re-develop the model to use a shorter time step, but, given this feedback, the report has been careful to clearly discuss the assumptions and implications of modeling features in presentations of the HEM and results.
Stakeholder involvement in delivery		• The initial HEM results (in presentation form) were shared with three groups of stakeholders. These stakeholders represented different institutional levels (national and local government or interests) and a variety of sectors (hydropower, irrigation, environment, municipal). Stakeholders participated in a half day, interactive meeting during which they heard presentations on the HEM (by a WP3 member who was in Nepal at the time) and preliminary results, had the opportunity to ask questions on the work, and

		provided individual and group feedback through written surveys and small group discussions facilitated by DJB team members. • Following the stakeholder meetings, a report summarizing these events was shared with all participants. In addition, many of these participants have been invited to the 13th March dissemination workshop, where they have seen the updated model and results. Participants of this workshop will receive a modeling report, which summarizes key findings (see **output 3.4**).
Output	**3.2**	**Stakeholder meetings and/or workshop to discuss modelling results**
Indicator	3.2.1	Workshop proceedings/report
Progress	3.2.1	• The meetings were held on June 7, 8, and 11, 2018. The first two meetings were held in Kathmandu, Nepal, and stakeholders representing national interests were in attendance. The third meeting was held in Dhangadhi, Nepal, and stakeholders representing local interests were in attendance. The workshop report was inserted as an Annex in the earlier reporting period. • Based on the visioning exercises and stakeholder consultation a vision paper for Western Nepal was developed. The paper titled "***The role of hydropower in visions of water resources development for rivers of Western Nepal***" has been accepted for publication in ***International Journal of Water Resources Development***.
Implement-ation challenges		• The stakeholder workshops were held slightly earlier than WP3 intended due to availability of the DJB staff as well as concerns about the monsoon and travel. This challenge did not impede progress towards the output; preliminary results presentations were shared with stakeholders as planned and the intended feedback from stakeholders was elicited from the meetings.
Stakeholder involvement in delivery		• Forty stakeholders (26 representing national interests and 14 representing local interests) participated in the stakeholder meetings held in Kathmandu and Dhangadhi in June 2018. • Many of these stakeholders had also attended the trade-off arena workshop held in Kathmandu in August 2017, so these stakeholders had the opportunity to see the progress that had been made in the HEM work. • Stakeholders provided valuable feedback to HEM team, particularly with regard to the development scenarios and data used in the HEM as well as how results should be disseminated.
Output	**3.3**	**HEM results and trade-off analysis paper that includes updated analysis based on stakeholder input**
Indicator	3.3.1	Report/relevant database produced

Progress	3.3.1	• A report with the HEM results and trade-off analysis is completed and incorporated in Output-3.1 (**Annex-10**). The report has been shaped by stakeholder input as the HEM analysis has evolved to incorporate stakeholder feedback and priorities.
Implement-ation challenges		• The submission of this HEM paper has been delayed due to complications in the HEM analysis. Specifically, based on stakeholder feedback, WP3 has increased the focus of e-flows in the sensitivity analyses. Accordingly, there were some delays to the modeling process due to the need to work with WP2 to get the calculated e-flows data and format these outputs for use in the HEM. Upon the updates to the e-flows, WP3 also discovered that we had been using outdated hydrological flows data from the SWAT model. There were additional delays in the modeling process due to the need to get the updated SWAT hydrology data from WP1 and re-run all HEM analyses. As the flow input is critical to the functioning of the HEM, these changes led to additional complications in the model, which caused additional delays in the HEM analysis.
Stakeholder involvement in delivery		• Stakeholder input from meetings held in June 2018 (see outputs 3.1 and 3.2) have been incorporated in HEM process.
Output	**3.4**	**User-friendly modelling results and trade-off analysis report**
Indicator	3.4.1	Final report/relevant data on HEM modeling & tradeoff analysis
Indicator	3.4.2	Model developed
Progress	3.4.1 & 3.4.2	• The HEM model (written in GAMS) is functioning with all modules (energy, agriculture, municipal, and environmental) activated. • The results are included in Output-3.1 (**Annex-10**).
Implement-ation challenges		• As the report relies on the HEM output, the same challenges from output 3.3 apply to this report as well. • WP3 has had to make some unanticipated adjustments to the HEM to account for the updated flows data, which has delayed the finalization of the results.
Stakeholder involvement in delivery		• This report is being developed with the stakeholders in mind. All stakeholders will have access to the report and its findings. Stakeholder input from meetings held in June 2018 have been incorporated in the HEM process, so stakeholders have been involved in informing how this report should be drafted and presented to make it as user-friendly as possible. • Stakeholders provided feedback regarding the HEM process at meetings held in June 2018 (see output 3.2).
Cross-Cutting Issues		

Linkages	• WP3 has worked with members of WP1 on a paper outlining development visions for the Karnali and Mahakali River Basins entitled "The Role of Hydropower in Visions of Water Resources Development for the Rivers of Western Nepal". This paper was submitted to a special issue of the International Journal of Water Resources Development on hydropower-based collaboration in South Asia in mid-October. In January, we received reviewer comments from this submission, requesting a revise and resubmit. We have made the requested revisions and resubmitted the article. WP3 has also worked with members of WP5 on a paper examining the relationships between migration (primarily male) and gender roles and empowerment in the Karnali and Mahakali River Basins. This paper incorporates quantitative data from the basin-wide survey implemented by DJB in June-July 2017 and qualitative data from focus group discussions and key informant interviews. An initial draft of this paper is complete. WP3 has worked with WP2 to incorporate e-flows calculated as part of the DJB project into the HEM for trade-off analysis. WP3 has also provided input to a paper on e-flows that account for livelihoods aspects of ecosystem services. Finally, WP3 continues to be the reference point for use of basin-wide survey data by other work packages. WP3 has provided quantitative support through both data cleaning and analysis.
Challenges and Lessons	• In addition to work on the HEM, WP3 has extended its scope to be heavily involved in the basin-wide survey. WP3 members played a role in writing the survey, training the enumerators, cleaning the data, and analyzing the data (for both WP3 objectives and other DJB work packages). Accordingly, WP3 has published a paper in *Ecological Economics* analyzing the contingent valuation data collected in the basin-wide survey entitled "Valuing environmental costs of local development: Evidence from Western Nepal". Additionally, WP3 has worked with other work packages on journal articles that use basin-wide survey data (visions paper with WP1, gender/migration paper with WP5, and provided some input into a paper currently in the analysis stage from WP4). These activities have been fruitful, but they have also required WP3 time. Additionally, given structural changes in DJB funding earlier in the project, WP3 has not been able to pursue some of the model dissemination activities planned at the project's inception.
Gender	• WP3 is working with WP5 on a paper that uses qualitative and quantitative methods to examine relationships between gender and migration in the study area. Additionally, throughout WP3's activities during this reporting period, efforts were made to involve women and men. While there were more men at stakeholder meetings, at least a third of all meeting invitees were female.

