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PAANI PROGRAM | पानी परियोजना

FOURTH ANNUAL REPORT/SEVENTEENTH QUARTERLY REPORT

(July 1, 2019 – June 30, 2020)

Cover photo: A scenic section of the Karnali River. The Karnali River originates at 3,962 m (12,999 ft) on the southern slopes of the Himalaya. Flowing down from Tibet, it joins with many snow-fed rivers on its way south to the Middle Karnali watershed.

Photo credit: Nabin Baral for USAID Paani Program

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ABBREVIATIONS

AABCA	Aquatic Animal and Biodiversity Conservation Act
AABCB	Aquatic Animal and Biodiversity Conservation Bill
ADB	Asian Development Bank
AFU	Agriculture and Forestry University
APS	Annual Program Statement
AWP	Annual Work Plan
BAFER	Balchaur Forest and Environment Resource Development Centre
BCN	Bird Conservation Nepal
BLMC	Bhagaraiya Lake Management Committee
BMP	Best Management Practice
BRIDGE	Biodiversity Results and Integrated Development Gains Enhanced
BZMC	Buffer Zone Management Committee
BZUC	Buffer Zone Users Committee
CAACG	Community Aquatic Animal Conservation Group
CAPA	Community Adaptation Plans of Action
CAS	Catch Assessment Survey
CBAPU	Community Based Anti-Poaching Units
CBD	Convention on Biological Diversity
CDES	Central Department of Environmental Science
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CFMG	Capture Fisheries Management Guidelines
CFOP	Community Forestry Operational Plans
CFPCC	Central Fisheries Promotion and Conservation Center
CFUG	Community Forest User Group
CIA	Cumulative Impact Assessment
CIS	Creative Innovation Society
CMDN	Center for Molecular Dynamics Nepal

CODEFUND	Conservation Development Foundation
CREEW	Center of Research for Environment, Energy and Water
CS	Citizen Scientist
CSO	Civil Society Organization
DCC	Dolphin Conservation Center
DEM	Digital Elevation Model
DEOC	District Emergency Operation Center
DG	Director General
DHM	Department of Hydrology and Meteorology
DJB	Digo Jal Bikas
DNPWC	Department of National Parks and Wildlife Conservation
DoED	Department of Electricity Development
DoLIDAR	Department of Local Infrastructure Development and Agricultural Roads
DPR	Detailed Project Report
DQA	Data Quality Assessment
DRR	Disaster Risk Reduction
DSV	Dolma Group, SAFAL and VRock
EAIPS	Exotic Aquatic Invasive Plant Species
EAP	Emergency Action Planning
ECC	Education Concern Center
EDC	Energy Development Council
EFLG	Environmentally Friendly Local Governance
EFRC	Environmentally Friendly Road Construction
EIA	Environmental Impact Assessment
EMP	Environment Management Plan
EOA	Energy Options Assessment
EPLE	Environmental Policy and Law Expert
ESIA	Environmental and Social Impact Assessment

ESRM	Environmental and Social Risk Management
FAA	Fixed Amount Award
FAN	Forest Action Nepal
FASA	Fisheries and Aquaculture Student Association
FCGFMDS	Fisheries Conservation Governance Framework and Market Development Strategy
FCOE	Freshwater Center for Excellence
FDM	Foundations for Development Management
FECOFUN	Federation of Community Forest Users Nepal
FEDWASUN	Federation of Water and Sanitation Users Nepal
FEWS	Flood Early Warning System
FGD	Focus Group Discussion
FIRDO	Fulvari Integrated Rural Development Organization
GBV	Gender-Based Violence
GESI	Gender Equality and Social Inclusion
GIIS	Global Institute of Interdisciplinary Studies
GIS	Geographic Information System
GMP	Good Management Practices
GON	Government of Nepal
HbD	Hydropower by Design
HCVR	High Conservation Value Rivers
HEC-RAS	Hydrologic Engineering Center's River Analysis System
HH	House Holds
HIDCL	Hydroelectricity Investment and Development Company Ltd.
HWEPC	Human Welfare Environmental Protection Centre
ICH	International Centre for Hydropower Norway
ICIMOD	International Centre for Integrated Mountain Development
IDE	International Development Enterprises
IDES	Integrated Development Society

IEC	Information, Education and Communication
IFC	International Finance Corporation
IFF	Integrated Fish Farming
ILBM	Integrated Lake Basin Management
IOE	Institute of Engineering
IPPAN	Independent Power Producers' Association, Nepal
IR	Intermediate Result
IRBM	Integrated river basin management
IRBMP	Integrated River Basin Management Platforms
ISET-N	Institute for Social and Environmental Transition – Nepal
IUCN	International Union for the Conservation of Nature
IWMI	International Water Management Institute
IWRM	Integrated Water Resource Management
KBCF	Karnali Basin Conservation Foundation
KCDC	Karnali Community Development Center
KDCN	Kalika Development Center Nepal
KIRDARC	Karnali Integrated Rural Development and Research Center
KRBCF	Karnali River Basin Conservation Fund
KU	Kathmandu University
LAPA	Local Adaptation Plans of Action
LDCRP	Local Disaster Risk Management Planning
LVRE	Low Volume Road Engineering
MoALD	Ministry of Agriculture Livestock Development
MoE	Ministry of Energy
MoEWRI	Ministry of Energy, Water Resources and Irrigation
MoFE	Ministry of Forest and the Environment
MoI	Ministry of Irrigation
MoITFE	Ministry of Industry, Tourism, Forest and Environment

MoLMAC	Ministry of Land Management, Agriculture and Cooperative
MPDS	Multipurpose Development Society
MRC	Multi-Dimensional Resource Center
MRDCC	Mallarani Rural Development Concern Center
MSC	Multi-Stakeholder Consultation (workshops)
MWU	Mid-Western University
NARA	Nepal Rafting Association
NARC	Nepal Agriculture Research Council
NATHM	National Academy of Tourism and Hotel Management
NBA	Nepal Bankers Association
NC	Natures Conservation
NCE	No Cost Extension
NEA	National Electricity Authority
NEFIS	Nepal Fisheries Society
NESS	Nepal Environmental Scientific Services
NHDP	Nepal Hydropower Development Project
NEEDS	Nepal Environment and Equity Development Society
NENCID	Nepal National Commission on Irrigation and Drainage
NEFEJ	Nepal Forum of Environmental Journalists
NEFIN	Nepal Federation of Indigenous Nationalities
NFIWUAN	Nepal Federation of Irrigation Users Associations
NNSWA	Nepal National Social Welfare Association
NRBCF	Nepal River Basin Conservation Fund
NRCT	Nepal River Conservation Trust
NSHAA	Nepal Sustainable Hydropower Advocacy Alliance
NTFP	Non-Timber Forest Products
NWCF	Nepal Water Conservation Foundation
PEA	Political Economy Analysis

PHG	People's Help Group
PLA	Participatory Learning and Action
RAT	Risk Assesment Tool
RCDC	Rural Committee for Development Centre
RDC	Research and Development Center
RFP	Request for Proposal
RHF	Resources Himalaya Foundation
RLRFFC	Rupa Lake Rehabilitation & Fisheries Cooperative
RM	Rural Municipality
RMP	Risk Management Plan
RRB	Rapti River Basin
RSC	River Stretch Co-management
RSLUP	Risk Sensitive Land Use Planning
RSN	Rural Situation Nepal
RTS	Real Time Solutions
RuDEC	Rural Development and Empowerment Center
RVWRMP	Rural Village Water Resources Management Project
SA	Strategic Approach
SAEWCC	Sustainable Agriculture Environment Water Conservation Center
SEE	Sustainable Eco-Engineering
SEN	Small Earth Nepal
SESA	Strategic Environmental and Social Assessment
SHD	Sustainable Hydropower Development
SIA	Social Impact Assessment
SMS	Short Message Service
SNV	Netherlands Development Organization
SPNP	Shey Phoksundo National Park
SSP	System Scale Planning

STTA	Short Term Technical Assistance
SWN	Scott Wilson Nepal
SWO	Stop Work Order
TAL	Tarai Arc Landscape
TNC	The Nature Conservancy
TOC	Theory of Change
TOT	Training of Trainers
TU	Tribhuvan University
UN	United Nations
USFS	United States Forest Service
USG	United States Government
VCA	Vulnerability Capacity Assessments
VFM	Value for Money
WB	World Bank
WECS	Water and Energy Commission Secretariat
WMS	Watershed Management Specialist
WUDAN	Western Upland Development Association Nepal
WUG	Water User Groups
WUMP	Water Users Management Plans
WWF	World Wildlife Fund
YAE	Youth Alliance for the Environment

SECTION 1: ACTIVITY OVERVIEW

The USAID Paani Program – युएसएड पानी परियोजना – aims to enhance Nepal's ability to manage water resources for multiple uses and users through climate change adaptation and the conservation of freshwater biodiversity. Paani employs an integrated, whole-of-basin approach with activities at the watershed, river basin, and national scales, to reduce threats to freshwater biodiversity and strengthen the resilience of targeted human and ecological communities in the Karnali, Mahakali and Rapti river basins through improved water management.

At the community and watershed levels, Paani increases the knowledge, engagement, and benefits of local water users in target river basins to build water management capacity (Intermediate Result 1). At the river basin level, Paani's activities focus on sustainable hydropower, flood risk reduction, and participatory governance (Intermediate Result 2). At the national level, Paani focuses on policy and the enabling environment and improves coordination among stakeholders at all levels (Intermediate Result 3). Underlying its support across these three levels, Paani expands the knowledge base and Nepal's capacity for on-going learning in the areas of freshwater biodiversity, climate change and water resources management (Intermediate Result 4).

In June 2017, the program shifted its approach to planning and implementation around 11 strategic approaches (SA). Each approach provides a logical path for understanding Paani's work under each strategic theme. Result chains were then developed to set forth a pathway for each of the SAs, which are grouped under the four intermediate results as follows:

- **Intermediate Result 1**: Increased knowledge, engagement and benefits for local water users. To improve integrated water resource management, sustainable use of resources, and collaboration and investment on a significant scale, Paani is helping stakeholders build capacity through collaboration with local government, NGOs and other locally active stakeholders to address problems in their particular watersheds. Paani is helping stakeholders establish effective **collaborative decision-making (governance) processes** across **five strategic approaches** carried out at the watershed level:
    - SA 1a: Improve management of capture fisheries
    - SA 1b: Improve local capacity for water management
    - SA 1c: Improve local capacity for regulation and management of local road construction and (riverbed) aggregate mining
    - SA 1d: Improve local capacity for managing invasive species
    - SA 2b: Improve local capacity for disaster risk reduction (also applicable at the river basin level, under IR 2)

The experience and trust developed through collaboration will help Paani stakeholders work more credibly with other levels of government, and other stakeholders, donors, and decision-makers at the river basin (IR 2) and other levels (IRs 3 and 4).

- **Intermediate Result 2**: Improved basin-level resource management. At the basin level, activities take into consideration entire catchment areas and the high level of connectivity of freshwater systems. Paani is building on watershed-level experience to carry out four approaches at the basin-level:
    - SA 2a: Improve basin level planning

- SA 2b: Improve local capacity for disaster risk reduction (also applicable at the watershed level)
- SA 2c: Support sustainable hydropower (also linked with a strategic approach under IR3)
- SA 3b: Support CSOs to advocate for transparent and accountable hydropower decision-making (also cross-cutting at the national level)

- **Intermediate Result 3:** Strengthened coordination and enabling environment
  - SA 3a: Strengthen policy and planning for integrated water resource management (IWRM)
  - SA 3b: Support CSOs to advocate for transparent and accountable hydropower decision-making (also applicable at the basin level)

- **Intermediate Result 4:** Expanded knowledge base
  - SA 4a: Learn and discover (generate knowledge) through a research agenda that informs the strategic approaches under IRs 1 and 2
  - SA 4b: Support capacity building, learning and knowledge sharing in academic and other learning spaces over the long term

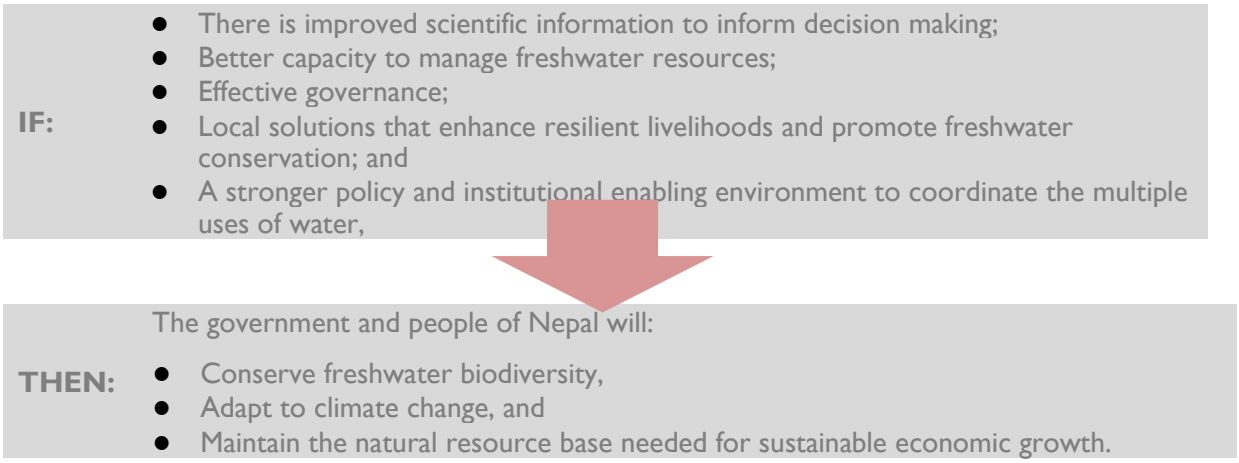
With the understanding that IRs still provide the broad framework for Paani's work, the program implements according to the above SAs. Therefore, and in line with the Paani Year 4 (Y4) Annual Work Plan (AWP), this quarterly report documents project activities according to the 11 SAs and the tasks that fall under them. Nonetheless, the SAs are interwoven differently in each river basin or watershed. To ensure that activities under each SA complement each other effectively across areas of implementation. Paani has also identified focused initiatives to increase the program's impact, as described later in this section.

Paani is a sister project to the USAID-funded Nepal Hydropower Development Project (NHDP) and to complementary projects funded by the U.S. Forest Service (USFS) and the International Water Management Institute (IWMI). The program also builds on USAID/Nepal's experience and on-going projects in terrestrial conservation, extending successful community-based models for reducing threats to key species and for building resilience.

Paani is a part of USAID's on-going investment in strengthening natural resource management in Nepal. The Task Order was signed on April 11, 2016 for a 56-month period that ends on December 16, 2020. In mid-July 2016, the Government of Nepal (GON), Ministry of Finance and USAID signed an implementation letter that enabled DAI to formally begin coordination and planning with the GON and other partners to carry out the Paani program. The program is helping the GON achieve results related to several national policies, strategies and action plans, both existing and under formulation. Paani is also making real the provisions in the country's 2015 Constitution, particularly in integrating improved water governance into the newly established provinces.

Paani believes that by demonstrating the value of freshwater biodiversity, strengthening governance and stakeholder relationships at all levels and strengthening the base and use of evidence, the program can catalyze transformative change in Nepal's capacity to manage its freshwater resources and enhance resilience to a changing climate - from Nepal's high mountain slopes to the rich waterways of the Tarai. The overall development hypothesis upon which Paani is based is presented in Figure 1.

Figure 1: PAANI DEVELOPMENT HYPOTHESIS



To translate this theory of change into action, Paani is applying five key principles that are integral to an overall integrated river basin management (IRBM) approach that connects upstream and downstream stakeholders—including women and lower caste members—in taking actions that will strengthen water resources governance, management and protection. Promoting stakeholder engagement and collaboration flows through all five principles:

- Engage Paani stakeholders through user-centered design
- Foster upstream-downstream linkages
- Apply theories of change and adapt activities to reflect evolving political, ecological and economic circumstances
- Focus on sustainability
- Integration of technical components and modalities to mutually reinforce tasks

By June 2021, Paani will have helped stakeholders accomplish the following:

The USAID Paani Program (Paani)—also known in Nepali as the "USAID Water Project"— will catalyze transformative change in Nepal's ability to manage its freshwater resources for multiple uses and users, and to enhance community resilience from the high mountains to the Tarai. Paani employs an integrated, whole-of-basin approach with activities under four "intermediate result" (IR) areas and 11 strategic approaches at the watershed, river basin and national scales, to reduce threats to freshwater biodiversity and increase the ability of targeted human and ecological communities in the Karnali, Mahakali, and Rapti river basins in the Mid-Western and Far Western Development Regions of Nepal -- now in Province 5, Karnali Province (Province 6) and Sudur Paschim Province (Province 7) – to adapt to the adverse impacts of climate change through improved water management.