Sustainability	• The HEM work takes seriously issues of sustainability in water resources management. One of the development scenarios included in the HEM work is environmental non-obstructionism, which takes as a starting point environmental conservation. Additionally, the other development scenarios consider environmental costs as part of the objective function. Within the HEM, WP3 has increased a focus on environmental conservation by including additional sensitivity analyses using e-flows calculated as part of WP2. These e-flows are more sophisticated than the "rule of thumb" 10% e-flow required by the government and they use data from the river basin itself to characterize e-flow requirements along the various river stretches of the basins. Finally, as a planning tool, the HEM endeavors to provide policy makers with information regarding sustainable resource management as well as sustainable infrastructure development.
Environmental Compliance	• Environmental considerations are included in all HEM development scenarios, informed by the work especially of WP2. Trade-offs between environmental conservation and infrastructure development, where appropriate, are analyzed as part of the HEM work to provide policy makers with insights regarding environmental concerns.
Policy and Governance Support	• The HEM is intended to be used as a policy tool. The HEM results provide policy makers with information regarding the efficient use of water resources within the study area; however, they are intended as an informative tool, and not a prescription of infrastructure operations. By incorporating stakeholders throughout the HEM process, WP3 (and the rest of DJB) has worked hard to communicate how the HEM results can be responsibly used by policy makers for planning purposes. As part of WP3 outputs, a report outlining the HEM results has been written along with a journal article. The report highlights the key findings for policymakers and points those interested in the technical details towards the journal article.
Local Capacity Development	• Local stakeholders have been involved in stakeholder meetings (see output 3.3) to provide insight into local water demands. These demands have been incorporated into the HEM as appropriate so that local concerns will be included in this planning tool.
Science, Technology and Innovation issues and impacts	• The HEM used in this project has not been used in previous applications. It provides an innovative way of capturing multi-sector water resource demands.

3.4 Work Package 4: Watershed / Village Water Governance and Management

The WP4 in Year 3 aimed at implementing and evaluating effectiveness of a set of techno-social interventions by monitoring various aspects of the interventions. The Year 3 work plan has envisioned four outputs under this WP. The implementation progress of each output is summarized in Table 6 below.

Table 6: Progress against target outputs for WP4

Output	**4.1**	**Evaluation report with a clear model of improved land/water governance for upscaling and its dissemination**
Indicator	4.1.1	Evaluation report produced
Progress		• Physical interventions such as installation of rain gauge/evaporation pan, rehabilitation of pond, and application of micro irrigation technologies were carried out at all the three sites. • An evaluation report detailing every aspect (e.g., design, implementation, monitoring, and evaluation) of interventions is completed and provided as **Annex-11** of this report. • The intervention results are disseminated to local community through a local level dissemination workshop organized in Dhangadhi. • All interventions equipment are handed over to the community and local government by organizing a program during the local dissemination workshop
Implement-ation challenges		• The evaluation period was only a year. Multi-year evaluation may help improve the confidence in the results.
Stakeholder involvement in delivery		• Technician from agricultural service center nearby the intervention villages and agriculturist from agro-vet were involved for planning of cropping system and identifying suitable cropping pattern based on farmers' interest and climate. • In addition, farmers were trained on remedial measures for possible diseases and insect attack for crops.
Output	**4.2**	**Scientific papers [1 blog, 2 journal papers, 1 conference paper]**
Indicator	4.2.1	Scientific papers produced

Progress		• One (1) scientific paper is ready for submission: Bastakoti R., Karki E., Thapa B.R., Pandey V.P. (2019). Dealing with variations in access to water: An assessment of challenges and coping strategies in Far-Western Nepal.
		• Following 2 scientific papers are under development
		  ○ Karki E., Sharma A., Thapa B.R., Bastakoti R. Linkages between migration, remittances and rural economies in Far Western Nepal. Under Development.
		  ○ Thapa B.R., Karki E., Bastakoti R., Pandey V.P., Sharma A., Bharati L., Implication of changing agricultural practices on agriculture system in changed governance context of Nepal, Under Development
		• 1 paper titled "Ecosystem services and hydropower development: Diverse voices forming local opinions" is presented in EPA Asia Conference, held on 10th October, 2018, in India.
		• 1 blog published: Karki E., Suhardiman D., Drown P., Swingle C. (2018). The importance of local voices in Nepal's hydropower projects. The Thirdpole, Wednesday, 8TH August, 2018. Available online at: https://www.thethirdpole.net/en/2018/08/08/the-importance-of-local-voices-in-nepals-hypropower-projects/

Implement-ation challenges		• N/A
Stakeholder involvement in delivery		• The interventions were discussed and finalized together with farmers
Output	**4.3**	**Case studies/photo stories on best practices**
Indicator	4.3.1	Case studies/photo stories published
Progress		• One (1) case study was prepared and presented at the gender summit organized by USAID on 2nd October, 2018. • One (1) photo story on intervention process showcased at DJB dissemination workshop held on 13th March, 2019.
Implement-ation challenges		• N/A

Stakeholder involvement in delivery		• Progressive farmers
Output	**4.4**	**Updated feasibility analysis report of identified interventions for improving water productivity**
Indicator	4.4.1	Report produced
Progress		• Feasibility analysis report already completed in earlier reporting period. It is also provided in a section under **Output 4.1**.
Implement-ation challenges		• Due to very small intervention activities at field level, motivation to participate in such activities is always in risk.
Stakeholder involvement in delivery		• Local government representatives, farmers
Cross-Cutting Issues		
Linkages		• WP5 provided inputs to assess potential interventions from a gender and social inclusion (GESI) perspective.
Challenges and Lessons		• No major challenges but farmers are motivated to grow vegetable with access to water.
Gender		• Both men and women are participating in intervention activities (renovating the ponds, training, installation of shallow tube wells, preparation of plots, planning, and execution process)
Sustainability		• All the equipment installed during intervention, such as rain gauges, evaporation pan, and temperature logger were handed to local government authorities and community by organizing a program as a part of local level dissemination workshop held in Dhangadhi.
Environmental Compliance		• No Issues.
Policy and Governance Support		• N/A
Local Capacity Development		• Local field assistant and local farmers were trained on vegetable farming.

Science, Technology and Innovation issues and impacts	• N/A

3.5 Work Package 5: Gender

The WP5 in Year 3 aims to develop scientific papers as well as enhance awareness and capacity of key stakeholders in the water sector to consider and address unequal capabilities to benefit from and influence to water resources planning and management across gender, caste, class, and ethnicity at local and basin levels. The Year 3 work plan envisioned five outputs under this WP. The implementation progress of each output is summarized in Table 7 below.

Table 7: Progress against target outputs for WP5

Output	**5.1**	**Specific sessions on gender in workshop dialogues and radio programs in WP4**
Indicator	5.1.1	Radio program report
Progress		• Town hall meeting on 'gender and irrigation' in collaboration with PAANI was organized on 27th April 2018 in Bhajani Municipality in Kailali. • Discussions revolved around how the access to irrigation water is unequal for men and women farmers, why women are less involved in irrigation user committees despite national reservation of 33% in the user committees, and the way forward ensuring equal access to irrigation water for both men and women farmers. • The program was broadcasted in Radio Sagarmatha. A report on the dialogue was submitted as Annex in the earlier Reporting Period.
Implement-ation challenges		• OPPORTUNITY: This town hall meeting provided an opportunity for the local government representatives, and members from non-governmental organizations, civil society and media. Both men and women farmers were engage in discussion about the complex gender issues underpinning the access to irrigation water. • CHALLENGE: Difficult to ensure equal participation of male and female participants. Men were reluctant to participate in workshops related to Gender.

Stakeholder involvement in delivery		• 51 female, and 10 male from different sectors (government, non-governmental organizations, civil society organizations, media, and farmers) engaged in dialogue.
Output	**5.2**	**A dialogue on masculinity**
Indicator	5.2.1	Documentation on dialogue
Progress		• One-day workshop on "Unpacking Masculinity" was organized on 11TH May, 2018 in Kathmandu. The goal of the workshop was to initiate critical reflection among water stakeholders on gender issues within organizations. • Water engineers, gender experts, and water sector development actors from government and non-government sectors in Nepal were invited to join the event. • A report/blog outlining the proceedings as well as outcome of the workshop was prepared and shared as an Annex in the earlier reporting period.
Implement-ation challenges		• OPPORTUNITY: It was the first dialogue on masculinity in Nepal which through a day long interactive sessions paved way to further discussion on how a masculine organizational culture impact attitudes and practices within water sector and how this in turn impacts the goal of gender equity and social justice.
Stakeholder involvement in delivery		• 11 men and 11 women working in water sector from GO, NGO, INGO, Donor organizations, Academia participated in the workshop.
Output	**5.3**	**Increased participation (at least 30%) of women in the multi-stakeholder participatory process for exploring water resources development pathways and trade-offs**
Indicator	5.3.1	Percentage of female participants in the activities/events
Progress		• There were five events that involved multiple stakeholders. – Final dissemination workshop with the title of "Towards an Inclusive Vision for Sustainable Water Futures in Western Nepal" held on 13th March, 2019 in Kathmandu: 64 males, 42 females. – Local level dissemination workshop with the titled of "Working Collectively for Water Use Efficiency: Learning from DJB Project" was held on 26th February, 2019 in Dhangadhi, Kailali: 21 males, 13 females. – Stakeholder Workshop on Hydro-Economic Modelling of Karnali-Mahakali River Basins held on 7 June 2018 in Kathmandu: - 3 female, 7 male

		– Stakeholder Workshop on Hydro-Economic modelling of Karnali-Mahakali River Basins held on 8 June, 2018 in Kathmandu: 2 females, 15 male – Stakeholder Workshop on Hydro Economic Modelling of Karnali -Mahakali River Basins held on 11 June 2018 in Kailali: 4 females, 10 male – Masculinity workshop held on 11 may 2018 in Kathmandu: 11 females, 11 males – Town hall meeting/Radio Dialouge held on 27 Apr, 2018 in Kailali: 51 female, 10 male.
Implement-ation challenges		• CHALLENGE: Difficult to ensure equal participation of male and female participants. Men reluctant to participate in workshops related to Gender.
Stakeholder involvement in delivery		• Stakeholders from GO/NGO/INGO/CSO/Donor organizations, farmers from different gender and caste were part of these programs.
Output	**5.4**	**Inputs on mainstreaming gender in the integrated policy and practice guidelines to be developed by PAANI**
Indicator	5.4.1	Evidence of gender mainstreaming
Progress		• There is no progress to report as the gender-related inputs depend on the development of the guidelines, which have not been drafted yet.
Implement-ation challenges		• N/A
Stakeholder involvement in delivery		• N/A
Output	**5.5**	**Peer reviewed papers (2)**
Indicator	5.5.1	Report/paper on selected topics submitted
Progress		Following three manuscripts for peer-reviewed papers are developed; • Shrestha G., Clement F. (2019). Unravelling gendered practices in Nepal water Bureaucracies. Water Policy, Under Review. • Shrestha G., Pakhtigian E.L., Jeuland M. (2019). Women who do not migrate: Social interactions and participation in Western Nepal. Journal of Rural Studies, Under Review.

		• Shrestha G. et al. (2019). Gender, Social Capital and Collective commons. Under Development .(**Annex-12**)
Implement-ation challenges		• N/A
Stakeholder involvement in delivery		• Interviews and focus group discussions with 54 male and 107 female farmers of different age and from different caste across the three pilot sites • Basin wide survey of 3,660 households
Cross-Cutting Issues		
Linkages		• Provided inputs in E-Flow Checklist; • Participated in Social E-Flow Survey and conducted FGD, KII, and household surveys in three districts in the far west Nepal; • Supervised enumerators on Social E-Flow Survey and contributed to Social E-Flow journal article; • Ensured women participation in DJB workshops and Dialogues;
Changes and Lessons		• A qualitative research into why women are reluctant to join technical workshops and men reluctant to participate in gender workshops and dialogues is assumed to help improve strategies to achieve gender balance participation in planning and dialogues in water sector.
Gender		• WP5 is all about gender
Sustainability		• N/A
Environmental Compliance		• Nothing to report specifically on this as our WP consists of primary data collection that does not affect the sustainability of the studied social-ecological systems.
Policy and Governance Support		• Several outputs under Output-5.5, will contribute to support policy and governance by providing policy recommendations
Local Capacity Development		• Masculinity dialogues at central level contributed to increased awareness of gendered roles and responsibilities, and of gender as a social construct. It was the first dialogue on masculinity in Nepal which through a day long interactive sessions paved way to further

	discussion on how a masculine organizational culture impact attitudes and practices within water sector and how this in turn impacts the goal of gender equity and social justice. • Town hall meeting at the district level provided an opportunity for the local government representatives, members from non-governmental organizations, civil society members, media representatives and men and women farmers to engage in discussion about the complex gender issues underpinning the access to irrigation water
Science, Technology and Innovation issues and impacts	• N/A

3.6 Work Package 6: Integrated Policy and Practice Guidelines

This project's results/findings will be inputs to the integrated policy and practice guidelines that PAANI is expected to develop.

3.7 Work Package 7: Knowledge Management and Dissemination

This WP aims at managing knowledge products and measuring impacts. It ensures websites are updated regularly, and knowledge products are produced and disseminated properly. The impact is measured by comparing response to KCAP survey questionnaire against the similar survey carried out at the start of the project. The Year 3 work plan envisions three outputs under this WP. The implementation progress of each outputs are summarized in Table 8 below.

Table 8: Progress against target outputs for WP7

Output	**7.1**	**Status of KCAP of the key research users at the end of the project**
Indicator	7.1.1	KCAP survey report
Progress		• The KCAP survey was carried out in March, 2019, at the time of dissemination workshop • The report of final KCAP survey is completed. (**Annex-13**)
Implement-ation challenges		• N/A

Output	**7.2**	**Well updated and maintained website**
Indicator	7.2.1	Updated website
Progress		• The website (http://djb.iwmi.org/) was prepared in the Year 1 of the project and has been updated regularly since then.
Implement-ation challenges		• N/A
Output	**7.3**	**Project-related news, photo-stories, blogs, articles, etc.**
Indicator	7.3.1	The news/photo-stories/blogs/articles are submitted/published
Progress		• They are being published regularly and the process is continuing. Details of publication and disseminations are provided in the sub-sections under 3.7.
Implement-ation challenges		• Due to the somewhat lengthy review process of scientific journals, publications sometimes takes longer than expected.

3.7.1 Publications

Here is a list of publications related to DJB work in Year 3.

Peer-Reviewed Journal Articles [22]

Bastakoti R., Karki E., Thapa B.R., Pandey V.P. (2019). Dealing with variations in access to water: An assessment of challenges and coping strategies in Far-Western Nepal. Ready for Submission.

Bhandari B. Tachamo Shah R.D., Sharma S. (2018). Status, distribution and habitat specificity of benthic macro-invertebrates: a case study in five tributaries of Budhiganga river in Western Nepal. Journal of Institute of Science and Technology, 23 (1): 69-75.

Bharati L et al., Future challenges and opportunities for water resources management in the Karnali and Mahakali river basins, Nepal. Under Development

Dhaubanjar S., Bharati, L. and V. P. Pandey (2019). Unpacking climate change. Under Development.

Dhaubanjar S., Pandey V.P., Bharati L (2019). Climate Futures for Western Nepal based on Regional Climate Models in the CORDEX-SA. Climatic Change, Under 2nd Round of Review.

Karki E., Sharma A., Thapa B.R., Bastakoti R. Linkages between migration, remittances and rural economies in Far Western Nepal. Under Development.

Pakhtigian E.L., Jeuland M. (2019). Valuing the environmental costs of local development: Evidence from households in Western Nepal. Ecological Economics, 158: 158-167. (https://www.sciencedirect.com/science/article/pii/S0921800918308085?via%3Dihub)

Pakhtigian E.L., Jeuland M. (2019). Implications of water use trade-offs for development planning: Hydro-economic modeling in Western Nepal. Under Development.