At the community and watershed levels, Paani helps water users in target river basins strengthen their knowledge, engagement and benefits to build local freshwater management capacity (IR 1) through collaborative decision-making and governance in 12 priority watersheds. At the river basin level, Paani's activities focus on sustainable hydropower, disaster risk management and participatory basin governance (IR 2). At the national level, Paani strengthens national policy and the enabling environment and improves coordination among stakeholders at all levels (IR 3). To support efforts across the watershed, river basin and national levels, Paani expands the knowledge base and builds Nepal's capacity for on-going learning on freshwater biodiversity, climate change and water resources management (IR 4).

Paani is part of USAID's on-going investment in strengthening natural resource management in Nepal. Paani is an activity under USAID's Natural Resource Management Project (NRMP). Its primary focus is to contribute to the achievement of the second of four "development objectives" set forth in USAID/Nepal's 2014-2020 Country Development Cooperation Strategy – inclusive and sustainable economic growth to reduce extreme poverty – by strengthening the sustainable management of the natural resources upon which Nepal's development, economic prosperity and well-being depend. Paani will also contribute to the CDCS's two other development objectives through improved water management's contribution to a healthy and well-nourished population and by improving policies and their implementation. Paani also strengthens civil society's contribution to inclusive and effective governance of water resources.

Paani is a sister project to the USAID-funded Nepal Hydropower Development Project (NHDP) and to complementary projects funded by the U.S. Forest Service (USFS) and the International Water Management Institute (IWMI). The program also builds on USAID/Nepal's experience and on-going projects in terrestrial conservation, extending successful community-based models for reducing threats to key species and for building resilience.

Paani aims to play a pivotal role in shaping Nepal's management of critical water resources by 2021. The program will help the Government of Nepal (GON) achieve results related to several national and local policies, strategies and action plans, including those that are currently existing, are under formulation, and/or are new. Paani will also help make real the provisions in the country's 2017 Constitution, particularly in integrating improved water governance within the newly established and elected provinces and local governments.

By June 2021, Paani will have helped stakeholders accomplish the following:

- Reduced threats to freshwater ecosystems, conserved biodiversity and enhanced human well-being through improved river basin and watershed management in the Rapti, Karnali and Mahakali river basins.
- Increased the knowledge and capacity of communities and water users from local to national levels to deal with climate vulnerabilities through climate smart practices.
- Empowered champions of sustainable water management who have networks and effective relationships with each other and with other stakeholders. Champions at multiple levels will provide insights and perspectives that are respected by decision-makers and contribute to widespread beneficial changes in watershed management and climate change adaptation practices.
- Demonstrated that issues related to integrated and basin-level water management, freshwater biodiversity, gender and social inclusion are essential to national discourse and policy development on water, energy and development.
- Demonstrated through baseline and end-line surveys significantly reduced threats, increased resilience, and other economic or biodiversity value-related benefits through implementation of watershed- and basin-level plans. Key features of the watershed and basin-level plans will include: upstream and downstream linkages, gender and social inclusion (GESI), climate change adaptation and disaster risk reduction (DRR), monitoring by local people and "green" infrastructure.
- Established a long-term funding mechanism for river basin management and innovation.

- Improved the understanding, attitudes, values and behaviors of multiple users of water and freshwater biodiversity relating to the conservation and sustainable use of water and freshwater biodiversity.
- Enhanced livelihood opportunities for those households in rural communities hit hardest by the economic toll from the 2020 COVID-19 pandemic and subsequent GON lockdown.

Paani Year 5 Focused Initiatives

In June 2018, Paani determined it could be more strategic by better aligning resources to leverage program activities for greater impact where early successes could be scaled, or emerging opportunities seized. These opportunities, referred to as focus initiatives, included four thematic areas tied to Paani's strategic approaches. These focus initiative concepts were further refined in early February 2019 at a strategy workshop and again during the June 2019 annual work planning retreat. Although Year 5 activities pivoted to respond to COVID-19, the focus initiatives still provide a framework to understand Paani's program strategy for all its basins, watersheds, and strategic approaches.

Focus Initiatives			
River Stretch Co-Management Models	**Sustainable Hydropower**	**Environmentally Friendly Roads**	**Basin Platforms**
SA 1a Fisheries SA 1c Roads and Mining SA 1d Invasives SA 3a Policy SA 4c Research SA 4b Learning	SA 2c Hydropower SA 3b Advocacy SA 3a Policy SA 4b Learning	SA 1a Fisheries SA 1b LWM SA 1c Roads and Mining SA 4b Learning	SA 1a Fisheries SA 2a Basin Management SA 3b Advocacy SA 3a Policy

A. COLLABORATIVE AQUATIC RESOURCES CO-MANAGEMENT MODELS

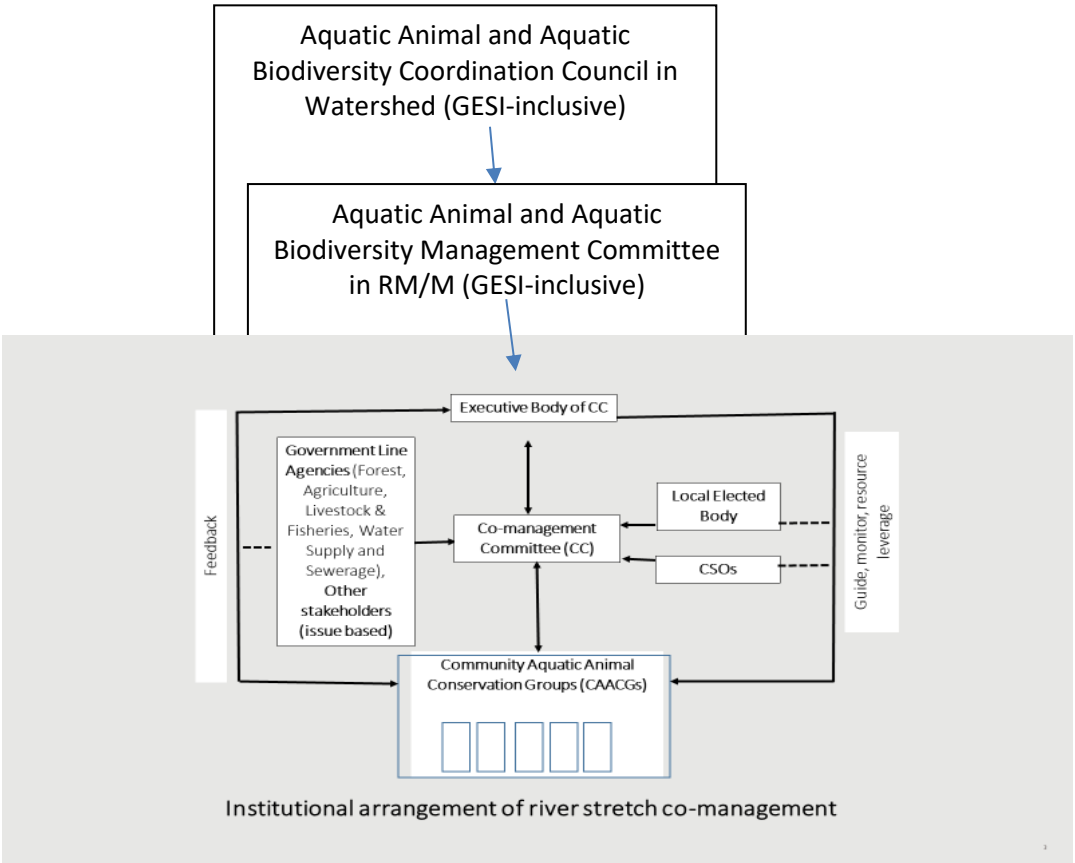
One of Paani's most innovative efforts is the work being done by team members, grantees, and local stakeholders to create a model for river stretch co-management to enhance protection of Nepal's high value aquatic biodiversity areas. Paani's river stretch co-management model is derived from Nepal's successful community based natural resources management programs. These include the community forestry program, leasehold forestry program, conservation area management and farmer managed irrigation systems, which are GON efforts to reduce forest degradation, promote sustainable forestry and natural resource practices, and improve community livelihoods. In Y5, Paani will focus on developing an appropriate operational system for governance and management of the CAACGs as well as integration of livelihood development. As of June 20, 2020, 33 Rural/Municipalities have enacted Aquatic Animal Biodiversity Conservation Acts (AABCAs) in the Karnali and Rapti River Basins and 4 Rural/Municipalities have endorsed Capture Fisheries Management Guidelines (CFMG) in the Lower Mahakali and Rangun Watersheds. Thirty-seven CAACGs have been registered with Rural/Municipalities, and 98 CAACGs total have been formed through local grants. Sixteen CAACGs have river stretches handed over to them and are ready to implement the provisions of the Act in the Lower Karnali, Middle Karnali, West Seti, Thuligaad, Tila, Middle Rapti and Jhimruk watersheds. In Y5, Paani's goal is to complete the entire development process for river co-management in the Thuligaad, Middle Karnali, Middle Rapti and Jhimruk Khola watersheds in the Karnali and Rapti Basins, where

river groups are the furthest along in the process. These four watersheds will serve as models for all other watersheds implementing fishery activities. See Annex 1 for a complete list of all 12 of Paani's priority watersheds. Paani will adapt lessons from this experience as it works with the DNPWC and communities in protected areas, and as it helps stakeholders integrate livelihood initiatives into these models.

1) Framework for river stretch co-management.

In Y3, Paani refined the approaches taken by grantees to develop CAACGs and created a draft model (Figure 2) of a step-by-step process to establish authority for the group. The model below is a general one that rural municipalities and municipalities can customize as per their specific AABCA provisions. Paani also supports drafting and finalizing the AABCA and CFMG in consultation with local communities and government. The AABCAs and CFMGs are submitted to the rural municipalities/municipalities for approval, and then implementation. As a result of this work in Y3 and Y4, as mentioned above, 98 CAACGs have been formed in the Karnali and Rapti Basins, and 37 CAACGs have been registered. River stretches have been handed over for co-management to 16 of the registered CAACGs, and other river stretches are being identified to be handed over to the rest when they are registered with their respective rural municipalities/municipalities. In Y5, Paani will customize the appropriate operational system for governance and management of these river groups as well as integration of livelihoods development.

Figure 2: INSTITUTIONAL RIVER STRETCH CO-MANAGEMENT MODELFIGURE 2: INSTITUTIONAL RIVER STRETCH CO-MANAGEMENT MODEL



Institutional arrangement of river stretch co-management

Paani adopted the concept of an apex body to act as a multi-stakeholder platform, the Co-management Committee (CC), which will link river groups upstream and downstream as well as create a mechanism for different user groups to discuss trade-offs over their shared water resources. These platforms are intended to build capacity for watershed representation in future basin level discussions.

2) Strengthen co-management frameworks between the Department of National Parks and Wildlife Conservation (DNPWC) and local communities around protected lake systems.

The second type of aquatic biodiversity co-management model is focused on protected lakes systems. Paani is working in Rara National Park to demonstrate how water quality and fisheries protection can be integrated into national park management and planning in high aquatic biodiversity areas being negatively impacted by increased tourism. Working with communities within or adjacent to national parks, Paani will identify how to use governance and policy to direct more benefits to both local human and ecological communities.

Traditionally, communities and DNPWC have interacted through buffer zone user committees (BZUCs), based on a forestry conservation model of protected core areas surrounded by buffer zones that provide livelihood and use opportunities for nearby communities, such as fallen wood collection, NTFPs, livestock grazing, etc. In Rara, this model has been applied to lake systems in surrounding forests and associated buffer zones, where the collection of NTFPs are allowed by policy but conflict with goals to protect the health of the watershed to maintain water quality and aquatic biodiversity.

Meanwhile, communities have complained that they derive few benefits from the lakes' tourist attractions as concessions are managed nationally and typically go to concessionaires from outside of local communities. Paani, working with DNPWC through initiatives to develop Ramsar Site Management Plans, will explore 1) how communities can be more closely involved in lake management and derive increased benefits and 2) how buffer zone use models can reflect the differing nature of lake-centered parks.

In Rara, Paani is supporting DNPWC and Rara National Park to develop a site management plan for the Ramsar site surrounding Rara Lake. In Y5, Paani will also provide assistance to BZMC and BZUCs through a local grantee if DNPWC provides permission to work inside Shey Phoksundo National Park. Based on findings from the watershed profiling activity, Paani identified key issues impacting aquatic health and biodiversity for each area. Accordingly, Paani is assessing how the management plans can include aquatic biodiversity, livelihood benefits, solid waste management, concession guidelines, land use planning and/or zoning, and catchment management.

3) Integration of Livelihoods Development to Support Aquatic Biodiversity Co-Management Models

In the watersheds of the Karnali and Rapti Basins, threats to aquatic biodiversity stem from overfishing and resource degradation by the local communities who have yet to realize economic benefit from natural resource protection. While Paani is working to strengthen co-management of aquatic biodiversity resources in the Karnali and Rapti River Basins in designated river stretches, the efforts

will be unsustainable unless people degrading the system can derive improved or new livelihoods from enhanced protection. Paani's TOC includes environmentally friendly enterprises as an intended outcome through best practices for agricultural (SA 1b) and fishery-based livelihoods (SA 1a). In theory, these enterprises would be enabled through the Environmentally Friendly Local Governance (EFLG) framework.

However, the EFLG framework has not yet proven a useful framework for Paani. EFLG is not generally a priority for local governments. Furthermore, aquatic biodiversity and river system health are not reflected in the EFLG framework. EFLG has only household-level, ward-level, district-level, and national-level indicators. While the Ministry of Agriculture and Livestock Development (MoALD) has a draft fisheries policy and DoLIDAR has road standards, these are not generally applied by local governments. For roads, the focus is on good engineering practices and not on social/ environmental processes. Given limited technical capacity and growing local demand for more roads, Environmental Impact Assessment (EIAs) may be developed, but they are rarely adopted in practice. In Y5, Paani's Freshwater Fisheries Specialist and SNV will conduct a catch assessment survey to characterize fisheries and develop three business cases (capture fisheries, aquaculture and fisheries-based ecotourism) to build sustainable aquatic biodiversity co-management models. Paani will identify livelihood alternatives and support sustainable fisheries markets in targeted watersheds through three livelihoods mechanisms: ecotourism development, fisheries cooperatives and integrated fish farming.

The Eco-tourism Action Plan

Paani has developed the following strategy to integrate ecotourism alternative livelihoods into its aquatic co-management models.

1) Access expertise to conduct market research analysis on the existing tourism markets, ecotourism opportunities, and potential benefits to disadvantaged or vulnerable groups in the following locations in the Karnali River Basin (completed in Y4):
   - Rara National Park (lake) and Shey Phoksundo National Park (lake) for guiding, birding, homestay, and handicrafts;
   - Middle Karnali for homestays, rafting and sport fishing;
   - Lower Karnali for rafting and sport fishing (river section 5: Geruwa);
   - Thuligaad rafting and sport fishing (river section 4: Daab to Chisapani); and
   - Seti Confluence for guiding, homestay, and sport fishing.

2) In a limited number of communities where viable ecotourism opportunities exist, Paani will build capacity for ecotourism.
   - First, using targeted capacity building directed from private sector hospitality and other product development experts to grantees who propose to conduct ecotourism training to ensure consistency and quality.
   - Second, directing grantees to provide and deepen capacity building in targeted locations as identified by the study above.
   - Establish an ecotourism promotion center through the Karnali Basin Conservation Foundation (KBCF).

3) In communities within or adjacent to national parks, Paani will identify how to adapt existing

governance and policy tools, such as buffer zone use policies and concession management practices, to direct more benefits to local communities.

Expected outcomes for ecotourism integration in Y5 include: identification of ecotourism opportunities that directly support community livelihoods, in particular those communities affected by COVID-19, such as migrant returnees and other marginalized populations. Ecotourism opportunities will also lead to improved aquatic biodiversity in high value conservation areas so that they can be quantified and disseminated to the private sector, local governments, and communities as investment opportunities.