Pakhtigian E.L., Jeuland M., Bharati L., Pandey V.P. (2019). The Role of Hydropower in Visions for Water Resources Development for the Rivers of Western Nepal. International Journal of Water Resources Development, Accepted.

Pandey V.P., Dhaubanjar S., Bharati L., Thapa B.R. (2019). Climate change and spatio-temporal distribution of water availability in Karnali-Mohana Basin, Western Nepal. Stochastic Environmental Research and Risk Assessment, Under Review.

Pandey V.P., Dhaubanjar S., Bharati L., Thapa B.R. (2019). Hydrologic response of Chamelia Watershed in Mahakali Basin to climate change. Science of the Total Environment, 650 (Part 1): 365-383. (https://www.sciencedirect.com/science/article/pii/S0048969718334892).

Pandey V.P., Dhaubanjar S., Bharati L., Thapa B.R. (2019). Modeling hydrology in large basins using multi-site calibration approach: A case of Karnali-Mohana Basin, Western Nepal. Journal of Hydro-Environmental Research, Under Review.

Sharma A., Karki E., Eriyagama N., Shrestha G., Jeuland M., Bharati L., Clement F. (2019). Whose river is it: An assessment of livelihood and cultural water flow requirements for the Karnali. Ecology and Society, Under Review.

Sharma S., Tachamo Shah R.D. (2019). Major stressors influencing the river ecosystems of Far- and Mid-Western Development Regions of Nepal. Draft Under Internal Review.

Shrestha G., Clement F. (2019). Unravelling gendered practices in Nepal water Bureaucracies. Water Policy, Under Review.

Shrestha G., Pakhtigian E.L., Jeuland M. (2019). Women who do not migrate: Social interactions and participation in Western Nepal. Journal of Rural Studies, Under Review.

Shrestha G. et al. (2019). Gender, Social Capital and Collective management of water resources. Journal of South Asian Development, Under Preparation.

Suhardiman D., Bastakoti R., Karki E., Bharati L. (2018). The politics of river basin planning and state transformation processes in Nepal. Geoforum, 96: 70-76. (https://www.sciencedirect.com/science/article/pii/S0016718518302239)

Suhardiman D., Karki E. (2019) Spatial Politics and Local Alliances Shaping Nepal Hydropower. Water Alternatives, Under Review.

Suhardiman D., Karki E., Bastakoti R. (2018) Putting power and politics central in Nepal's water governance. World Development, Under Review.

Tachamo Shah R.D., Sharma S., Bharati L. (2019). Water diversion induced changes in aquatic biodiversity in monsoon-dominated rivers of Western Himalaya, Nepal: Implications for Environmental flows. Ecological Indicators, Under Revision.

Tachamo Shah R.D., Sharma S. (2019). Response of benthic macroinvertebrate community to flow regimes and habitat alternation in headwater streams of Western Himalaya. Under Development.

Thapa B.R., Karki E., Bastakoti R., Pandey V.P., Sharma A., Bharati L., Implication of changing agricultural practices on agriculture system in changed governance context of Nepal, Under Development

Conference Papers/Abstracts/Posters [3]

Bharati, L., Future Water Risks and Climate Change in the Himalayas. Stockholm Water Week. August 29, 2018

Pandey V.P., Dhaubanjar S., Bharati L., Thapa B.R. (2018) Climate change and water availability in Western Nepal. In: Proceedings of National Seminar on Nature for Water. 28 Mar 2018. Nepal Academy of Science and Technology (NAST), Mahendranagar, Nepal. pp 8-19.

Shrestha G., Clement F. (2018). Gender differences in water security and capabilities in Far-West Nepal. In: Proceedings of 8th Regional Conference of International Commission on Irrigation and Drainage (8ARC), 2-4 May, 2018, Kathmandu, Nepal. pp. 83-99.

Tachamo Shah R.D., Sharma S., Mullner K., Bharati L. (2018). River health assessment for sustainable water resources management in Western Nepal. In: Proceedings of 8th Regional Conference of International Commission on Irrigation and Drainage (8ARC), 2-4 May, 2018, Kathmandu, Nepal. pp. 571-578.

Blogs/Op-Eds/Articles in Newspapers, etc. [5]

Following five (5) blogs/Op-Eds are published in popular media by researchers involved in DJB project.

Suhardiman D. (2010). Nepal and socially just hydropower. Asia Times, 21st February, 2019. Available online at: https://www.asiatimes.com/2019/02/opinion/nepal-and-socially-just-hydropower/

Rajouria A. (2018). Innovations in social protection. The Kathmandu Post, 25th October, 2018. Available online at: http://kathmandupost.ekantipur.com/news/2018-10-25/innovations-in-social-protection.html

Drown P., Shrestha G. (2018). Why we need to discuss masculinity in the water sector. Thrive, CGIAR, 26TH June, 2018. Available online at: https://wle.cgiar.org/thrive/2018/06/26/why-we-need-discuss-masculinity-water-sector

Karki E., Suhardiman D., Drown P., Swingle C. (2018). The importance of local voices in Nepal's hydropower projects. The Thirdpole, Wednesday, 8TH August, 2018. Available online at:

https://www.thethirdpole.net/en/2018/08/08/the-importance-of-local-voices-in-nepals-hypropower-projects/

Sharma A., Claire S. (2018). Balancing people and energy in the Karnali Basin. The Thirdpole, 20TH August, 2018. Available online at: https://www.thethirdpole.net/en/2018/08/20/balancing-people-and-power-in-the-karnali-basin/

3.7.2 Dissemination

A summary of dissemination of DJB activities/results through presentation as well as participation in various meetings are listed below:

SN	Event	Date (Venue)	Presentation Title	Presenters/Attendee
1	3rd River Summit	28-31 March, 2019 (Rakam, Karnali)	Managing water resources under climate change context in Western Nepal	Vishnu Prasad Pandey
2	3rd River Summit	28-31 March, 2019 (Rakam, Karnali)	Hydro-economic modeling for water resources planning in Western Nepal	Sanita Dhaubanjar
3	3rd River Summit	28-31 March, 2019 (Rakam, Karnali)	Water flows for sustaining aquatic biodiversity in rivers of Western Nepal	Ram Devi Tachamo Shah
4	NTNC Water Conference	March 19, 2019 (NTNC Hall, Khumaltar, Lalitpur, Nepal)	Balancing water development with sustainability and equity: Water availability assessment as an entry point	Vishnu Prasad Pandey
5	Seminar for Graduate Students at Eastern Regional Campus, Institute of Engineering, Tribhuvan University, Nepal	February 2, 2019 (Dharan, Province-1)	Scientific tools and method for the assessment and evaluation of climate smart agriculture (CSA)	Bhesh Raj Thapa

6	4th International Water Conference	January 27-31, 2019 (Kaukata, Bangladesh)	Impacts of human-induced hydrological and morphological changes on aquatic biodiversity in trans-boundary rivers of the Himalaya, Nepal	Ram Devi Tachamo Shah
7	Transnational water governance and IWRM (organized by Queensland University of Technology, Australia) (with 26 participants from 7 countries)	November 16, 2018 (Kathmandu, Nepal	Water-Energy-Food Nexus: Translating into practice	Vishnu Prasad Pandey (as a panelist)
8	A short course on transnational water governance and IWRM	November 14, 2018 (Kathmandu, Nepal	Agricultural water management	Bhesh Raj Thapa
9	Sustainability and Development Conference	November 11, 2018 (Ann Arbor, Michigan, USAI)	Spatial politics and local alliances shaping Nepal hydropower	Diana Suhardiman
10	Workshop on sustainable transboundary governance of the environmental commons in Southeast Asia	November 2, 2018 (NUS, Singapore)	Everyday politics in Nepal hydropower: Lessons learned and implications for transboundary environmental commons	Diana Suhardiman
11	EPA Asia Conference	October 10, 2018	Ecosystem services and hydropower development: Diverse voices forming local opinions	Emma Karki
12	USAID's GESI Summit: Promoting a culture of collaboration and learning	October 2, 2018 (Kathmandu, Nepal)	Exploring sustainable farming opportunities: A case of a marginal female farmer from Kailali	Sanita Dhaubanjar, Vishnu Prasad Pandey