Fisheries Cooperatives Action Plan

As part of Paani's goal to create a comprehensive river co-management process for replication, Paani will deepen work in Paani's four targeted watersheds to include integration of fisheries cooperatives. The strategy for Y5 includes:

1) Engage SNV's fisheries experts to develop business case of capture fisheries, aquaculture and fisheries-based ecotourism in the Karnali River Basin from September – November 2020. The strategy includes:
    - Develop methodology for Catch Assessment Survey (CAS) and conduct pilot case study of CAS to inform capture fisheries business case
    - Conduct scoping study, pilot case studies to develop business cases of capture fisheries, aquaculture and aquatic resource-based ecotourism
2) Use grants, STTA, and Paani expertise to:
    - Support in the formation of fish cooperative involving the CAACG.
    - Facilitate the development of guidelines for cooperative operation.
    - Conduct capacity building trainings on implementation of cooperative activities including business and operations plans, accounting, fish processing, and fisheries markets.
    - Establish a fish preservation and processing facility for cooperatives where indicated.
    - Conduct consultation with the Cooperative Office and Livestock & Fisheries Office from the Provincial Government to establish linkages with fish cooperatives for technical and managerial support.
    - Develop joint monitoring mechanisms for cooperative operations and support to CAACG for conservation activities.

Expected outcomes for fisheries cooperatives formation in Y5 will be:

- Four completely executed river groups formed (i.e. groups with the legal right to implement AABCA and CFMG provisions)
- One lake site plan developed
- 35 CAACGs registered and river stretches handed over to them for management in six watersheds
- Business cases serve as decision support tools to identify investment opportunities in fisheries and aquaculture that generate green jobs, increase income opportunities, and strengthen livelihoods options.

3. Integrated Fish Farming (IFF)

The GON enforced nationwide lockdown, imposed to minimize COVID-19 spread, threatens fishery

resources due to increased unemployment and thus decreased income and livelihood opportunities caused by the impacts of COVID-19. Anecdotal evidence suggests that there are increased fishing pressures (due to overfishing) driven by unemployment and congregation of people in rural areas of Middle Rapti watershed. To ease pressures, in Y5, Paani will promote labor-intensive interventions that directly contribute to local food security and income and create job opportunities that indirectly reduce over exploitation of fishery resources, conserve wild habitats and keystone fish species. Paani will achieve this through:

- Promotion of small-scale integrated fish farming (IFF), post-harvest processing, and developing and/or connecting markets to fisheries products;
- Promotion of local skills and knowledge, mainly on traditional fishing gear production, and
- Mobilizing members of CAACGs and fish cooperatives and off-farm seasonal migrants in technically feasible areas, recommended by aquaculture feasibility study report and based on site observation in Paani priority watersheds
- The strategy for Y5 includes:
- Conduct detailed technical study to establish IFF and culture-based fisheries in select watersheds
- Facilitate and persuade local governments to provide public land to CAACGs for IFF
- Provide hands-on training in collaboration with resource persons in the local government to the CAACGs on IFF farm design, establishment and production processes and methods
- Provide in-kind support for equipment and production inputs to selected community groups for IFF operation
- Provide technical support to IFF enterprises in management and operation
- Support in the establishment of fish market center in each major fish catch site in targeted watersheds
- Develop and produce IEC materials on fish recipes to raise consumers' awareness of the nutritional value of fish
- Facilitate linkages with public and private agro-vet service providers
- Support the promotion of traditional fishing gear to the CAACGs
- Support CAACGs through wage labor for patrolling and monitoring of river stretches

Expected outcomes of these interventions in Y5 will be:

- Diversified livelihood opportunities through the promotion of IFF and culture based fisheries will provide increased employment and income for fishers, migrant returnees and marginalized communities while indirectly reducing pressure on river resources.
- Local skills and knowledge will be promoted through increased marketing of local fishing gear, which is relatively safe compared to others to protect fishery resources.
- Mobilization of CAACG groups in patrolling and monitoring destructive and illegal fishing practices in river stretches will have a direct positive impact on the protection of endemic and threatened fish species and fish population in rivers.

B. NATIONAL SUSTAINABLE HYDROPOWER STRATEGY

Paani refined its sustainable hydropower strategy in Y4 based on an opportunity to conduct a national system-scale analysis in partnership with WWF, which will build support for energy development in

Nepal that promotes prosperity and protects high value conservation areas. This analysis utilizes a methodology pioneered by TNC called Hydropower by Design (HbD). The concept of HbD is that by shifting the scale of hydropower planning and management – decisions about which projects get built and how they are operated – away from single dams and towards the system scale, a country can achieve better ecological, economic, and social outcomes.

WWF USA, a Paani subcontractor, is conducting a system scale planning (SSP) assessment to inform how hydropower planning and development in Nepal can be balanced with other energy options and conservation goals. The project is led by WWF USA with technical expertise provided by The Nature Conservancy (TNC), University of California Berkeley, Stanford University, McGill University, and additional international independent consultants. The project will inform and complement WECS' river basin management planning and ultimately support Nepal to make informed decisions about the proper siting and design of hydropower projects.

By the end of 2020, the work will result in a final report that includes:

- An energy options assessment (EOA) for Nepal that will quantify the costs and benefits of alternative development electricity systems, including an option that pursues increased investment in solar, wind, and pumped storage.
- A report detailing the High Conservation Value Rivers (HCVR) of Nepal, based on characteristics such as connectivity, sediment, fish habitat and other aquatic biodiversity, cultural, social and economic values to communities.
- A report and decision support database on system scale planning (SSP) for the Karnali Basin. The report will describe the SSP approach and demonstrate how the decision support database can be used to explore tradeoffs, make those tradeoffs visually clear and understandable, and to search for a set of investment options (defined in terms of location, design and operation) that perform well across a range of economic, social and environmental objectives.

The system scale planning project provides Paani the opportunity to create a more comprehensive and strategic approach to basin scale sustainable hydropower development that aligns efforts of the SAs for sustainable hydropower, policy, advocacy, and river basin management.

1) Increase GON potential uptake of system scale planning approaches through increased stakeholder participation in the sustainable hydropower analysis and planning project.

Early in Y4, Paani and WWF, in collaboration with WECS and MoFE, organized a two-day national consultative workshop on Paani Sustainable Hydropower Development (SHD) initiatives, which included the initial informative sessions on three studies (EOA, HCVR and SSP), Paani's collaboration with IPPAN and IFC on capacity building and promotion of standards. The workshop concluded with formation of an advisory committee for the HCVR assessment, which convened five times in Y4. The group agreed on the following definition:

*A High Conservation Value River is a **clean, highly connected** or **free-flowing** river or stretch that acts as a lifeline, **maintaining ecosystem services** for present and future generations, providing refuge and habitat for **high levels of aquatic biodiversity**, and supporting important **socio-cultural values.***

In addition, following a joint field trip with WECS and USAID, and WECS-convened meetings with Paani, USAID, World Bank/Tratebel, and other GON stakeholders, WECS committed to

incorporating aquatic biodiversity conservation in the upcoming National Water Resource Policy and to use Paani-produced information in its River Basin Master Plans, SESA and Hydropower Master Plan. WECS also encouraged Paani and Tractebel to work together and exchange data/information to avoid duplication and complement each other's work. As a result, Tractebel is building on the initial HCVR results shared by Paani in its preparation of baseline data for the Koshi River Basin Planning. Tractebel shared data for the Hydropower Master Plan it is developing, which WWF is reviewing for use in the EOA. Paani also held a midterm webinar with stakeholders in Nepal to update them on the progress of the three studies and to solicit feedback. In Y5, Paani will continue to engage GON in advisory group meetings, consultations and webinars to share further results.

2) Align Paani's advocacy and capacity building activities for sustainable hydropower with the system scale planning effort.

Nepal has had some limited success with communities advocating for better local outcomes from hydropower development. However, Nepal lacks a strong national CSO or advocacy base to voice concerns for how the country develops hydropower at the national scale. In Y4, Paani finalized the Advocacy Plan for Sustainable Hydropower and an associated training curriculum on advocacy for CSOs. Paani also finalized the English and Nepali content for the CSO guidelines, which provides an overview of terminology, legal frameworks and basic advocacy tools related to hydropower, roads and irrigation. In Y5, Paani will finalize the layout and graphics, publish and roll out the guide to Paani grantees and other CSOs affected by infrastructure development in their watersheds.

3) Use Paani's USAID communication strategy to share case studies and learning.

In Y4, Paani finalized its Sustainable Hydropower Advocacy Plan, which provides a comprehensive framework for all of Paani's SHD work so that the project's SHD products are viewed as complementary components of an overall national hydropower strategy for Nepal, rather than one off resources. In Y5, communications team will further refine a dissemination plan to share results and outcomes of the SHD products, including:

- 3 analytical reports (HCVR, EOA and SSP)
- 2 tools for HCVR, one tool for SSP
- 2 guides (EFRC and CSO)
- 1 environmental and social monitoring checklist

C. A COMPREHENSIVE CASE STUDY FOR ENVIRONMENTALLY FRIENDLY ROAD DESIGN

Paani refined its approach to rural roads and mining based on the realization that adopting guidelines alone does not directly lead to better road practices. It is well known that despite the threats roads and mining development have on watershed health and public safety, current practices continually fail to comply with existing rules and guidelines required by the Government of Nepal. Paani identified three principle, but not necessarily equal, drivers for why best practices are not followed for rural roads.

1) The GON has yet to establish the institutional oversight and standards at the provincial level to support local governments with technical infrastructure design.

2) The socio-economic and political pressures for improving quality of life, livelihoods, and

development opportunity at the local, provincial, and national scale is overriding any environmental or public safety concerns.

3) The lack of knowledge and technical expertise at the local level results in heavy equipment operators acting as road engineers during construction.

In Y3, Paani developed a new contractual partnership with Scott Wilson Nepal (SWN). They provided engineering technical assistance for an environmentally friendly road design model demonstration project on two sites in the Middle Karnali watershed implemented early in Y4. They conducted a series of awareness campaigns on Environmentally Friendly Road Construction (EFRC) by developing and disseminating Information, Education and Communication (IEC) materials. They also supported 15 local governments (in West Seti, Middle Karnali and Jhimruk watersheds) develop municipal level EFRC guidelines. Eight local governments endorsed and have allocated funds to apply the guidelines, and Paani has continued to follow up with them through Y4 Q4.

Paani is working to integrate its different activities to develop a stronger proof of concept demonstration, not only of the technical feasibility and ecological benefits of environmentally friendly infrastructure, but also of the social, economic, and political value of higher quality rural roads.

In Year 5, Paani will

1) **Support local governments with the adoption of EFRC guidelines.**
   - Follow up on the endorsement of the EFRC guidelines in the remaining local governments and ensure all local governments' road construction matches their fund allocation in year four and ensure they are following the EFRC guidelines.

2) **Build local government and user group understanding of the benefits and feasibility of sustainable infrastructure.**
   - Complete the CSO guide for environmentally friendly infrastructure which provides advocates with knowledge about the technical and environmental benefits of good road design.
   - Disseminate the Information, Education, and Communication (IEC) materials developed by SWN through grantees.

3) **Disseminate a case study on the technical, social, environmental, financial, and political viability of EF roads.**
   - The Paani team will create an end of project comprehensive case study on the benefits of environmentally friendly roads based on road demonstration, successful community adoption of guidelines, and evidence of fiscal and budget benefits.
   - The Paani communication team will develop a communication plan to share results at the local and national level.

By June 2021, Paani's expected outcomes will be:
- In the Middle Karnali, demonstration sites will be completed.
- 15 local governments will adopt EFRC guideline and at least 3 EF roads will be constructed in three watersheds.

D. INFORM AND STRENGTHEN A MULTI-STAKEHOLDER VISION AND PLATFORM FOR THE KARNALI.

Paani will build on the lessons learned in Y3 and Y4 developing watershed and basin level platforms and forums to inform Nepal's vision and capacity to balance development and conservation in the Karnali River ecosystem through the following:

- Conduct outcome harvesting on platforms built at the watershed level to determine capacity and willingness of local governments to carry platforms forward
- Develop an engagement strategy to involve stakeholders interested in the Karnali River in the national hydropower strategy, especially the system scale planning project.
- Disseminate key findings to stakeholders interested in the Karnali, including three reports being developed with WWF, i.e.,:
    - High conservation value rivers (HCVR)
    - Energy Options Assessment
    - Systems Scale Planning

SECTION 11: EXECUTIVE SUMMARY

This combined Year 4 (Y4) annual progress report presents overall Y4 accomplishments and detailed reporting for activities during Paani's seventeenth quarter from April 1 – June 30, 2020 (Y4 Quarter 4).

This year, Paani made significant strides in research, development of local and national level laws, and working with communities to conserve aquatic biodiversity while supporting their livelihoods, despite COVID-19 imposed challenges and constraints.

To date, Paani has identified 216 fish species through its aquatic biodiversity research, which guided the development of Aquatic Animal and Aquatic Biodiversity Acts (AABCAs) in 17 new rural/municipalities and sustainable Capture Fisheries Management Guidelines (CFMGs) in 4 new rural/municipalities this year. Paani also identified 16 waterfowl and 13 wetland-dependent bird species of 104 observed in Rara Lake, which provided the technical background for developing the Rara Ramsar Site Development Plan to help prioritize conservation activities.

In Y4 alone, Paani supported the formation of 76 Community Aquatic Animal Conservation Groups (CAACGs), bringing the total formed to 98 in 10 watersheds, of which 37 are registered and 61 are in the process of group statute formation and registration in the respective municipalities and rural municipalities. Sixteen registered CAACGs have been handed river stretches to manage by the local government, as per provisions in the AABCA. These initiatives encouraged local governments to leverage resources for conservation. For example, 6 rural/municipalities allocated a budget of nearly 9.2 million Nrs. (~ USD 76,800) to aquatic biodiversity conservation and livelihood improvement activities for CAACGs and river resource dependent communities.

Local governments also allocated their own funds to environmentally friendly road construction (EFRC) this year following engagement with Paani. With Scott Wilson Nepal (SWN), Paani engaged local governments and stakeholders through a series of consultations in the Jhimruk, Middle Karnali and West Seti watersheds to develop an EFRC guideline. Along with the consultations, Paani developed and disseminated Information, Education and Communication (IEC) material on EFRC through 21 awareness campaign events. Ultimately, the project distributed 10,000 copies of this material in the three watersheds. Paani also conducted study tours for local government representatives to demonstrate good and bad rural road construction practices. By the end of Y4, 8 out of 15 local governments had endorsed the guidelines and allocated 58,100,000 NPR (approx. $475,000) to EFRC road construction.

*Following engagement with Paani in Year 4, **l**ocal governments allocated:*

- ***9.2 million Nrs. (~ USD 76,800)** to aquatic biodiversity conservation and livelihood activities*
- ***58,100,000** Nrs. **(~ USD 475,000)** to EFRC road construction*

At the national level, Paani provided input on a number of important policies this year, leading to incorporation of aquatic biodiversity conservation in national law. For example, Paani provided suggestions on the draft of the Fisheries Development Policy and Electricity Bill, respectively, to the Ministry of Agriculture and Livestock Development (MoALD) and the Ministry of Energy, Water Resources and Irrigation (MoEWRI). MoEWRI revised the Electricity Bill, incorporating the stipulation that hydropower developers make arrangements to release a prescribed amount of water for

downstream aquatic and human communities, and take measures to mitigate negative and adverse impacts, when constructing hydropower projects, as prescribed in the Electricity Bill. In addition, the federal parliament enacted the Environment Protection Act in October 2019, which includes seven sections drafted by Paani at the request of MOFE.

Paani also kicked off three major WWF-led studies, i.e., high conservation value rivers (HCVR), energy options assessment (EOA) and systems scale planning (SSP), in Y4 through technical workshops in Kathmandu and Surkhet that brought key stakeholders at the national and provincial levels together to provide input on the Karnali River system. Paani formed an advisory group on HCVR, which convened five times. The group includes representatives from USAID, GON and academia and has consistently provided input to the international research teams working on the HCVR studies. Paani's data is feeding into Tracetbel's development of a Hydropower Master Plan and Strategic Environmental and Social Assessment (SESA) for the major rivers of Nepal. At the same time, Tractebel is analyzing and incorporating Paani's data in their first river basin plan for the Koshi River Basin.

In terms of disaster risk reduction (DRR), Paani supported the installation of hydro met stations in Rangun watershed to provide hydro met data to local authorities to help them better understand and manage flood risk. Downstream flood-vulnerable communities, including approximately 918 households (5,254 people) from 17 villages, now receive flood risk warnings, allowing them to respond more quickly and ultimately minimize loss of life and property. With the Department of Hydrology and Meteorology (DHM), Paani also prepared flood hazard maps for 10 watersheds, which identified potential flood prone settlements in different inundation scenarios.

At the provincial level, Paani laid a solid foundation for the Karnali River Basin Conservation Fund (KRBCF) and the Karnali Basin Conservation Foundation (KBCF), selecting a consortium of Dolma Group, SAFAL and VRock to serve as the Fund Manager. They registered as a single joint venture known as DSV Advisors (DSV), which spent much of Y4 building relationships with the provincial government, entrepreneurs and other key stakeholders in the Karnali River Basin (KRB); raised awareness of the KRBCF and KBCF in various forums in the KRB; identified key sectors for investment; and developed a pipeline of investible projects.

Throughout Y4, Paani built the capacity of local communities and government authorities in technical and social aspects of watershed management; climate smart best practices; DRR; river rafting; homestay management for ecotourism and livelihood promotion; and mainstreaming GESI in freshwater biodiversity conservation and leadership development. In all, Paani organized 45 training events for 1,045 people, including 574 women and 644 participants from marginalized groups. Paani's compiled analytical results revealed that knowledge of technical and social aspects of watershed management and climate-smart best practices increased by 38% in Rangun, 30% in Bogatan Lagam, 27% in Jhimruk, and 30% in Middle Rapti watersheds. Knowledge of collaborative leadership and advocacy skill development increased by 40% in Middle and Lower Karnali, and 63% in Jhimruk and Middle Rapti combined. At the national level, a Paani training for hydropower developers on emergency action planning revealed that knowledge of disaster risk management for hydropower emergency action plans and dam breach situations increased by 73.3% and 72%, respectively.

Finally, it is important to note that the COVID-19 pandemic heavily affected Paani's programs during the second half of the year due to the threat to health and subsequent responses from GON and USAID to ensure public safety. In coordination with USAID, Paani followed all restrictions put in place by GON

beginning in early March 2020, and the "Stop Work Order" issued by USAID, which was in effect from March 22 – June 21, 2020. When the SWO was issued, Paani immediately moved to teleworking as Nepal went into "lockdown," abiding by the government directives that instructed the majority of the population to stay at home and only allowed essential businesses to remain open. As a result, a number of events, field activities, site visits, seasonally-based research, and work involving international consultants who could not travel was delayed/cancelled, which affected some target projects. By the end of Y4, the lockdown had loosened, but Paani's offices remained closed, as per their Risk Management Plan approved by USAID.

Fortunately, at the request of USAID, Paani was able to pivot a number of project activities and grants to respond to the impacts of COVID-19 and the related lockdown, in particular to support those hit hardest, such as returned migrants and those from marginalized communities.

SECTION III: ACTIVITY IMPLEMENTATION

This section covers progress on tasks under each strategic approach (SA). Participation broken down by gender and caste/ethnicity for events and select activities across the program that are mentioned under these SAs are outlined in the Annex, Exhibit A2.

STRATEGIC APPROACH 1A: IMPROVE MANAGEMENT OF CAPTURE FISHERIES

The goal of this strategic approach is to reduce threats to freshwater biodiversity and fishery livelihoods by reducing poaching, destructive and illegal fishing, and overfishing.

Year 4 highlights under this SA include:

- Paani identified 14 fish species, bringing the total identified to date to 216, through its aquatic biodiversity research, which guided the development of the AABCAs in 17 new rural/municipalities and sustainable Capture Fisheries Management Guidelines (CFMGs) in 4 new rural/municipalities
- Paani identified 16 waterfowl and 13 wetland-dependent bird species of the 104 observed in Rara Lake, which provided the technical background for developing the Rara Ramsar Site Development Plan which helped prioritize conservation activities.
- Paani has supported the formation of 98 CAACGs to date in 10 watersheds, of which 37 are registered and 61 are in the process of group statute formation and registration in the respective municipalities and rural municipalities (Annex, Exhibit A3).
- Paani presented its collaborative aquatic resources river stretch co-management framework and assessment of river basin planning (system scale planning, high conservation value river & energy option assessment) at the Second International Mahseer Conference in Thailand to international scientific stakeholders, receiving useful feedback on best conservation management practices.
- Paani engaged with government line agencies to encourage the development of aquatic biodiversity conservation initiatives in their plans. As a result, WECS recently drafted the Water Resource Policy, which addresses aquatic biodiversity issues, such as prioritizing/researching IWRM, preparing river specific biodiversity inventories, ensuring e-flow, maintaining a minimum water quality standard, controlling the over-extraction of river aggregates and regulating waste disposal, and promoting aquatic biodiversity-friendly infrastructure.
- Paani developed two key products – a fisheries conservation framework and eco-tourism report - through national and field level assessments to inform policy and plans related to aquatic biodiversity conservation and enhanced livelihoods for communities involved in conservation.
- Paani initiatives encouraged local governments to leverage resources for conservation. For example, four rural/municipalities allocated a budget of nearly NRs. 3.0 million to aquatic biodiversity conservation and livelihood improvement activities for CAACGs and river resource dependent communities.
- Paani supported the livelihoods of CAACG members through trainings and eco-agro activities, encouraging them to establish and operate financial saving schemes, thereby reducing overfishing and mobilizing them in conservation.
- Paani built the capacity of CAACGs in a number of areas to support the conservation of

aquatic biodiversity, including:

- Conducting 19 mini-assessments and preparation/maintenance of community biodiversity inventories in Jhimruk, Middle Rapti and Lower Karnali watersheds;
- Preparing maps of river stretches showing biodiversity-rich, spawning and fishing areas in the Middle Rapti, Jhimruk, Middle Karnali, Thuligaad and Bogatan Lagam;
- Providing management authority of river stretches to CAACGs through provisions of the AABCA; and
- Conducting vulnerability mapping of river dependent communities, which showed environmental hazards and a decline in fish resources due to unsustainable infrastructure development in the Jhimruk watershed.

Specific progress from Y4 Q4 is reported below.

TASK 1.1.1: ASSESS CAPTURE FISHERIES

In Y4, Paani identified 14 unique fish species including native and exotic fish species through aquatic biodiversity research (Forest Action Nepal [FAN]) and Paani mini-assessments in four new locations: Ramaroshan Lake (Karnali River Basin), Rani Tal Lake (Lower Mahakali), Satti Tal Karnali Lake (Lower Karnali) and Rara Lake (Rara Khatyad) in the Rapti River Basin (Annex, Exhibit A3). In Y4 Q4, Paani updated the list of fish species, removing duplication in nomenclature, and confirmed that a total of 216 fish species had been identified thus far. These 216 species belong to 34 families from the Mahakali (Lower Mahakali Watershed only), Karnali and Rapti River Basins, including lakes. These basins host 49 migratory, 12 threatened, 7 endemic and 11 flagship fish species (Figure 3). Paani also identified 14 species of freshwater mollusks including gastropods (12 species) and two bivalve species through FAN research in the Satti Karnali Lake (Annex, Exhibit A3).

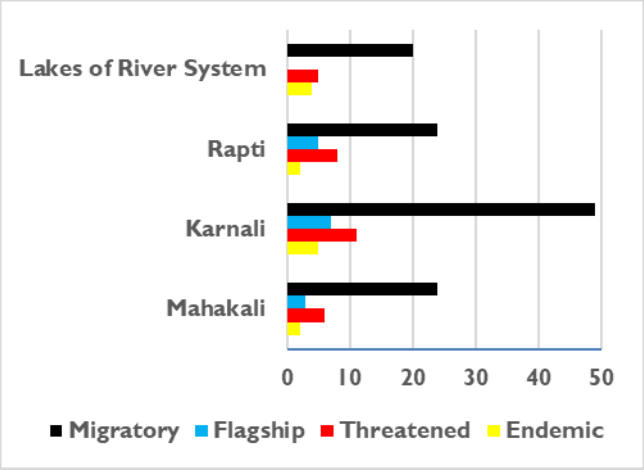


Figure 3: Migratory, endemic and threatened fish species in Mahakali, Karnali and Rapti River Basins inclusing lake wetlands

In addition to fish species, Paani identified 16 water fowl and 13 wetland dependent bird species of the 104 species of birds observed in Rara Lake through Bird Conservation Nepal (BCN) research. The persistence of the diversity of fish and wetland birds in the high-altitude Rara Lake (2900 masl) indicates that the lake habitat is suitable for co-existence of these different taxa and that their interdependence is essential for their survival and growth (links to SA 4a). This biodiversity research will provide the technical background for the development of the Rara Ramsar Site Development plan and help in prioritizing conservation activities. In Y5 Q1, work under SA 4A will further inform the aquatic biodiversity inventory, strengthen regulatory frameworks and conservation measures, and identify protected areas.

In Y4 Q4, the Paani/WWF Fish Biology Consultant prepared a draft report on fish species diversity and distribution patterns in the river systems of Nepal. The report consolidated all available information on the status of fish in Nepal and provided a list of 240 native fish species (15 endemic, 27 threatened, 14 migratory, 220 high-food value, 82 commercial value, 25 sports-value and six keystone

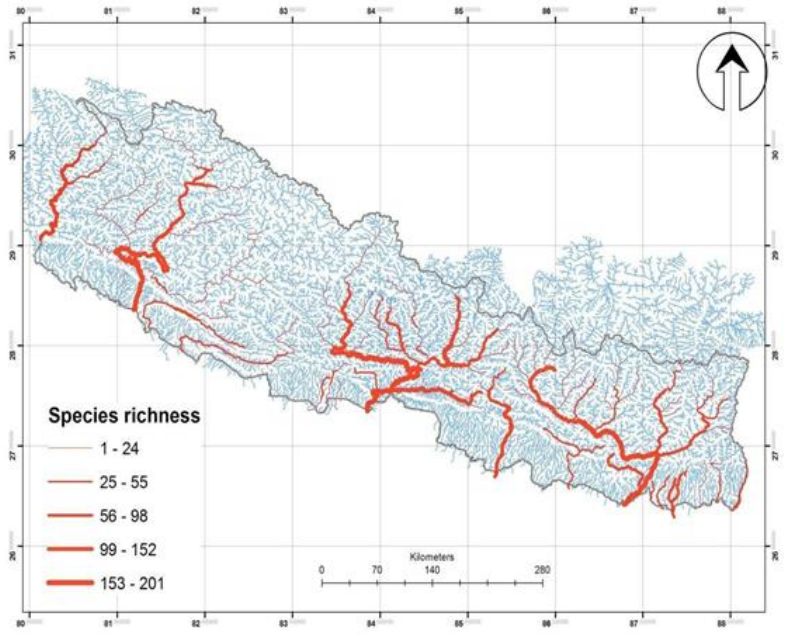


Figure 4: Fish distribution map in different rivers

species) distributed in different magnitudes (Figure 4). The fish biodiversity profile will contribute to WWF's ongoing assessment of high conservation value rivers (HCVR, more details under SA 2c).

In Y4 Q4, Paani prepared a consolidated draft report on the status of fish diversity in the Mahakali, Karnali and Rapti River Basins. The report includes: fish species distribution across the basin, flagship species, threats to aquatic biodiversity, and the impact of upstream and downstream activities on river ecology and biodiversity. The report pooled the information from the fish vulnerability assessments and biodiversity research conducted through Paani grantees KU, CMDN, FAN, IUCN and CODEFUND-IUCN. Consolidated aquatic biodiversity information provides the foundation for institutionalizing co-management of aquatic resources, basin planning, and a baseline to monitor changes in fish resources. The report will be shared with the Tractabel team to use in the River Basin Planning and Social and Environmental Strategic Assessment (SESA).

In Y4 Q4, Paani, in collaboration with SNV's national and international consultants, drafted a manual for the catch assessment survey (CAS), including methodology, a step-by-step process, data collection templates, and a simplified version of the manual for field application. CAS is an approach used to enable the characterization of capture fisheries, including the total catch, type of fish in the catch, and the level of fishing effort. A well-designed CAS provides basic data that can be used to estimate the status of fish stocks and the performance of the fishery. In Y5, Paani with technical back up from the SNV team, will conduct case studies and surveys in selected river stretches (Tila, Middle Karnali, Lower Karnali watersheds) to characterize fisheries and generate baseline data for the development of capture fisheries based business cases.

Sub-task C.1.1.1-2 Build capacity of fisher community to engage in alternative business enterprises

In Y4, Paani, in collaboration with SNV's national and international consultants, developed a fisheries conservation governance framework and market development strategy (FCGFMDS). The framework recognized fisheries as an important sector that contributes to livelihoods and the national economy, and identified threats and constraints for the conservation of fisheries resources and development of the sector. In Y4 Q4, based on the framework recommendations to increase benefits (market attributes) from conservation, Paani initiated studies for the CAS and to develop business cases of different

production pathways, including capture fisheries, aquaculture and fishery based ecotourism (linked with SA 4a).

In Y4 Q4, Paani drafted a manual on CAS methodology that provides step-by-step guidance for implementing a preliminary fishery survey (as a pre-cursor to a formal CAS) for the Karnali River, which could be customized for other rivers in Nepal. In Y4, the Paani team was not able to carry out the planned catch assessment surveys (CAS) in the spring fishing season due to COVID-19 travel restrictions. Therefore, in Y5 Q1 and Q2, Paani will finalize the CAS methodology, including testing the methodology, and develop the business cases. The business cases will serve as a decision support tool to identify investment opportunities in fisheries and aquaculture that generate green jobs, increase employment opportunities, and strengthen livelihoods. Paani will work with the Karnali River Basin Conservation Fund (KRBCF) (see SA 2a) to present these business cases to entrepreneurs, who will be invited to make investments, while ensuring that fishery resource levels are maintained through ongoing catch assessments by CAACGs after the Paani program ends.

In Y4, Paani conducted a feasibility study of aquaculture and culture-based fisheries in three mountain districts (Kalikot, Jumla, Mugu) in the Karnali Province through the Global Institute of Interdisciplinary Studies (GIIS). Paani identified suitable areas in 20 rural municipalities (RM)/municipalities (M) for cold water aquaculture, 24 RM/M for warm water aquaculture, and 10 wetlands (river stretches and lakes) for promoting culture-based fisheries (Figure 5). The objective of this study is to inform the Karnali provincial government's plans to develop a capture fisheries livelihood program for fishers and marginalized communities that are dependent on capture fisheries, thus reducing pressures on freshwater biodiversity conservation. In Y4 Q4, Paani completed the desk study of the aquaculture feasibility for all five districts using geo-spatial maps and secondary information. Paani was not able to conduct the feasibility study at the field level in the two remaining districts, Dolpa and Mugu, due to COVID-19 travel restrictions. In Y5, Paani will complete the feasibility study for those two districts, and prepare a consolidated final report to submit to the Ministry of Land Management, Agriculture and Cooperative (MoLMAC) of Karnali Pradesh. Paani will also prepare a detailed project report (DPR) for commercial fish hatcheries and aquaculture farms for distinct ecological areas of the Karnali Pradesh.