13	PAANI's workshop on sustainable hydropower	September 28, 2018 (Kathmandu, Nepal)	Good practices in baseline studies, data, and information	Vishnu Prasad Pandey (as a panelist)
14	Stockholm Water Week	August 29, 2018 (Stockholm, Sweden)	Future Water Risks and Climate Change in the Himalayas.	Luna Bharati
15	Hydro-economic modeling: Stakeholders' Consultation at local level	June 11, 2018 (Dhangadi, Nepal)	Prospective water demand/use, availability, and trade-offs in Western Nepal	Bhesh Raj Thapa
16	Science, Information and Technology Youth Conference (SIT-NYC) 2018	June 15-17, 2018 (NTNC Hall, Lalitpur, Nepal)	Focusing for a decade of research & innovation in engineering and material science	Vishnu Prasad Pandey (as a panelist)
17	Hydro-economic modeling: Stakeholders' Consultation at national level	June 7 and 8, 2018 (Kathmandu, Nepal)	Prospective water demand/use, availability, and trade-offs in Western Nepal	Emily Pakhtigian, Vishnu Prasad Pandey, Emma Karki, Sanita Dhaubanjar
18	Unpacking Masculinity organized by WP5, DJB, IWMI	May 11, 2018, (Kathmandu, Nepal)	Unravelling gendered practices in Nepal water public organizations	Gitta Shrestha
19	Gender, conflicts and cooperation in the context of climate action, Joint CCMC Gender Workshop	May 3-4, 2018, (Kathmandu, Nepal)	Men, Masculinities and Hydropower in Sikkim, India	Gitta Shrestha
20	8th Asian Regional Conference (8ARC) on Irrigation and Drainage	May 2-4, 2018 (Kathmandu, Nepal)	Dealing with variations in access to water: An assessment of challenges and coping strategies in Far-Western Nepal	Ram Bastakoti
21	8th Asian Regional Conference (8ARC) on Irrigation and Drainage	May 2-4, 2018 (Kathmandu, Nepal)	Digo Jal Bikas	Luna Bharati

22	8th Asian Regional Conference (8ARC) on Irrigation and Drainage	May 2-4, 2018 (Kathmandu, Nepal)	Sustainable Irrigation	Luna Bharati
23	8ARC on Irrigation and Drainage	May 2- 4, 2018 (Kathmandu, Nepal)	Assessing spatio-temporal variation in water resources availability in Karnali-Mohana River Basin, Nepal	Vishnu Prasad Pandey
24	8ARC on Irrigation and Drainage	May 2-4, 2018 (Kathmandu, Nepal)	Projected future climate for Western Nepal	Sanita Dhaubanjar
25	8ARC on Irrigation and Drainage	May 2-4, 2018 (Kathmandu, Nepal)	Gender Differences in water security and well-being in Far West Nepal	Gitta Shrestha
26	8ARC on Irrigation and Drainage	May 2-4, 2018 (Kathmandu, Nepal)	River health assessment for sustainable water resources management in Western Nepal	Ram Devi Tachamo Shah
27	8ARC on Irrigation and Drainage	May 2-4, 2018 (Kathmandu, Nepal)	Comparative assessment of various water application methods for improving water productivity during dry season agriculture	Bhesh Raj Thapa
28	Town Hall Meeting on Gender and Irrigation organized by PAANI, NEFEJ, and IWMI	April 21, 2018 (Kailali, Nepal)	Gender Differences in water security and well-being in Far West Nepal	Gitta Shrestha
29	European Geosciences Union (EGU) General Assembly 2018	Apr 10-13, 2018 (Vienna, Austria)	Climate Futures for Western Nepal	Sanita Dhaubanjar, Luna Bharati
30	One day workshop on Sexual Harassment by IWMI Nepal	April 3, 2018 (Kathmandu, Nepal)		Gitta Shrestha (Organizer/Coordinator)

In addition to presentations, DJB activities were also covered in the following media;

- March 15, 2019: Researchers call for sustainable water resources development, 2019. https://myrepublica.nagariknetwork.com/news/researchers-call-for-sustainable-water-resources-development/
- March 10, 2019: Call to maintain environmental flow of rivers, 2019. http://kathmandupost.ekantipur.com/news/2019-03-10/call-to-maintain-enviromental-flow-of-rivers.html
- March 8, 2019: Sustainable management of water resources stressed, 2019. http://therisingnepal.org.np/news/29613
- March 8, 2019: Sustainable management of water resources stressed, 2019. https://corporatenepal.com/2019/03/108929/
- March 8, 2019: Stress on sustainable management of water resources. https://www.swadeshnepal.com/2019/03/79633/?fbclid=IwAR289yQ58HGqFBTbS_-VoAOkV9FM-geYCpMVTtVI5zD50ai4t7Io1zeYvSA#.XIJMx3uwTKE.facebook
- March 8, 2019: Stress on sustainable management of water resources. https://nepalpatra.com/news/59183/?fbclid=IwAR2juD5MUQ2n9h8FXNAhaCVRi4a1IFTK_o9y7wQKycPjkjsV2NqhbOxCw7w
- March 8, 2019: Stress on long term management of water resources, 2019. http://gorkhapatraonline.com/news/67476
- March 8, 2019: Sustainable management of water resources stressed, 2019**.** https://setopati.net/social/141469
- March 7, 2019: Concrete action plans needed for watershed conservation in Western Nepal. http://www.hakahakionline.com/np/2019/03/07/20241/
- March 7, 2019: IWMI develops hydrological models targeting three rivers of Western Nepal. http://www.hakahakionline.com/en/8174/iwmi-develops-hydrological-models-targeting-three-rivers-of-western-nepal/
- March 1, 2019: The need for long-term management conservation of water resources management, 2019. http://www.hakahakionline.com/np/2019/03/01/19991/

Finally, the DJB activities were disseminated through following three episodes of Aankhijhyal program, which is a popular environment-focused programme developed by Nepal Federation of Environmental Journalists (NEFEJ) and aired through AV News Television.

- Part 1 - Aankhijhyal # 1115 (https://www.youtube.com/watch?v=NRKYb1m9zwU&feature=youtu.be)
- Part 2 – Aankhijhyal#1116 (https://www.youtube.com/watch?v=SvERmbCOF4s&t=1s)
- Part 3 – Aankhijhyal # 1117 (https://youtu.be/JsVHbMXUhag)

3.7.3 Project Organized Workshops/Meetings

The DJB project organized following events in Year-3 with the aim of engaging the stakeholders and sharing the results.

A) 3RD River Summit: IWMI and Digo Jal Bikas (DJB) project contributed in organizing the 3RD National River Summit during 28-31 March, 2019 at Rakam Karnali. The event is organized in every two years with the objective of – i) sharing outcomes of recent research/exploration; ii) fostering dialogue among stakeholders by creating platforms and networks among different interest groups; and iii) consolidating knowledge for a common understanding to inform policies for integrated management of water and other resources by balancing development with overall conservation of river. The National River Conservation Trust (NCRT) is leading this event since 2015 and USAID's PAANI program and many other institutions like IWMI are supporting in various ways.