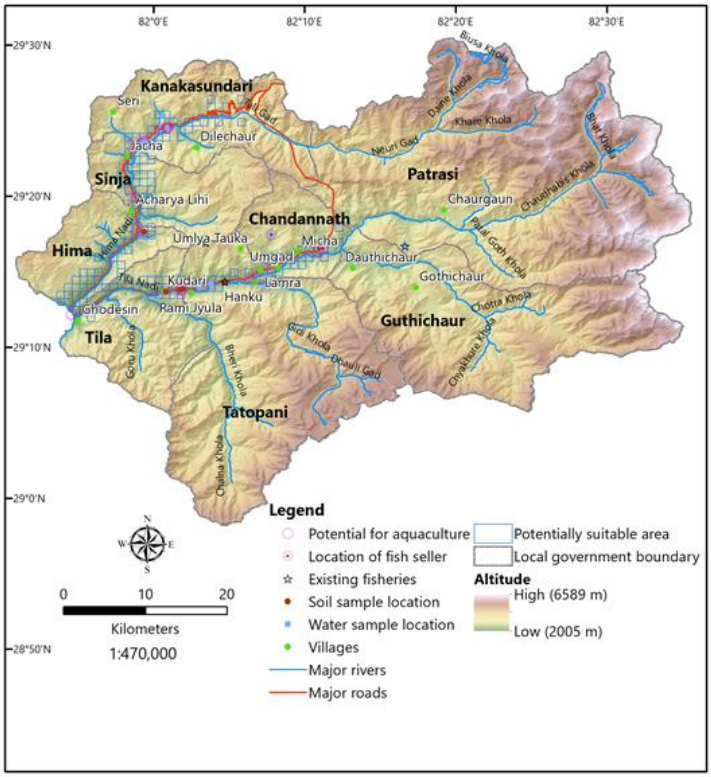


Figure 5: Map of Jumla district showing the potential sites for aquaculture and culture-based fisheries

In Y4, Paani assessed the fish market and supply chain of the Lower Mahakali watershed with the objective to assess the supply and demand of fish from different sources, including capture fisheries, fish farming and imported fish. The outcome of the assessment will guide market actors to differentiate the value of fish from different sources based on their freshness and flesh quality.

Paani's co-management model refinement focused on developing an appropriate operational system for governance and management of CAACGs and for integration of livelihood development. In Y4, Paani through grantees provided a variety of trainings to the CAACGs and farmers on alternative livelihoods (see Annex, Exhibit A3 for a detailed list of trainings).

These trainings and material support from Paani have produced results for CAACGs and marginalized communities, such as increased income generation and more resilient livelihoods. For example, one CAACG in the Lower Mahakali watershed farmed different off-season vegetables and generated an income of NRs. 16,000. With the income generated from vegetable production, the CAACG established a monthly savings scheme to provide members with financial support at a low interest rate. Similarly, CAACGs and farmer groups have generated income of NRs. 170,500 from the production and sale of vegetables. These capacity building and support activities enable CAACGs to obtain alternative and/or additional opportunities, which indirectly reduces pressure on fishery resources.

The GON's nationwide lockdown, imposed to minimize the risk of COVID-19, threatens fishery resources. With increased unemployment and decreased income and employment opportunities, more people resort to fishing, often using destructive fishing practices. In Y5, to ease this pressure, Paani will promote alternative livelihood measures, such as wage-based river stretch patrolling and resource monitoring, integrated fish farming (IFF) with vegetables and livestock, and production of traditional skill-based and environment friendly fishing gear, all of which directly contribute to food security and job creation.

In Y4, Paani supported a CAACG to establish a fish collection center in the Jhimruk watershed. The fish collection center will systematize the capture fisheries market and serve as a center for the collection of catch, providing primary data to help evaluate the outcome of aquatic biodiversity conservation measures and overall river stretch co-management. In Y5, Paani will establish more fish collection centers in 7 priority watersheds (Lower Mahakali, Rangun, Thuligaad, Middle Karnali, Bogatan Lagam, Lower Karnali, and Middle Rapti) to strengthen the market of capture fisheries and IFF products.

As part of Paani's goal to create a comprehensive river stretch co-management process that can be replicated, Paani deepened its work to include integrating CAACGs with fish cooperatives. In Y4 Q4, Paani supported CAACGs to establish fish cooperatives in the Middle Karnali and Lower Mahakali watersheds. In Y5, Paani will help the cooperatives register with the respective local government, which will make them eligible to request resources from the municipality. Paani provided a three-day cooperative formation and leadership capacity building training and a two-day training on cooperative accounting management for the two CAACGs and one farmer group in the Lower Mahakali watershed. In Y5, Paani will support these cooperatives in product diversification and marketing.

TASK 1.1.2 BUILD CAPACITY FOR FISHERIES CO-MANAGEMENT

In Y4, Paani formed and helped register 14 CAACGs in Thuligaad and Bogatan Lagam watersheds and enhanced the capacity of these groups to monitor aquatic resources, which communities can use to

establish river stretch co-management arrangements. One Co-Management Committee (CC-Apex Body) was formed in each of the Thuligaad, Jhimruk and Tila watersheds, including representatives from CAACGs, local governments, and related stakeholders, with an aim to facilitate effective communication among stakeholders and CAACGs, and to establish upstream and downstream linkages. As per the provisions of the AABCA, Paani facilitated the formation of an Aquatic Animal Biodiversity Conservation Council (AABCC) in the Thuligaad watershed to support the coordination among the RM/Ms to harmonize conservation activities within the watershed. Chure and Mohanyal RMs, with the support from Paani, formed an Aquatic Animal and Aquatic Biodiversity Management Committee (AAABMC), involving representatives of local governments and other relevant stakeholders to provide advisory services on the management of aquatic resources. Likewise, Paani supported the formation of 76 CAACGs and supported the formation of a Community-Based Anti Poaching Unit (CBAPU). Paani facilitated development of the CBAPU's operation guidelines in the Rara-Khatyad watershed. These CAACGs and CBAPUs patrol and monitor aquatic resources, disseminate messages on proper use of fishing gear, confiscate destructive fishing tools and gear, and inform the local administration of the use of destructive fishing practices. Paani supported 31 newly formed CAACGs to draft their statutes, which are mandatory for registration with the RM/M. In Y4 Q4, statute development and registration of CAACGs was paused due to COVID-19 meeting and travel restrictions. In Y5, following the endorsement of AABCAs, Paani will continue to support CAACGs on statute development and registration.

In Y4, as a part of the co-management process, Paani helped local governments in the West Seti, Thuligaad, Tila, Lower Karnali and Jhimruk Watersheds in developing AABCAs, and in the Rangun and Lower Mahakali Watersheds in developing Capture Fisheries Management Guidelines (CFMGs), as instruments to initiate river stretch co-management. Similarly, in Y4 Q4, Paani supported CAACGs in the Middle Rapti Watershed to draft a 10 year operational plan based on community forestry operational plans (CFOP) and provisions in the AABCA. In Y5, Paani will facilitate local governments in river stretch handovers to CAACGs.

Paani introduces the principles and practice of river stretch co-management with the objective of improving knowledge and skills to successfully develop co-management institutions. Paani pays particular attention to the theory and benefits of community organization as a basis for successfully implementing co-management on the ground. Paani's training and capacity building activities throughout Y4 were extensive and included:

- 10 resource monitoring and 4 community biodiversity register maintenance trainings to CAACGs in the Jhimruk and Middle Rapti Watersheds to enable them to initiate mini-assessment and assess changes in aquatic biodiversity.
- Three leadership and advocacy skill development trainings to CAACGs in the Bogatan Lagam, Lower Karnali, Middle Karnali, Middle Rapti and Jhimruk Watersheds to develop leaders in co-management.
- 2 GESI mainstreaming trainings for CAACGs and Water User Groups (WUGs) in Lower Karnali, Middle Karnali, Jhimruk and Middle Rapti watershed to enhance the understanding of the significance of GESI mainstreaming in natural aquatic resources management.

- Training of Trainers (TOT) on river stretch co-management and fish post-harvest to grantees and Paani field staff to develop ground level capacity for the delivery of trainings to CAACGs and relevant stakeholders.
- A five-day exposure visit to various commercial fish farms, community farms and agriculture markets in Kanchanpur, Kailali, Banke, Bardiya and Dang districts for representatives of CAACGs, fish farmers, and cooperatives in the Lower Mahakali watershed to learn about fishery management, fishers/fish farm networking, and to engage with other cooperatives and fish farming activities.

These trainings aim to enhance the knowledge and skills of relevant stakeholders to practice sound conservation measures. These trainings help generate knowledge to develop management skills of river-based communities and to shape institutional arrangements and processes for river stretch co-management. Some trainings on co-management planned for Y4 Q4 were not implemented due to COVID-19 meeting/workshop restrictions and the GON lockdown.

In Y4, Paani supported 195 periodic meetings and an annual general assembly of CAACGs and their apex bodies in the Middle Karnali, Middle Rapti and Jhimruk Watersheds. In Y4 Q4, CAACGS conducted 24 tele-meetings in the Middle Rapti Watershed. These meetings helped them prepare plans for monitoring aquatic resources and biodiversity, patrolling river stretches for overfishing and destructive fishing practices, conducting awareness programs and facilitating activities with local administrators, including local police officers.

In Y4, Paani encouraged CAACGs in the Middle Rapti and Jhimruk watersheds to establish and strengthen savings and credit schemes to support their financial needs. These CAACGs are saving more than NRs. 242,000 and providing loans to members at a nominal interest rate (Annex, Exhibit A3). Their savings have increased more than 150% within seven months of operation (Figure 6). These schemes have also helped build strong relationships among the members, encouraging them to stay in the group and contribute to group objectives.

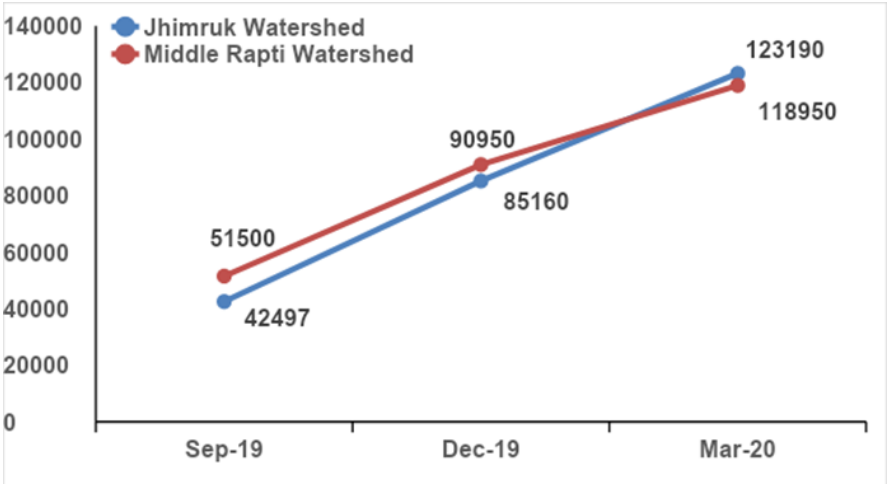


Figure 6: Trends of saving increase of CAACGs in Jhimruk and Middle Rapti Watershed

Throughout Y4, after the enactment of the AABCA, CAACGs in the Middle Rapti, Jhimruk and Middle Karnali Watershed adopted the fishing provisions made in the AABCA and are regularly monitoring the fishery resources in vulnerable areas (fishing and biodiversity hot spots). In Y4 Q4, anecdotal evidence suggests increased fishing pressure is driven by unemployment and the increased movement of people to

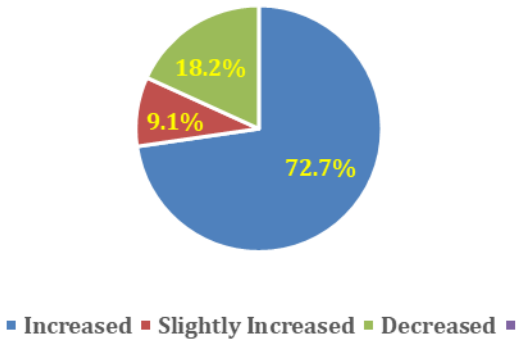


Figure 7: Perception of CAACGs (11) on changes in fish population during lockdown period (Q4) in Jhimruk Watershed

the rural areas of the Middle Rapti, Lower Karnali and West Seti watersheds during the COVID-19 lockdown. However, in some cases, (for example, in Middle Karnali and Jhimruk watersheds), the fish population increased because of restricted human activity (Figure 7). In the West Seti, Lower Karnali, Middle Karnali, Middle Rapti and Jhimruk watersheds, some CAACGs patrolled delineated river stretches and issued prohibitory notices related to non-fishing days and fishing practices throughout the lockdown period in Y4 Q4. As a result, CAACGs reported at least 19 cases of illegal fishing practices in these watersheds. In Y5, Paani will support CAACGs by providing wages for patrolling and monitoring river stretches. This will directly contribute to local food security, income and create job opportunities that indirectly reduce over-exploitation of fishery resources and conserve habitats and keystone fish species.

In Y4, Paani initiatives encouraged local government to leverage resources for conservation:

- Mahakali Municipality in the Lower Mahakali Watershed provided a matching fund worth NRs. 241,000 to renovate natural wetlands for aquaculture to benefit 385 households from fisher and marginalized communities without disturbing natural aquatic biodiversity in the surrounding wetlands and water bodies.
- Rapti RM in the Middle Rapti Watershed allocated NRs. 200,000 to raise awareness and build capacity among fisher communities.
- Aathabis Municipality in the Middle Karnali created a program for alternative livelihoods for CAACG members through fish cooperatives and allocated NRs. 2.0 million for fisheries and aquaculture activities.
- Shey Phoksundo RM allocated NRs. 400,000 to promote homestay activities in Rigmo village in the Phoksundo-Suligaad Watershed.

These examples show that local governments are gradually realizing the importance of aquatic biodiversity conservation and are leveraging available resources to strengthen community institutions for the implementation of the AABCA and CFMGs.

1.1.4 Support extension-type continuing education programs

In Y4, Paani continued its aquatic biodiversity conservation awareness efforts and technical dialogues to enable government line agencies to better engage and collaborate on aquatic biodiversity management issues.

To raise awareness on the threats and challenges in fish biodiversity conservation, sustainable and unsustainable fishing practices, and legal provisions for aquatic biodiversity conservation, Paani:

- produced 7 radio programs in the Lower Mahakali, Middle Karnali, Jhimruk and Middle Rapti Watershed
- produced 4 TV shows in the Middle Rapti, Lower Mahakali and West Seti Watersheds
- produced a documentary film in Phoksundo-Suligaad Watershed
- fixed 14 hoarding boards in strategic places of Rangun and Middle Rapti Watersheds and 10 wall paintings in Rangun Watershed
- conducted 8 town hall meetings in the Middle Karnali, Lower Karnali, Jhimruk, Middle Rapti, Tila and Thuligad Watersheds
- held conservation awareness campaigns in the Lower Karnali and Middle Rapti Watersheds
- established one school-based eco club in the Thuligaad Watershed

In Y4 Q4, Paani built the capacity of different government line agencies to understand the value of aquatic biodiversity and conservation approaches and practices. Paani engaged 6 executive level officers of MoALD, NARC, and the Central Fisheries Promotion and Conservation Center (CFPCC) in HCVR advisory committee meetings. Their engagement in aquatic biodiversity related policy and process will help to strengthen aquatic biodiversity conservation policy, regulations and and planning. In Y5, Paani will continue to engage government line agencies in Paani's livelihood programs and multidisciplinary activities to build their capacity to plan programs, allocate resources, and implement activities on aquatic resource management.

STRATEGIC APPROACH 1B: IMPROVE LOCAL CAPACITY FOR WATER MANAGEMENT

The goal of this strategic approach is to reduce Nepal's vulnerability to climate-aggravated conflicts resulting from water supply scarcity and/or water quality issues, including infrastructure damage from disasters, decreased agricultural productivity, food shortages, and health risks.

Main highlights in Y4 include:

- Following ISET Nepal trainings on aquatic biodiversity conservation, Thalara RM in West Seti watershed leveraged NRs. 20,00,000 (~USD 16,650) and established a large recharge pond to address the issue of water sources drying up and to promote eco-tourism. The RM received technical support from the Rural Village Water Resources Management Project (RVWRMP) implemented by GON with the support of Finnish Government. This recharge pond helps improve the water supply of ward 4 and 5 of the Thalara RM.
- NEFEJ conducted townhall meetings in Talkot, Saipal and Chabis Pathivara RMs in the West Seti watershed. As a result, the RMs decided to allocate NRs. 18,000,000 (USD 15,000) to aquatic biodiversity conservation. Talkot RM spent NRs. 1,000,000 (~USD 8,350) on management of community waste disposal pits. Saipal RM spent NRs. 150,000 (USD 1,250) on solid waste management by making pits for waste collection. Chabis Pathivara RM spent NRs. 650,000 (~USD 5,400) in water source protection activities in community forests.
- Jayaprithivi Municipality in West Seti watershsed spent NRs. 900,000 (USD 7,500) to plant suitable trees and fodder species to stabilize hill slopes along rural road construction sites to protect Chainpur bazar and Hemantawada villages from soil erosion and small-scale landslides.

- Mahakali Municipality in Lower Mahakali watershed provided NRs. 76,000 (~USD 650) to Rampure Tapu CAACG for insect nets for their Paani supported vegetable farms that use climate smart best practices including poly houses and drip irrigation systems. This group is growing seasonal and off seasonal vegetables (tomato, capsicum, gourds, cucumber, beans) for their own consumption and sale to boost their income. Insect nets help protect their vegetable crops from insects and minimize loss in production.
- Chure and Mohanyal RMs in Thuligaad watershed prepared two Local Disaster and Climate Resillience Plans (LDCRP) with support from Paani. The plans were prepared through a participatory process engaging local stakeholders and prioritized actions to manage disaster and climate risks and vulnerabilities. These plans will help RMs implement activities by engaging relevant stakeholders and allocating money in their budget towards DRR.
- Naraharinath RM in the Middle Karnali watershed leveraged NRs. 150,000 (~USD 1,250) to construct two-recharge ponds with Paani's support to improve water availability from the spring sources as set forths in their LAPA.
- With FECOFUN's facilitation and coordination support, Thantikandh RM in the Middle Karnali watershed planted 15 hectares to protect against landslides and as an adoption of a watershed management best practice.

TASK 1.2.3: DEVELOP AND PROMOTE CLIMATE-SMART BEST MANAGEMENT PRACTICES

Activities under this SA are place based and are implemented through local grantees. At the end of Y4 Q3, grantees had to stop all field interventions due to the COVID-19 lockdown and movement restrictions. With the lockdown and USAID SWO in place, grantees could not implement all Y4 Q4 field level activities.

In Y4 Q4, all Paani grantees teleworked on different activities, such as compiling and updating data and information on their project activities, revising their reports, coordinating with local governments and local stakeholders for information updates and regularly communicating with local communities and user groups. With support from Paani, Grantees revised their activities and planning to adjust to delays due to COVID-19. The Paani team regularly coordinated with respective grantees for information updates. Paani explored the possibility of field activities such as water source protection and watershed management through local grantees to help improve water availability for the required level of sanitation needed to tackle COVID-19. However, due to movement restrictions by the local governments, grantees could not implement this possibility.

In Y4 Q4, Paani followed up with the ongoing climate smart agriculture practices in Rampure Tapu CAACG and Kalagadh agriculture group in the Lower Mahakali watershed. Paani learned that these groups are growing vegatables and have sold nearly 800 Kgs of vegetables (cucumber, bottle gourd, bitter gourd and pumpkin) this season, worth NRs. 25,000 (~USD 200).

In Y4 Q4, 8 farmer groups and one CAACG in the Middle Rapti watershed produced 18,700 kgs of vegetables using climate smart practices as a result of training and support provided by MRC Nepal and earned NRs. 170,500 (~USD 1,420). Unfortunately, the selling price was lower than usual due to the lockdown as a result of COVID-19.

Paani supported Ranibas CFUG/Middle Rapti watershed to prepare an action plan for the Dahakholi springshed manangement. Major activities included conservation of water sources and springhsheds

through water recharge pits, bioengineering interventions such as check dams and planting to improve water availability and protect the springshed. They will incorporate these activities into their operational plan so that they continue to implement, with the support from relevant stakeholders, even after the project is over.

Under the in-kind grant to Shey Phoksundo RM, Paani followed up with the Shey Phoksundo National Park (SPNP) and the DNPWC for the permission letter for the solar water lift in Rigmo village in the Phoksundo Suligad watershed. The SPNP team visited the proposed installation site of the solar water lift and submitted their observation report to DNPWC with recommendations for permission in May. DNPWC reviewed the field report submitted by SPNP and submitted it to the Ministry of Forests and Environment (MoFE) in the first week of July. This solar lift will help 60 HHs of Rigmo village have access to drinking water and irrigation for agriculture. Paani will follow up with MoFE and DNPWC in Y5 Q1.

In Y4 Q4, at USAID's request, Paani pivoted grantee activities to respond to COVID-19 and support the livelihoods, employment and food security of local communities. The Paani team engaged grantees in several discussions and designed grantee activities to pivot to a COVID-19 response. Paani will implement these activities in Y5 in the grantees respective watersheds.

Main activities pivoted under this SA include water source protection and conservation through recharge ponds, planting and bioengineering as appropriate to specific sites to improve water availability for drinking and irrigation. These activities will generate work to provide employment opportunities at the local level and help improve watershed health. HWEPC and MPDS will implement bioengineering and water source conservation activities in the Middle Rapti watershed and Rangun watershed respectively. FIRDO and MRDCC will establish recharge ponds and water source protection activities in the Jhimruk watershed. Sahara Nepal will implement water source conservation activities in the West Seti watershed.

Similarly, the next pivoted activities will contribute directly to local livelihood and income generation through climate smart agriculture using green house and water efficient technologies such as drip irrigation and irrigation pond including technical support. In Y5, Paani will implement these through grantees in the respective watersheds and will provide necessary input supplies and technical support including market linkages. ECC and IDES in Thuligad watershed, MPDS in Rangun watershed, RUDEC in Bogatan Lagam watershed, SAEWCC in Middle Karnali watershed, Sahara Nepal in West Seti watershed, and KIRDARC in Tila watershed will implement climate smart agriculture and vegetable farming activities.

Paani also designed its own COVID-19 responsive activities for Y5 with rigorous discussions amongst the team, which were included in the NCE proposal submitted to USAID in June. Paani identified about ten grantees to continue working under the NCE period for SA 1b.

TASK 1.3.2: FACILITATE THE PREPARATION OF CAPAS, LAPAS, AND WUMPS

In Y4 Q4, Paani, with technical support from its grantee ECC, finalized two LDCRPs (Chure and Mohanyal RMs) in the Thuligad watershed based on the data and information gathered through VCAs, which they conducted locally during previous quarters. These plans were prepared in a very participatory manner in consultation with the local communities and stakeholders. Paani, through ECC, closely coordinated with the local governments and revised these plans based on their feedback and suggestions and submitted the plans for endorsement. Paani will coordinate with local governments to get the plans endorsed early in Y5. Both local governments allocated NRs. 200,0000 (~USD 16,650) each to implement priority activities of the plan, but they could not due to COVID-19. Thus, they will use the funds in the next fiscal year.

STRATEGIC APPROACH 1C: IMPROVE LOCAL CAPACITY FOR REGULATION AND MANAGEMENT OF ROADS AND MINING

The desired outcome of this strategic approach is to reduce watershed degradation resulting from sedimentation and landslides by reducing the negative impacts of: 1) rural roads and 2) unregulated and unsustainable aggregate mining.

Year 4 achievements include:

- Paani supported Aathabis Municipality in the Middle Karnali watershed, to create a detailed design and submitted a detailed project report for environmentally friendly construction of a 5.68 km section of the Rakam-Rola Singhasain Road, at the Municipality's request. The Municipality allocated NRs. 10 million from the provincial government to environmentally friendly road construction (EFRC) this fiscal year.
- Paani, with Scott Wilson Nepal (SWN), engaged local governments and stakeholders through a series of consultations in the Jhimruk, Middle Karnali and West Seti watersheds to develop an EFRC guideline. Eight out of 15 local governments endorsed the guidelines (the other seven were delayed due to the COVID-19 lockdown).
- Paani with support from SWN developed Information, Education and Communication (IEC) material on EFRC including posters, flip charts, brochures and a tutorial video. SWN conducted 21 awareness campaign events and distributed 10,000 copies of the IEC material at the local level in the three watersheds.
- Paani conducted study tours for local government representatives to demonstrate good and bad rural road construction practices. As a result of the study tour, consultations, and IEC materials, 8 local governments allocated NRs. 58,100,000 (approx. USD 475,200) to EFRC road construction.
- Paani prepared a report on the impacts of aggregate mining on aquatic biodiversity. Paani analyzed the existing regulatory environment of aggregate mining; demand and supply of aggregate materials; impacts on aquatic biodiversity and fishery based livelihoods; and issues, challenges and opportunities based on case studies in the Lower Karnali and Lower Mahakali watersheds. The findings revealed the need to improve mining governance through strengthening IEEs and EMPs and their effective monitoring. Building on this report's recommendation, Paani in Y5 will work with BAFER to support local governments to promote regulated mining in the Lower Karnali and Lower Mahakali watersheds.

TASK 1.2.1: CLIMATE-SMART ROAD CONSTRUCTION AND ENVIRONMENTALLY-FRIENDLY (EF) GRAVEL MINING

Rural roads

In Y4, 8 local governments allocated funds (total NRs. 58,100,000) to 8 roads following the EFRC guidelines outlined in the table below.

Watershed	Local Government Rural Municipality=RM Municipality=M	EFRC guideline endorsement	Fund allocation (NPR)	Road
Jhimruk	Naubahini RM	4-Mar-20	20,000,000	Bahane Lung Tushara road
	Airawati RM	26-Feb-20	500,000	Jamune Kamire road
West Seti	Jay Prithivi M	20-Feb-20	1,000,000	Jakhkhet Simaltola Pungar road
	Chabispathivara RM	24-Feb-20	800,000	Jutera Danna Road
	Thalara RM	24-Jun-20	2,000,000	Dangaji road
	Talkot RM	20-Feb-20	7,000,000	Dhamigaun Kidanna Road
Middle Karnali	Turmakhand RM	To be determined	16,800,000	Punepata Dhamali Belkhet road
	Kamalbajar M	14-Feb-20	awaited	
	Aathabis M	6-Mar-20	10,000,000	Rakam Rola Singhsian road
	Total		**58,100,000**	

In Y4 Q4, Paani followed up with the remaining local governments who had not yet endorsed the EFRC local guidelines. They informed Paani that they would be focusing on relief packages to communities affected by COVID-19. Paani will follow up with them again in Y5.

In Y4 Q4, Paani with technical support from SWN, finalized a tutorial video to educate planners and decision makers from the local government, communities, road user groups and contractors on the importance of EFRC at the local level. The video covers: 1) Formulating a Plan and Pre-Planning; 2) Process for Rural Road Construction; and 3) Repair, Maintenance and Transportation Services. In Y4 Q4, Paani disseminated the video to 117 stakeholders in different watersheds. Paani will continue to disseminate the video in Y5.

Mining

In Y4 Q4, Paani received concurrence from USAID to develop a grant with BAFER Nepal to promote regulated mining in the Lower Karnali and Lower Mahakali watersheds. At the request of USAID to pivot activities to respond to COVID-19, Paani re-oriented BAFER's activities. As such, BAFER will support income generation for CBAPUs and CAACGs in the above watersheds through monitoring unregulated mining. BAFER will form a joint monitoring team to connect these groups with the local government and to strengthen monitoring of their Environmental Mitigation Plans (EMPs). BAFER will also support local governments to review and strengthen IEEs and EMPs from the perspective of aquatic biodiversity conservation.

STRATEGIC APPROACH 1D: IMPROVE LOCAL CAPACITY FOR MANAGING INVASIVE SPECIES

The goal of this strategic approach is to minimize watershed degradation and its negative impact on natural resource-based livelihoods and freshwater biodiversity by reducing the population of non-native fish species and the total area affected by invasive plant species.

In Y4, Paani made progress towards its objectives under this strategic approach. For example, Paani prepared fisheries and biodiversity inventories and consolidated a review report, which will inform policy and plans for aquatic invasive fish and plant management. Paani's assessments identified aquatic invasive issues, such as establishment and distribution, community perceptions, research, and control measures. These findings will inform stakeholders' collaborative actions and approaches to monitor, analyze, and control invasive aquatic organisms in aquaculture and fishery activities. Paani facilitated the establishment of community organizations and supported mechanical and manual cleaning of aquatic invasive plants to improve the productivity and aesthetic value of wetlands.

Specific progress from Y4 and Y4 Q4 is reported below.

TASK 1.1.3: IMPROVE CAPACITY ON INVASIVE CONTROL

Sub-task C1.1.1.-1: Prepare fisheries and biodiversity inventories

In Y4, Paani identified 9 species of exotic fish based on consolidated FAN, CMDN and KU research and Paani's Y3 scoping study in the Lower Mhakali, Lower Karnali and Middle Rapti Watersheds (Annex Exhibit A3). Among them were African catfish (*Clarias gariepinus)* and freshwater piranha (*Pygocentrus nattereri)*, which are highly carnivorous and predatory in nature. Paani also explored the extensive distribution of highly prolific Mozambica tilapia (*Oreochromis mossambicus*) and Nile tilapia (*Oreochromis nilotica*) in wetlands and fish farms in these watersheds. The presence of these fish species and other exotic farmed fish (i.e. common carp, gold fish, hybrid of common carp and gold fish, and bighead carp) in the wetlands, tributaries and main stem of the Karnali River revealed that these species were released from nearby fish farms. Paani also identified three exotic and one native aquatic plant species with invasive characteristics in Lower Mahakali, Lower Karnali and Middle Rapti Watersheds (Annex, Exhibit A3). In Y4, Paani also prepared a consolidated knowledge product on invasive management gathered from consultation workshops, meetings with key stakeholders and the scoping study. The consolidated report revealed the presence of exotic aquatic invasive plant species (EAIPS) including water hyacinth (*Euchornia crassipes*), water lettuce (*Pistia stratiotes*), and bush morning glory (*Ipomoea carnea*) in lakes and marshy areas of the Lower Mahakali (LM), Lower Karnali (LK) and Middle Rapti (MR) watersheds. Many Exotic fish species in LM, LK and MR watersheds are present, due to an Asian Development Bank (ADB) project in the 1980s that intentionally introduced exotic carp to counter aquaculture shortcomings in the western Tarai. Aqua-culturists have also unofficially introduced African catfish and freshwater piranha in LK and MR watersheds over the last 20 years (see Annex, Exhibit A4 for more information on the history and presence of exotic invasive plant and animal species in these watersheds).

Paani's aquatic biodiversity inventory, including the distribution patterns of invasive plants and animals will inform policy, regulations, and management plans of wetlands to devise strategies for the effective management of invasives. Once completed, Paani will share the inventory with NARC, CFPCC and fishery agencies under MoALD.

Sub-task C1.1.1.-3: Review where inclusive groups are already working on invasive control

In Y4, Paani's review revealed that manual removal of water hyacinth (hydrilla) is not very effective. The weed grows rapidly due to high siltation upstream of the Phewa Lake in Pokhara, which provides perfect conditions for water hyacinth. The problem is further exaggerated by pollution directly released into the lake. To utilize hydrilla, which is the second most dominant plant in the Phewa Lake, fishers have built cages to store the plant so that it can be used as feed. Similarly, some fisher/farmers are utilizing water hyacinth to prepare compost manure and feed for fish and livestock. RLRFFC stock fish each year, grass carp (*Ctenopharyngodon idella*) and common carp (*Cyprinus carp*), to control the growth of hydrilla and water chestnut, which the cooperative reports is very effective. Learning from this assessment of aquatic plant utilization, in Y5, Paani will support communities in the pilot production of water hyacinth-based organic compost and silage, and conduct fish restocking as a biological control agent.

Sub-task C1.1.3-6 Assess Potential Incentives

Given the review mentioned above, In Y5, Paani will conduct an orientation program and support the production of compost and a silage to promote the use of water hyacinth for improving soil fertility, raising small livestock at low cost, and maintaining an invasive-free lake environment. The activity will also generate income through the sales/use of compost for growing agricultural crops at a relatively low cost.

Sub-task C1.1.3-9: Faciliate selection of control measures

In Y4 Q3, Paani delivered and tested a water mower through an in-kind grant to FEDWASUN for removing water hyacinth and other aquatic invasive plants from water bodies, including Bhagaraiya Lake in the Lower Karnali Watershed. Procura Innovations, the contractor for configuring the mower, handed over the mower to FEDWASUN and provided water mower maintenance and operation training to the three members of the Bhagaraiya Lake Management Committee (BLMC). The demonstration of the mower revealed that it is effective in collecting small and free-floating clusters of water hyacinth from the lake at a minimum water depth of 50 cm.

In Y5 Paani, through FEDWASUN in collaboration with the BLMC, will manually clean aquatic invasive plants from the shoreline of the lakes. Paani will also support and facilitate the mechanical removal of invasive plants from the lake's surface. These activities will use direct labor from local communities to support their livelihoods in the face of COVID-19 and improve the lake environment. Paani will provide orientation trainings to the lake management committee members, aquaculture farms, and the local government regarding the potential impacts of invasive plant and animal species on native biodiversity, and sources of invasive species. Paani will also initiate the restocking of indigenous/herbivorous fish as biological agents through direct predation or uprooting of aquatic plants in Lake Bhagaraiya for the control of aquatic invasive plants. Restocked fish will help to clean invasive plants from the lake and provide food and income for the local community upon harvesting.