Vishnu Prasad Pandey, on behalf of IWMI and DJB project, provided significant technical contributions as member of Technical Advisory Committee for drafting the Call for Papers; Designing format/template for papers; Reviewing papers; and designing the technical program of the event. More than 200 registered participants attended this 3rd River Summit and deliberated on the ways of balancing water development with sustainability and equity. DJB also utilized this forum to share the research works carried out in Karnali, distributed project output flyers and presented following two research papers;

SN	Title	Presenter	Date/Session Time
1	Managing water resources under climate change context in Western Nepal	Vishnu Pd. Pandey	30th March/ 13:30-15:00
2	Hydro-economic modeling for water resources planning in Western Nepal	Sanita Dhaubanjar	30th March/ 11:00-12:30

B) DJB dissemination workshop at national level: The national level dissemination workshop of the DJB project was organized on 13th March, 2019 at Hotel Yak & Yeti in Kathmandu with the theme of "***Towards an Inclusive Vision for Sustainable Water Futures in Western Nepal***". More than 106 participants (women = 42) representing three tier of governments (national, provincial, and local), development partners, (I) NGOs working in the water/environment sector, environmental journalists, experts, researchers, academia, and other relevant stakeholders actively participated in the event. The program was divided into following sessions – i) Inaugural/opening; ii) Future vision for Western Nepal; iii) Resources availability, use, access, and social justice; iv) Policies, practices, and institutions; v) Harnessing water resources for productivity, sustainability, and equity; and vi) Negotiating the way forward. Two out of the six (6) sessions had a panel discussion to deliberate on varying visions and negotiating ways forward for Western Nepal. Two episodes of Aankhijhyal program were developed and aired though national TV media based on the two panel discussions. Those two programs are available at following link: https://www.youtube.com/watch?v=SvERmbCOF4s&t=1s; https://youtu.be/JsVHbMXUhag. Please refer **Annex-14** for the workshop report.

C) Media briefing and interactions: Prior to the dissemination workshop, the DJB project invited journalists from leading media houses, both paper and online, for a half-day media briefing and interaction program on 7th March, 2019 at IWMI Office in Pulchowk. The event held between 10:00 – 13:00 hrs in collaboration with Nepal Federation of Environmental Journalists (NEFEJ) aimed at drawing attention to the tools that IWMI has developed under DJB to promote sustainable and balanced water resources management. The media visit offered opportunities to increase public awareness on the importance of water management and options available, as the number of hydropower projects rapidly expanded and newly elected governments begin managing water resources at local level. The researchers demonstrated following tools to the media persons on the day – hydrological models; climate future matrices developed for Western Nepal; Environmental Flows Calculator; Basin-scale development scenarios and their trade-offs from Hydro-economic models; findings from gender and social inclusions (GES) analysis at national and local levels; and techno-social interventions aimed at improving dry season agriculture in efficient ways. Twelve (12) journalists (Female = 2) representing various media outlets attended the event. The media coverage after this event is provided in **Section 3.7.2**

D) DJB dissemination workshop at local level: With the aim of disseminating the DJB project's learning with local stakeholders, a regional dissemination workshop was organized on 26th February, 2019 at Sathi Hotel, Dhangadhi, Kailali, Sudurpaschim Province with the theme of "Working Collectively for Water Use Efficiency: Learning from DJB Project". Thirty-one (31) (Female = 11) participants including representatives of farmers from three intervention sites, development agencies, (I)NGOs working in the similar area both geographically and thematic, and representatives from local and provincial governments attended the event. The day-long event focused on sharing the findings and learning from the DJB activities, both at basin and local scales; deliberating on the opportunities and strategies for up-scaling and out-scaling agricultural water management solutions; and handing over the intervention-related equipment/tools to local government, collective groups, and farmers. Further details are provided in **Annex-14**.

E) Hydro-economic modeling workshops: Two workshops were held with national-level stakeholders in Kathmandu on June 7 and 8, 2018. The first of these workshops involved stakeholders from the central government departments and ministries, including energy, agriculture, soil conservation, and other relevant sectors. The second of these workshops involved primarily non-governmental national-level stakeholders, many of whom represented environmental or conservation sectors. The third workshop was held with local and regional stakeholders in Dhangadhi on June 11, 2018. The meetings in Kathmandu were conducted in English; the meeting in Dhangadhi in Nepali. In total, 40 stakeholders attended the workshops—the complete listing of participants is available at the end of this document.

F) A workshop on "Unpacking Masculinity": As part of the Digo Jal Bikas project, the IWMI Nepal office organized the one-day workshop "Unpacking Masculinity" on 11th May, 2018 in Kathmandu. The goal of the workshop was to initiate critical reflection among water stakeholders on gender issues within organizations. Water engineers, gender experts, and water sector development

actors from government and non-government sectors in Nepal were invited to join the event. It was the first dialogue on masculinity in Nepal which through a series of interactive sessions paved the way for further discussion on how a masculine organizational culture impacts attitudes and practices within the water sector and how this in turn impacts the goal of gender equity and social justice. The workshop was organized by Work Package 5 on Gender under DJB project. The workshop was facilitated by Dr. Deepa Joshi from Coventry University in the United Kingdom.

G) 8TH Asian Regional Conference on Irrigation and Drainage (8ARC): IWMI and Digo Jal Bikas project contributed significantly in organizing the 8ARC, which was co-organized by USAID. The event was held during May 2-4, 2018. IWMI, particularly, those engaged in DJB, such as Luna Bharati, Vishnu Prasad Pandey, and Ram C Bastakoti contributed to the conference as member of the Technical Advisory Committee (TAC).

Luna Bharati was also involved in organizing a plenary symposium, together with colleagues from ICIMOD. The symposium had the title of "Sustainable Irrigation" and covered uncertainty and future risks as well as innovative solutions for irrigation development in Asia.

Vishnu Prasad Pandey provided significant technical contributions on behalf of DJB project (funded by USAID) for drafting the Call for Papers; Designing format of abstracts and full papers; Reviewing abstracts/full papers; and supervising the process of developing proceedings and technical program of the conference. He also contributed in developing full paper proceedings of the Conference. The Asian Regional Conference received 105 abstracts from 22 countries from a wide range of disciplines including academicians, practitioners, policy makers and research scholars. More than 520 participants from 22 countries in Asia and beyond attended the Conference.

Following seven (7) papers related to Digo Jal Bikas (DJB) project were presented in the conference.

SN	Title	Presenter	Date/Time
1	Dealing with variations in access to water: An assessment of challenges and coping strategies in Far-western Nepal	Ram C. Bastakoti	2nd May/ 13:30-13:45
2	Gender differences in water security and capabilities in Far-West Nepal	Gitta Shrestha	2nd May/ 16:30-16:45
3	Digo Jal Bikas	Luna Bharati	2nd May/ 15:30-15:45
4	Projected future climate for Western Nepal	Sanita Dhaubanjar	2nd May/ 15:45-16:00
5	Assessing spatio-temporal variation in water resources availability in Karnali-Mohana River Basin, Nepal	Vishnu Pd. Pandey	2nd May/ 16:15-16:30

6	Comparative assessment of various water application methods for dry season agriculture in the Eastern Gangetic Plain	Bhesh Raj Thapa	3rd May/ 10:00-10:15
7	River health assessment for sustainable water resources management in Western Nepal	Ram Devi Tachamo	3rd May/Morning Session
8	Sustainable Irrigation (Session Facilitation)	Luna Bharati	3rd May Plenary-4 Symposium

H) Town-hall meeting on gender and irrigation: The DJB project co-organized a town hall meeting on gender and irrigation on 21st April, 2018 in Kailali together with PAANI and NEFEJ. Gitta Shrestha from IWMI participated and presented on the subject matter. The workshop was very much useful to raise awareness on various issues related to gender and irrigation. The discussions revolved around the how access to irrigation water is unequal for men and women farmers, why women are less involved in irrigation user committees despite national reservation of 33% in the user committees, and the way forward ensuring equal access to irrigation water for both men and women farmers. This town hall meeting provided an opportunity for the local government representatives, members from non-governmental organizations, civil society members, media representatives and men and women farmers to engage in discussion about the complex gender issues underpinning the access to irrigation water.

I) Workshop on sexual harassment: It was conducted on 3rd April, 2018 to all staffs at IWMI-Nepal. Facilitated by Srijana Chettri, a GESI Manager at Pact, members of the Nepal office participated in discussions on the state of work place sexual harassment in Nepal, how to improve IWMI's sexual harassment policy, and how to be proactive bystanders. The training was organized by IWMI's HR team with the support of USAID and Pact.

3.8 Work Package 8: Project Management

This work package is focused in project management. The implementation status of four outputs envisioned under this work package are summarized in Table 9 below.

Table 9: Progress against target outputs for WP8

Output	**8.1**	**Annual progress report of Year 2 (Apr, 2018)**
Indicator	8.1.1	Report submitted/approved
Progress		• An electronic copy of the annual progress report was submitted to USAID on 30th April 2018. • Revised version of electronic copy as well as two hard copies were submitted to USAID after incorporating feedback/inputs on 20th August, 2018.

Implement-ation challenges		• N/A
Output	**8.2**	**Semi-annual progress report (October, 2018)**
Indicator	8.2.1	Report submitted/approved
Progress		• An electronic copy of the annual progress report was submitted to USAID on 30th October 2018. • Revised version of the electronic copy as well as two hard copies were submitted to USAID after incorporating feedback/inputs om 15th December, 2019.
Implement-ation challenges		• N/A
Output	**8.3**	**Project final report (March, 2019)**
Indicator	8.3.1	Final report submitted
Progress		• This is the annual (3rd year) performance report which is due 30th April, 2019. • The final report of the project is due in June 30, 2019. The report is progressing well and will be submitted on time.
Implement-ation challenges		• N/A
Output	**8.4**	**Proceedings of the dissemination workshop (February, 2019)**
Indicator	8.4.1	A report on dissemination workshop developed
Annual Progress		• The proceeding of the dissemination workshops held in Dhangadhi and Kathmandu is prepared (**Annex-14**).
Implement-ation challenges		• N/A

3.8.1. Regular Project Meetings

Regular project meetings were held to review progress and devise strategies. Ten (10) such meetings were held in Year-3. Since the project staff are spread over various countries, some join

the meeting in-person at IWMI-Nepal Office and some join via Skype. Below are details on the regular project meetings. Minutes/Discussion notes of each minutes are also available, and regularly shared with AOR/COR following the meetings.

Date	Attendee
Mar 11, 2019 (to finalize overall plan for the dissemination workshop)	• Akriti Sharma (WP2, IWMI – Nepal) • Bhesh Raj Thapa (WP4, IWMI – Nepal) • Gitta Shrestha (WP5, IWMI – Nepal) • Luna Bharati (Project Leader, IWMI – Germany) • Manohara Khadka (CR, IWMI-Nepal) • Ram Devi Tachamo (WP2, Kathmandu University) • Sanita Dhaubanjar (WP1/WP3, IWMI – Nepal) • Vishnu Prasad Pandey (Project Coordinator, IWMI – Nepal)
Mar 6, 2019 (To finalize plan/ strategy for media briefing and interaction)	• Akriti Sharma (WP2, IWMI – Nepal) • Bhesh Raj Thapa (WP4, IWMI – Nepal) • Gitta Shrestha (WP5, IWMI – Nepal) • Luna Bharati (Project Leader, IWMI – Germany) • Manohara Khadka (CR, IWMI-Nepal) • Ram Devi Tachamo (WP2, Kathmandu University) • Sanita Dhaubanjar (WP1/WP3, IWMI – Nepal) • Vishnu Prasad Pandey (Project Coordinator, IWMI – Nepal)
Feb 12, 2019 (To finalize presentation to be made at USAID)	• Akriti Sharma (WP2, IWMI – Nepal) • Bhesh Raj Thapa (WP4, IWMI – Nepal) • Claire Swingle (IWMI – Nepal) • Emma Karki (WP1-4, IWMI – Nepal) • Gitta Shrestha (WP5, IWMI – Nepal) • Luna Bharati (Project Leader, IWMI – Germany) • Manohara Khadka (CR, IWMI-Nepal) • Ram Devi Tachamo (WP2, Kathmandu University) • Sanita Dhaubanjar (WP1/WP3, IWMI – Nepal) • Vishnu Prasad Pandey (Project Coordinator, IWMI – Nepal)
Dec 11, 2018	• Akriti Sharma (WP2, IWMI – Nepal) • Alan Nicol (IWMI- Ethiopia) [on Skype] • Alok Rajouria (IWMI – Nepal) • Claire Swingle (IWMI – Nepal) • Emma Karki (WP1-4, IWMI – Nepal) • Luna Bharati (Project Leader, IWMI – Germany) • Nishadi Eriyagama (WP2, IWMI – Headquarter) [on Skype] • Netra Sharma (USAID) • Om Acharya (IWMI – Nepal) • Ram Devi Tachamo (WP2, Kathmandu University) • Sanita Dhaubanjar (WP1/WP3, IWMI – Nepal) • Vishnu Prasad Pandey (Project Coordinator, IWMI – Nepal)

Oct 29, 2018	• Akriti Sharma (WP2, IWMI – Nepal) • Alan Nicol (IWMI- Ethiopia) [on Skype] • Alok Rajouria (IWMI – Nepal) • Bhesh Raj Thapa (WP4, IWMI – Nepal) • Diana Suhardiman (WP1/WP4, IWMI – Laos) • Emily Pakhtigian (WP3, Duke University - USA) [on Skype] • Gitta Shrestha (WP5, IWMI – Nepal) • Kashmira Kakati (USAID) • Luna Bharati (Project Leader, IWMI – Germany) • Nishadi Eriyagama (WP2, IWMI – Headquarter) [on Skype] • Om Acharya (IWMI – Nepal) • Vishnu Prasad Pandey (Project Coordinator, IWMI – Nepal)
Oct 4, 2018	• Akriti Sharma (WP2, IWMI – Nepal) • Alok Rajouria (IWMI – Nepal) • Chris (USAID) • Emily Pakhtigian (WP3, Duke University - USA) [on Skype] • Emma Karki (WP1-4, IWMI – Nepal) • Gitta Shrestha (WP5, IWMI – Nepal) • Kashmira Kakati (USAID) • Luna Bharati (Project Leader, IWMI – Germany) [on Skype] • Netra Sharma (USAID) • Nishadi Eriyagama (WP2, IWMI – Headquarter) [on Skype] • Om Acharya (IWMI – Nepal) • Ram Devi Tachamo (WP2, Kathmandu University) • Vishnu Prasad Pandey (Project Coordinator, IWMI – Nepal)
Sep 5, 2018	• Akriti Sharma (IWMI – Nepal) • Claire Swingle (IWMI – Nepal) • Diana Suhardiman (WP1/WP4, IWMI – Laos) [on Skype] • Emily Pakhtigian (WP3, Duke University - USA) [on Skype] • Emma Karki (WP1-4, IWMI-Nepal) • Gitta Shrestha (WP5, IWMI – Nepal) • Kashmira Kakati (USAID) • Luna Bharati (Project Leader, IWMI – Germany) [on Skype] • Netra Sharma (USAID) • Nishadi Eriyagama (WP2, IWMI – Headquarter) [on Skype] • Om Acharya (IWMI – Nepal) • Ram Devi Tachamo (WP2, Kathmandu University) [on Skype] • Vishnu Prasad Pandey (Project Coordinator, IWMI – Nepal)
June 6, 2018	• Akriti Sharma (IWMI – Nepal) • Bhesh Raj Thapa (WP4, IWMI – Nepal) [on Skype] • David A. Wiberg (WP3, IWMI – Headquarter) [on Skype] • Emily Pakhtigian (WP3, Duke University - USA) • Emma Karki (WP1-4, IWMI-Nepal) • Gitta Shrestha (WP5, IWMI – Nepal) • Luna Bharati (Project Leader, IWMI – Nepal) [on Skype] • Nishadi Eriyagama (WP2, IWMI – Headquarter) [on Skype]