Water hyacinth before (left) and after cleaning with the water mower in Bhagraiya Lake, Lower Karnali Watershed. Photo credit: Paani

Sub-task C1.1.3-2: Support GON to develop policy/regulations for fish farmers

Based on the project's policy review and consultations with government line agencies in Y4 on invasive management, Paani recommends the following:

- To date, there has been no detailed and in depth study in Nepal to quantify the economic and biodiversity loss due to aquatic invasion in freshwater systems. Being an apex organization of the government for agricultural research, NARC in coordination with MOFE's Forestry Research and Training Center should conduct coordinated multidisciplinary research that addresses the origin and spread, trade-offs, intensity of impact and economic attributes of invasive species in different ecological and business scenarios to suggest management measures.
- Nepal is highly prone to aquaculture and ornamental fish invasions due to weak quarantine measures. Unless stringent measures are taken to monitor the aquaculture and aquarium fish trade, accidental release of exotic species into bodies of water could become breeding grounds for exotic fish that will eventually drive out native and indigenous freshwater fish. Therefore, MoALD should strictly implement the guidelines of the Convention on Biological Diversity (CBD) and investigate the management/eradication of invasive exotic fish.
- MoFE and MoALD should develop and disseminate national and regional databases on successful eradications, including reasons for failure to control invasive species.
- Further analysis is needed on mechanical, chemical and biological controls before conservation-related institutions and communities begin practicing any of the methods. Frequent, high quality monitoring is essential, and native communities can play an important role in both control and monitoring.
- To address the lack of knowledge on invasives and their impact, an orientation-training program would be useful for communities engaged in aquaculture and aquatic biodiversity conservation.
- The management of aquatic invasives is not a national priority in Nepal and existing legal instruments are inadequate to address the issues of aquatic biodiversity conservation in the face of increasing cases of aquatic bio-invasion, primarily from the aquaculture industry. There

is a strong and immediate need to develop and implement regulatory measures for responsible aquaculture under a framework of Good Management Practices (GMP).

Paani's report on Invasive Species Management is available here.

In Y4 Q4, the planned activities to organize local level multi-stakeholder workshops to assess the need for regulations/best management, could not be accomplished due to COVID-19 meeting and travel restrictions.

STRATEGIC APPROACH 2B: IMPROVE LOCAL CAPACITY FOR DISASTER RISK REDUCTION

The goal of this strategic approach is to develop the capacity of Nepal's communities to be less vulnerable to negative impacts resulting from disasters, including the loss of life, injury, infrastructure damage, and economic hardship, by strengthening the Department of Hydrology and Meteorology's (DHM) hydro-met observation network, Emergency Action Planning (EAPs), and EFLG framework.

Year 4 achievements include:

- Paani completed DHM's in-kind grant activities that strengthened their hydro-met observation network, providing downstream communities in the Rangun watershed with a flood early warning system (FEWS). Based on the data generated by these stations, DHM will provide early flood warnings to approximately 918 HHs (5,254 people) in 17 villages in downstream areas via mass SMS, which will allow communities to better respond to floods during the monsoon season.
- Paani prepared flood hazard maps for 10 watersheds under different flood scenarios. These maps provide detailed information on potential floods and areas of inundation, which will help communities prepare for disaster and create flood risk management programs to reduce vulnerability to disasters. The flood hazard mapping report is available here. Paani will disseminate the maps in Y5.
- Paani installed two low cost FEWS in the Thuligaad and Lower Karnali watersheds. These FEWS will help approximately 300 HHs (1,250 people) in 13 villages in Thuligaad and 1,063 HHs (5,668 people) in 13 villages in Lower Karnali, who will now receive flood warning messages during the monsoon season.
- Paani, through IPPAN, provided a training on Emergency Action Planning (EAP) to hydropower developers. Out of 12 private hydropower companies that participated, 5 have committed to drafting EAPS following the training (links to SA 2c).

In Y4 Q4, as Nepal faced the COVID-19 pandemic and related lockdown, a number of Paani grantees implemented COVID-19 responsive activities in their respective watersheds at their own cost. Activities included supporting the distribution of relief materials, including masks, soap, sanitizers, and cash contributions; raising awareness on the virus; and helping to set up quarantine centers with local governments. Paani received requests from various local governments to support them in the COVID-19 response; however, this fell beyond the project's mandate.

TASK 2.2.2 SUPPORT DHM TO EXPAND THE RIVER OBSERVATION NETWORK

In Y4, Paani supported DHM to strengthen their hydro-met observation stations in the Rangun watershed. Paani, with technical support from Real Time Solutions (RTS), upgraded a manual hydro station with a radar water level sensor and two automatic and tipping bucket rain gauges. Paani worked closely with DHM officials, from regional offices, who participated in the field installation and provided technical support and guidance. With these systems, DHM will be able to provide flood early warning via mass SMS, (through NTC and NCell) to local authorities and downstream communities in flood potential areas during the monsoon season. DHM data is accessible through the DHM web site here. Throughout Y4, Paani with DHM, used the stations to monitor the monsoon season in order to provide flood risk warning to the downstream communities in the Rangun watershed. In Y4 Q4, Paani closely coordinated with DHM and RTS to ensure that the stations were functioning properly and generating data. DHM will connect data generated with NEOC and DEOC to support flood risk management to minimize damage and loss of life and property during floods in the Rangun watershed. This quarter there were no major floods nevertheless, Paani and DHM, will continue to monitor the system into Y5. DHM will take over monitoring after Paani ends in June 2021.

In Y4, Paani, with technical support from Sustainable Eco Engineering (SEE), established two low-cost FEWs in the Thuligaad River in the Thuligaad watershed and in the Aurahi River in the Lower Karnali watershed. These systems work using a sonar sensor to monitor river water level, and are equipped to send out mass SMS and sound a siren during floods. Key contacts who received the messages will then relay them to other community members. The warning and danger levels are set at 200 cm-400 cm for Aurahi Khola and 200 cm-250 cm for Thuligaad and are based on community consultations, where members shared their knowledge of past floods. Automatic siren systems have been installed in the most vulnerable communities in both watersheds. Paani provided an orientation training to the local communities and stakeholders on these systems.

This quarter, Paani coordinated with SEE and the field team to ensure the systems were functioning well. The team reviewed and updated the list of SMS alertees (beneficiaries) which consists of 30 people in Aurahi and 70 people in Thuligaad. However, major floods did not occur in the Thuligaad or Lower Karnali watersheds this quarter. In Y5, Paani through local grantees (IDeS) in Thuligaad and (KIRDARC) in Lower Karnali, will monitor floods by mobilizing local community members to validate existing warning and danger levels and to estimate the flood travel time required to inform downstream communities. Paani will link these systems to local disaster management committees and prepare for handover to the respective local governments. Paani plans to use its network of flood vulnerable communities to disseminate DRR information, including information on COVID-19, through its grantees and in close coordination with the respective local governments.

TASK 2.2.3: SUPPORT DHM AND LOCAL STAKEHOLDERS TO IMPROVE FLOOD RISK WARNINGS

In Y4, Paani with technical support from Natures Conservation (NC) prepared flood hazard maps for 10 Paani watersheds. For each watershed, flood hazard maps were prepared for different return periods (i.e., 2, 5, 10, 25, 50, 100 and 200 year floods), warning levels, danger levels and historical floods. This

process began with desk based analysis, including the preparation of a Digital Elevation Model (DEM), flood frequency analysis, peak flow estimation, hydraulic modelling (HEC-RAS) and flood inundation mapping using Arc GIS. These flood hazard maps provide an overview of the extent and scale of flood hazards over time and space in different flood scenarios. In Y5, Paani will disseminate these maps to stakeholders in the 10 watersheds to inform flood hazard mitigation and management in various local plans (e.g., LAPAs, LDCRPs), community and district level disaster plans, master plans, and urban, land use and settlement plans). Paani will follow up later on to see how they are being used.

Paani also met with the USAID Tayar project in Y4 Q4 and learned that they are supporting the National Disaster Risk Reduction Management Authority (NDRRMA) in preparing a municipal level COVID-19 sensitive monsoon disaster preparedness and response plan. USAID Tayar has already prepared this plan for the Rajapur Municipality and therefore Paani will collaborate closely with Tayar in Y5 to create similar plans to support the local government where Paani has established FEWS. This includes Madhuwan and Thakurbaba Municipalities in Lower Karnali and Badikedar and Chure RM in the Thuligaad watershed). To prepare plans where it has established FEWS, it will collaborate closely with Tayar in Y5 to leverage their knowledge and experience. Paani shared a draft of the flood hazard mapping report with Tayar for use in their planning.

TASK 2.2.4: BUILD CAPACITY TO IMPLEMENT EMERGENCY ACTION PLANS

In Y4, IPPAN with input from Paani, conducted a training on Emergency Action Planning (EAP) and Dam Breach Simulation (Feb. 24-25). Twenty-four participants from hydropower companies, consulting companies, the Department of Electricity Development (DOED), the Nepal Electricity Authority (NEA), the NEA Engineering Company and Mid-Western University (MWU) received the training. The training enhanced their knowledge and understanding of disaster risk management through emergency preparedness and response mechanisms and flood inundation analysis through the dam breach simulation. As a result of this training, 5 hydropower participants made a voluntary commitment (initial target was 2 companies) to develop EAPs for their companies, and the other participants committed to sharing the information with their organizations and to develop timelines.

Paani, through IPPAN, followed up with the 5 hydropower companies who committed to drafting EAPs after the training, and will continue following up with them in Y5.

STRATEGIC APPROACH 2A: IMPROVE RIVER BASIN PLANNING

The goal of this strategic approach is to reduce Nepal's vulnerability to conflict over water resources and to protect its freshwater ecosystems through environmentally appropriate water management, including basin-level planning, sustainably sited and designed dams, and minimizing negative impacts of water diversions.

Major accomplishments in Y4 under SA 2a include:

- Paani laid a solid foundation for setting up the Karnali River Basin Conservation Fund (KRBCF) and the Karnali Basin Conservation Foundation (KRCF). Through a co-creation workshop early in Y4, Paani selected a consortium of Dolma Group, SAFAL and VRock to serve as the Fund Managers. They later registered as a single joint venture known as DSV Advisors (DSV), and

built relationships with the provincial government, entrepreneurs and other key stakeholders in the Karnali River Basin (KRB); raised awareness of the KRBCF and KBCF in various forums in the KRB; identified key sectors for investment; and developed a pipeline of investible projects.

- Following a joint field trip with WECS and USAID, and WECS-convened meetings with Paani, USAID, World Bank/Tratebel, and other GON stakeholders, WECS committed to incorporating aquatic biodiversity conservation in the upcoming National Water Resource Policy and to use Paani-produced information in its River Basin Master Plans, SESA and Hydropower Master Plan. WECS also gave approval for Paani and Tractebel to share data and information to support each other's studies on river basin planning. Paani's data will feed into Tracetbel's development of a Hydropower Master Plan and Strategic Environmental and Social Assessment (SESA) for the major rivers of Nepal. Tractebel is also analyzing and incorporating the data into their first river basin plan for the Koshi River Basin.
- Through the NEFEJ grant, Paani held 17 town hall meetings in 6 watersheds in Y4, bringing together diverse stakeholders to discuss priority issues and develop a "consensus of action" to address those issues. According to a survey conducted in Y4 of Paani's communications activities, of those who attended the town hall meetings, a remarkable 96% reported engaging in conservation activities.
- Through KIRDARC, Paani conducted 12 "water dialogues," or "jalkachahari" (8 ward level and 4 municipal level) for a total of 380 stakeholders in 4 watersheds in the KRB, creating forums for local stakeholders to develop solutions to address water issues and build the foundation for watershed level platforms. As a result, both wards and municipalities adopted and committed to allocating their own funds to holding future jalkachahari in their planning processes.
- Paani supported the formation and mobilization of 8 watershed/river management platforms in the Rapti River Basin (RRB) at the RM/municipality level, 5 in the Jhimruk watershed and 3 in the Middle Rapti watershed. In the Middle Rapti watershed, the platform helped lead to the formation of the Rapti Conservation Committee, consisting of 61 members representing the Rapti Chamber of Commerce, hotels, drinking water users groups, community forestry users groups, CAACGs, and other concerned citizens, who came together to advocate against illegal gravel mining, which increased during the lockdown.
- Paani shared best practices on sustainable hydropower by hosting a panel on GON regulations and monitoring of e-flows at an IFC-ICH in depth training on e-flows, and by serving as a panelist on the IFC-hosted panel on Inclusive and Sustainable Development of Power Projects at the IPPAN Power Summit, which was attended by more than 700 local and international energy stakeholders.
- Paani distributed hard and digital copies of knowledge products in its 12 priority watersheds. In total, 240 watershed profiles, 660 health reports, 1800 profile briefers and 120 profile posters were distributed to local governments, community groups, grantees and civil society organizations (CSOs). As a result, three municipalities/RMs in two watersheds shared Paani's watershed profiles and health reports in English and Nepali on their websites, thereby taking ownership of these products and making them more widely available to the public.

Detailed progress from Y4 Q4 is reported below.

TASK 2.1.2: EXPLORE DEVELOPMENT OF NEPAL RIVER BASIN CONSERVATION FUND (NRBCF)

DSV planned to hold a national launch event for the KRBCF at the end of March to highlight the foundational activities conducted thus far. However, DSV postponed the launch, which included high-level GON representatives and the U.S. Ambassador, at the request of USAID following the GON's announcement in late March that it would stop holding gatherings to curb the spread of COVID-19. Although DSV stayed in touch with potential local and international investors, COVID-19 and the subsequent lockdown impacted their approach towards pipeline generation, fund preparation, and investment enabling environment creation. In the KRB, the lockdown impacted the ability of business entrepreneurs to engage in commerce, which exacerbated the depletion of already scarce capital. In addition, the slowdown of the global economy made fundraising for the KRBCF challenging, as investors globally are reticent to fund new ventures during this period of uncertainty. In addition, a significant number of migrant workers have returned from India and abroad, which has led to major challenges in terms of food security and livelihoods.

Based on guidance from USAID via Paani, DSV focused this quarter on developing a proposal to pivot KRBCF and KBCF activities to COVID-19 response. As such, DSV has proposed a "3R" plan, which consists of a providing relief in the near term, followed by a medium term recovery phase, and a long term goal of attaining resilience. In this changed context to stay agile in order to maximize impact in the KRB, and to ensure better value for money (VFM), DSV proposes a two-pronged strategy for the project going forward: (a) a short-term plan with a greater focus on food security, livelihood development and job creation through the KBCF and (b) a medium-term plan for a "Migration Mitigation Fund" as a pilot fund of KRBCF. The proposed strategy is informed by the reality that raising funds internationally in the present context is not going to be feasible in the short term. In line with the government's policy response, which focuses on supporting the economic rehabilitation of returning Nepali migrant workers, and USAID's prioritization of livelihood support activities, the immediate focus of the KBCF will be primarily on livelihood sustenance and development in two areas: (i) skills development & training; and (ii) capacity building of existing and aspiring entrepreneurs in the region.

Towards the end of Y4 Q4, Paani reached out to USAID to set up a meeting with DSV and members of USAID's economic team so.

TASK 2.3.1: CREATE INTEGRATED RIVER BASIN MANAGEMENT PLATFORMS (IRBMPS)

To date, Paani has created 5 river/watershed management platforms in the Rapti River Basin (RRB) at the RM/municipality level in Jhimruk watershed and 3 in Middle Rapti watershed (total 8). These 8 platforms bring stakeholders from different sectors together, including from local government, federations, water user groups, NGOs, and CAACGs, to identify shared river basin related issues and solutions to address them. In Middle Rapti watershed, the regular convening of these stakeholders helped lead to formation of the Rapti Conservation Committee in May 2020, which aimed to combat increased illegal mining occurring during the lockdown period. The Committee consists of 61 members representing the Rapti Chamber of Commerce, hotels, drinking water users groups, community forestry users groups, CAACGs, and other concerned citizens. The committee is preparing a memorandum to be submitted to the local, provincial and federal government through members of Parliament, the District Administrative Office, Rapti RM, Gadhawa RM, Lamahi Municipality, the District Coordination

Committee, the Lamahi Forest Division Office, and the President of Chure Conservation Program.. Since CAACG members are also committee members, they raised awareness of the group on conservation of aquatic biodiversity, which the committee agreed add to their mandate.
With the ban on in-person gatherings since the lockdown began in late March, Paani did not convene any platform meetings this quarter. Since this activity is not directly related to COVID-19 response, Paani does not plan on convening the platforms or creating new ones. Paani is now planning an outcome harvesting exercise for the integrated watershed management platforms to better understand results, lessons learned and future planning.