	• Patrick Drown (IWMI – Nepal) • Ram Devi (Kathmandu University) [on Skype] • Sanita Dhaubanjar (WP1/WP3, IWMI – Nepal) • Vishnu Prasad Pandey (Project Coordinator, IWMI – Nepal)
May 7, 2018	• Alan Nicol (IWMI-Ethiopia) • Bhesh Raj Thapa (WP4, IWMI – Nepal) • Diana Suhardiman (WP1/WP4, IWMI – Laos) • Emma Karki (WP1-4, IWMI-Nepal) • Gitta Shrestha (WP5, IWMI – Nepal) • Luna Bharati (Project Leader, IWMI – Nepal) • Vishnu Prasad Pandey (Project Coordinator, IWMI – Nepal)
April 11, 2018	• Akriti Sharma (IWMI – Nepal) • Bhesh Raj Thapa (WP4, IWMI – Nepal) • David A. Wiberg (WP3, IWMI – Headquarter) • Diana Suhardiman (WP1/WP4, IWMI – Laos) [on Skype] • Emily Pakhtigian (WP3, Duke University - USA) [on Skype] • Emma Karki (WP1-4, IWMI-Nepal) • Gitta Shrestha (WP5, IWMI – Nepal) • Luna Bharati (Project Leader, IWMI – Nepal) [on Skype] • Netra Sharma (USAID) • Om Acharya (IWMI – Nepal) • Patrick Drown (IWMI – Nepal) • Ram Bastakoti (WP1/WP4, IWMI – Nepal) • Vishnu Prasad Pandey (Project Coordinator, IWMI – Nepal)

3.8.2 Participation in USAID or Partners-Organized Meetings

Following table provide a list of USAID-organized meetings in which IWMI participated.

SN	Event Name	Date, Venue	Participants from DJB
1			
2	3rd River Summit	Mar 28-31, 2019, Rakam Karnali	Vishnu, Sanita, Ram Devi
3	Demonstration of E-flows Calculator to USAID	Mar 1, 2019; USAID	Vishnu, Akriti, Ram Devi
4	Meeting with USAID & PAANI on E-flows	Feb 15, 2019; Hotel Radisson	Luna, Manohara, Vishnu, Akriti, Ram Devi
5	Sharing of DJB findings with USAID colleagues	Feb 13, 2019; USAID	Luna, Manohara, Vishnu, Bhesh, Gitta, Sanita, Emma, Akriti, and others
6	Meeting with USAID-MEL Project representatives	Feb 7, 2019; IWMI-Nepal Office	Vishnu Prasad Pandey
7	Demonstration of Western Nepal E-Flows Calculator to USAID and PAANI colleagues	Feb 1, 2019; IWMI-Nepal Office	Luna Bharati, Vishnu Prasad Pandey, Emma Karki, Akriti Sharma, Ram Devi Tachamo Shah

8	Meeting with IWMA team	Jan 22, 2019; IWMI-Nepal Office	Vishnu Prasad Pandey, Bhesh Raj Thapa
9	PAANI Grantee's Progress Sharing	Jan 4, 2019; PAANI Office, Baluwatar	Vishnu Prasad Pandey
10	USAID Partner's Meeting	Nov 30, 2018, Hotel Annapurna	Vishnu Prasad Pandey, Emma Karki
11	IWMA meeting on water source protection and management	Nov 28, 2018, Summit Hotel	Vishnu Prasad Pandey
12	GESI Summit organized by USAID	Oct 2, 2018, Park Village Hotel	Vishnu Prasad Pandey, Sanita Dhaubanjar
13	Sustainable Hydropower Workshop organized by PAANI & IFC	Sep 28, 2018, Hotel Yak & Yeti	Vishnu Prasad Pandey (Panelist)
14	M&E Meeting	Sep 26, 2018, MEL Office, Baluwatar	Vishnu Prasad Pandey
15	SEED Partners Meeting	Sep 25, Amarpali Banquet	Vishnu Prasad Pandey, Bhesh Raj Thapa
16	IWMA Project Workshop	Aug 28, 2018, Hotel Summit	Vishnu Prasad Pandey
17	PAANI meeting – stakeholders consultation workshop to finalize Advanced Hydrology Course syllabus	August 7, 2018	Vishnu Prasad Pandey
18	MEL Workshop/ Training – Developing Theory of Change	July 10-11, 2018, MEL office, Baluwatar	Vishnu Prasad Pandey
19	PAANI organized meeting – providing feedback on Advanced Hydrology Course structure	June 26, 2018, IWMI-Nepal Office	Vishnu Prasad Pandey
20	IWMA Stakeholders Consultation Workshop	June 20, 2018, Winrock Office	Emma Karki
21	IWMA Stakeholders Consultation Workshop	June 15, 2018, Winrock Office	Vishnu Prasad Pandey
22	Security briefing to USAID implementing partners	May 30, 2018, USAID Office	Vishnu Prasad Pandey

23	Joint Implementing Partners Meeting on Resilience	May 29, 2018, Hotel Radisson	Vishnu Prasad Pandey; Bhesh Raj Thapa
24	USAID partners' meeting on sexual misconduct	April 16, 2018, Kathmandu, Nepal	Vishnu Prasad Pandey, Gitta Shrestha

ANNEX

Annex-1: Modeling hydrology in large basins using multi-site calibration approach: A case of Karnali-Mohana Basin, Western Nepal

Annex-2: Climate change and spatio-temporal distribution of water availability in Karnali-Mohana Basin, Western Nepal

Annex-3: Climate shocks and responses in Western Nepal

Annex-4: Putting power and politics central in Nepal's water governance

Annex-5: Water diversion induced changes in aquatic biodiversity in monsoon-dominated rivers of Western Himalaya, Nepal: Implications for Environmental Flows

Annex-6: Revised Rapid Field Bioassessment (RFB) A protocol to assess the ecological status of flow altered streams and rivers

Annex-7: A report on river ecology and relevance to e-flows in Karnali River Basin

Annex-8: A technical report on E-flows calculator development

Annex-9: Whose river is it: An assessment of livelihood and cultural water flow requirements for the Karnali

Annex-10: Implications of water use trade-offs for development planning: Hydro-economic modeling in Western Nepal

Annex-11: Feasibility analysis of local level pilots – New efficient pumping technologies; Farmer cooperatives who jointly invest in irrigation equipment; and micro-irrigation technologies to reduce water use per season.

Annex-12: Gender, social capital and collective commons

Annex-13: Final report of Knowledge, Capacity, Attitude, and Practice (KCAP) survey

Annex-14: Proceedings of Dissemination Workshop