TASK 2.3.2: ORGANIZE DISTINGUISHED SPEAKER SERIES

In Y4 Q4, Paani/WWF held the 5th advisory group meeting (virtually) for HCVR and SSP on May 27. Thirty-three representatives from DNPWC, NARC, NRCT, WB/WECS-Tractebel SESA team, USAID, IFC, ADB, NESS and others attended, including four international experts. The study team presented progress thus far analyzing HCV values and their weightage scenarios at the river and ridge scale; water quality modelling; river classifications and fisheries data. During the meeting, the team received a number of suggestions on river classification, defining keystone and flagship species for fisheries data, and defining weightage of HCVR values. The team also discussed organizing a separate expert group meeting to explore how religious and cultural river use data/information could be used in the studies and how to make the studies useful for policy and decision-making.

Last quarter, Paani planned to hold a training on Nepal's Environmental and Social Risk Management (ESRM) Guideline, which require banks/financial institutions to integrate ESRM into the overall credit risk management process. IFC shared its previous training materials with Paani, as Paani wanted to ensure that it was adding value and building on their previous work with the Nepal Bank Association. However, based on USAID's guidance in Y4 Q4 to pivot all activities to address COVID-19, this activity was deemed non-COVID-19 responsive, and Paani no longer plans to implement this training.

TASK 2.3.3: HOLD LOCAL AND BASIN-LEVEL INFORMAL ROUNDTABLE DISCUSSIONS

Paani held 17 town hall meetings in 12 watersheds in Y4 until the NEFEJ grant ended in Y4 Q2 (69 total town hall meetings were held over the course of the grant). A total of 478 commitment points were made by local governments in the 69 town hall meetings; NEFEJ reported that 23% of these commitments had been acted upon by the end of the grant period in Y4 Q2. In Y5, Paani will continue to explore how many commitments were acted upon. The project also conducted 12 "water dialogues," or "jalkachahari" (8 ward level and 4 municipal level) in 4 watersheds in the KRB over the course of the year, creating forums for local stakeholders to develop solutions to address water issues and build the foundation for watershed level platforms. As a result, both wards and municipalities adopted and allocated their own funds to holding future jalkachahari as part of their planning processes. With the ban on in-person gatherings and pivot to COVID-19 responsive activities, no jalkachahari were held this quarter. Paani is now planning an outcome harvesting exercise for the town hall meetings and jalkachahari to understand results, lessons learned and future planning.

TASK 2.3.4: PROVIDE BIODIVERSITY AND CLIMATE CHANGE INFORMATION FOR BASIN LEVEL PLANNING

This quarter, Paani prepared the grant submission package for an in-kind grant to CDES-TU for establishment of the Freshwater Center for Excellence (FCOE), a publicly accessible online knowledge hub for freshwater biodiversity research, data, tools and information that aims to inform river basin planning. Paani will submit the grant for approval in Y5 Q1 if the NCE is approved and will immediately hire a vendor to set up the IT system, design the portal and train faculty and IT staff and knowledge management.

In Y4 Q4, Paani worked extensively on a set of technical briefers of Paani's key studies, including the Fisheries Conservation Framework, Eco-tourism Potential in the Karnali River Basin, Impact of Gravel Mining on Aquatic Biodiversity, Political Economy Analysis and Strategic Considerations for River Conservation Legislation in Nepal. Finalized briefers are available here and will continue to be uploaded as they are ready in Y5.

STRATEGIC APPRACH 2C: SUPPORT SUSTAINABLE HYDROPOWER

The goal of this strategic approach is to reduce Nepal's vulnerability to climate-induced conflict over water resources and conserve its freshwater ecosystem through environmentally appropriate water management, including sustainably sited and designed dams, and minimizing negative impacts of water diversions.

In Y4, Paani accomplished a number of activities under this strategic approach.

- Collected data through literature review, group work, and key informant interviews and from the WECS/Tractebel team for the energy options assessment (EOA).
- Conducted high conservation value rivers (HCVR) assessment and system scale planning (SSP) for the Karnali River Basin. Data collected will help analyze free flowing rivers with high conservation values and be fed into the Nepal-focused SWITCH model and integrated into "Hydropower by Design: a System Scale Planning and Decision Support Tool for Karnali River Basin."
- Conducted national and regional consultative workshops in Kathmandu, Bardia and Surkhet. The national workshop formulated an advisory group for the HCVR assessment, which convened 5 times during Y4 and provided inputs and guidance to the study team.
- Paani and WWF shared data with the WECS/Tractebel team to inform Koshi River Basin Planning and help in preparation of a Strategic Environmental and Social Assessment (SESA) for the same basin.
- IPPAN, a Paani grantee, conducted capacity building trainings on hydro-met data and basin planning, and disaster management for hydropower projects for more than 50 participants, primarily independent hydropower operators. Some participants began using the tools and skills learned in the training in their hydropower project designs, development and operations.
- Paani subcontracted NESS to deliver an Environmental and Social Impact Assessment (ESIA) to students at Mid-Western University in Surkhet.
- IFC organized and moderated a joint workshop series, which included a panel discussion led by Paani on e-flow assessment in Nepal to discuss and understand the opportunities and challenges in e-flow assessment.

- IPPAN organized the 7th Power Summit in 2019. Paani team members appeared in several panels, including one on sustainable hydropower activities, and supported a session on the "Inclusive and Sustainable Development of Power Projects," moderated by IFC and chaired by the Chairperson of the Nepal Electricity Regulatory Commission.

Beginning in Y4 Q4, Paani faced challenges due to COVID-19 and the related travel and gathering restrictions imposed by GON. With guidance from USAID, Paani cancelled organization of an international seminar (Task 2.1.1), an IPPAN capacity building grant (Task 2.1.3), and declined IWMI's E-flow Assessment and value establishment proposal (Task 2.2.1).

Specific progress from Y4 and Q4 is reported below.

TASK 2.1.1: ORGANIZE AN INTERNATIONAL SEMINAR ON SUSTAINABLE HYDROPOWER DEVELOPMENT

In Y4, Paani prepared a concept note to identify potential key speakers and potential participants for an international seminar proposed in Y5 (see Annex). Paani consulted with the Energy Development Council (EDC) and IPPAN and informed them about the international seminar. In Y4, Paani announced it would share the results of the joint Paani/WWF studies through this seminar. Paani prepared an in-kind grant to IPPAN to organize a two day international seminar, hire a short-term technical advisor, and organize a half-day workshop with relevant hydropower development stakeholders. However, planning for the workshop training was paused due to restrictions on in-person gatherings under the lockdown. As the activity was deemed non-COVID-19 responsive, Paani no longer plans to hold the seminar.

Early in Y4, Paani and the WWF-US and Nepal teams conducted a series of national and regional workshops (in Karnali) in collaboration with the WECS and MOFE as part of three studies: on energy options assessment (EOA) for Nepal; the high conservation value (HCV) of Nepal's rivers; and system scale planning (SSP) for the Karnali. These teams brought together a global research team of experts from The Nature Conservancy (TNC), the University of California at Berkeley, Stanford University, and McGill University.

Through early consultative meetings and workshops, the team identified a set of environmental, social, cultural and other use values for system scale planning. Then the team defined the parameters of HCVR for Nepal and formed an advisory group for guiding this study. The advisory group convened five times in Y4.

In Y4 Q4, Paani and WWF organized the 5th advisory group meeting for SSP and HCVR. Thirty-three people attended[1] representing:

- Nepal Department of National Parks and Wildlife Conservation (DNPWC)
- Nepal Agricultural Research Council (NARC)
- Nepal River Conservation Trust (NRCT)
- World Bank
- Water and Energy Commission Secretariat (WECS)
- Tractebel SESA
- USAID

[1] Meeting Notes and Participants details available in https://drive.google.com/file/d/111RkZa3MtpwIWTgNxsa_jiyXyx1-AjSk/view

- IFC
- Asian Development Bank
- Nepal Environmental and Scientific Services

The team presented progress reports on several studies2

- Analyzing HCV values and their weightage scenarios at the river and ridge scales;
- Water quality modelling;
- River classifications; and
- Fisheries.

Based on the presentations, the team solicited feedback on all topics:

- For river classification, feedback suggested including detailed attributes before final classification;
- For fisheries, the audience suggested means for proper data analysis to properly define keystone and flagship species, and advised further consultation with fisheries experts to finalize the database;
- For HCVR weighting scenarios, the team was advised to flesh out both equal weightage and high biodiversity scenarios, and to define weightage for each value component.

The team also discussed exploring and organizing a separate expert group meeting on religious data and information, and to consider how results from those studies could be included in policy and decision making.

Paani, WWF and the WECS-Tractebel team met regularly and exchanged data. The WECS-Tractebel team are analyzing and incorporating information in their first basin master plan for the Koshi River, which will include a hydropower master plan and SESA. In Y5, Paani will complete these studies and share results with stakeholders. This collaboration inspired Paani to support WECS' presentation of Paani's sustainable hydropower initiatives at the 2nd International Mahseer Conference in Chiang Mai, Thailand (more details under SA 1A).

TASK 2.1.3: BUILD HYDROPOWER OPERATOR CAPACITY TO USE HYDRO-METEOROLOGICAL INFORMATION AND MODELLING

In Y4, more than 50 independent power producers, including engineers, power plant operators, hydropower developers, government officials and academics received training from IPPAN.

In Y4 Q4, following the IPPAN training, some participants (Panauti Hydropower Plant, Ruru Hydropower Company, Jhimruk and Andhikhola Hydropower Plants of BPC, Rairang Hydropower Company and Urja Developers) have shown interest to prepare an emergency action plan for their power plants and to share their experiences with other participants. In Y5, Paani will follow up with IPPAN on this development.

[2] Presentation slides and other materials https://wwfnepal-my.sharepoint.com/personal/jibesh_kc_wwfnepal_org/_layouts/15/onedrive.aspx?id=%2Fpersonal%2Fjibesh%5Fkc%5Fwwfnepal%5Forg%2FDocuments%2FOther%20Docx%2FHCV%2D5th%5FAdvisory%5FMeeting%5F2020%2E5%2E27&originalPath=aHR0cHM6Ly93d2ZuZXBhbC1teS5zaGFyZXBvaW50LmNvbS86ZjovZy9wZXJzb25hbC9qaWJlc2hfa2Nfd3dmbmVwYWxfb3JnL0VtOGhKbVdpYy1KUGlKZ0ltdnExcEZrQmlJMEpucmtnQ1dIbndhdXFhemJCV1E_cnRpbWU9WldMUC1ac0wyRWc

Through this engagement, IPPAN reported having improved its organizing skills, training preparations, training execution, and post-training documentation. In spite of this encouraging feedback, Paani had to cancel the IPPAN grant due to prolonged impact of COVID-19, which included the following activities:

> *"I gained knowledge on the needs, process and challenges in the modelling and planning process through the training. I work for a water resources consultancy and often work on hydraulic modelling and simulation. I shared my ideas and views on the modelling process with my colleagues, which has useful in my professional life. "*
> *- Mr. Anil Sapkota, Civil Engineer, Hydro Consult Engineering Ltd"*

- Enhancing sustainable hydropower development through improved understanding on compliance with environmental and social safeguards
- Inform and enhance capacity of operators on the following topics
- E-flow management
- Catchment area protection
- Fish-friendly hydropower design
- Developing a recognition mechanism for sustainable hydropower projects

In Y3, Paani supported Mid-Western University (MWU) to develop bachelor's level academic courses on applied hydrology and ESIA for students in civil and hydropower engineering program. In Y4, MWU delivered these courses (SA 4B). With Paani support, MWU faculty participated in the IPPAN training sessions and used these sessions to develop course ideas and build networks with hydropower developers.

In Y5, Paani is partnering with Nepal's pioneer engineering institute, the Institute of Engineering (IOE) at Tribhuvan University (TU), to develop a unique course called "Fish Passage in the Himalayan River System" intended for integration in a master's degree program in hydropower engineering. Through this partnership, Paani will support IOE to provide future hydropower professionals with the knowledge and skills to design solutions for enhancing fish passage and promoting additional research on fish passage design. At the end of Y4, Paani issued a Request for Proposal (RFP) seeking applications to design the syllabus for the fish passage course and to include case studies on the performance of different existing fish passages in Nepal (see SA 4B).

TASK 2.1.4: DEVELOP MONITORING PROCEDURES AND TRACK COMPLIANCE WITH ENVIRONMENTAL AND SOCIAL SAFEGUARDS

In Y4, Paani worked with NESS to draft a compendium to conduct debriefs in Y5 on the use of the environmental and social monitoring tool for relevant provincial ministries and provincial planning commissions, to better inform these important institutions on safeguarding social and environmental interests while developing hydropower projects. Paani is now working with NESS to conduct one interdisciplinary monitoring demonstration to evaluate water quality, ecosystem health, community impacts, disaster risk, and fisheries impacts in the Jhimruk watershed. In Y5, Paani will work with NESS to demonstrate interdisciplinary monitoring to enhance local monitoring capacity through water users and conservation groups so that communities can directly monitor in their areas. Building on the watershed and province-level feedback, Paani, NESS and IFC will explore the integration of these tools into national guidelines (e.g., National EIA Guidelines for Hydropower Development).

In Y4, Paani started development of the CSO Guide on Sustainable Infrastructure Development, which is being translated into Nepali. This guide will be distributed to local users who can use it for advocacy on sustainable infrastructure development, such as mining, roads, irrigation, and hydropower (more in SA 3B).

In Y4, ICIMOD, NESS, MOFE, NVE Norway, IFC and KU organized a four-day residential training on freshwater ecosystem assessments for sustainable hydropower development. Paani was invited to share its approach to natural resource conservation based on the experience of working with KU and CMDN and on fish vulnerability assessments. The training session was designed for government officers and hydropower investors involved with EIA for hydropower projects. The attendees included persons from many sectors: education, hydropower, freshwater biodiversity sectors, and government (federal and provincial).

Paani outreach and knowledge sharing on environmental safeguards

Paani presented its sustainable hydropower activities during an IFC-led panel on Inclusive and Sustainable Hydropower, a session conducted at the IPPAN Power Summit 2019 in November. During the panel, Paani's Deputy Chief of Party (DCOP) provided an overview of SSP, EOA, and HCVR studies planned with WWF and other researchers. IFC also presented its new initiative called Powered by Women and Environmental and Social Risk Management for Banks and Local Shares. In total, more than 700 participants from around the region, including high-level delegates from Bangladesh, Bhutan, India and Nepal were in attendance. The Summit, which takes place every three years, was a blend of roundtable discussions, panel presentations and knowledge sharing on various topics, including: cross border trade and connectivity; transmission and grid connectivity; Nepal's energy market; inclusivity and sustainability in the power sector; financing power projects; energy implications for federalism; and electricity market regulation.

Paani participated in the Expert Consultation on the Karnali River Development and Conservation Workshop organized by the Nepal Water Conservation Foundation (NWCF) and co-organized by the Nepal River Conservation Trust (NRCT) and Nepal Rafting Association (NARA). Key speakers included Dr. Dwarika Nath Dhungel (former secretary GON), Mr. Jagat Bhusal (former DHM Head), Dr. Hari Pandit (Professor at IOE and technical advisor for NEA Engineering and HIDCL) and Mr. Megh Ale (NRCT). Mr. Dipak Gyawali, of Nepal Academy of Science and Technology, served as the commentator for the proceedings.

TASK 2.2.1: SUPPORT THE NEPALI GOVERNMENT AND IWMI TO PROMOTE E-FLOW ADOPTIONS

In Y4, Paani facilitated a panel discussion on the GON's role in establishing and monitoring e-flows. The panel was part of an IFC/ICH training for approximately 30 engineers, civil servants and developers on "Hydropower and Environmental Flows" in Kathmandu. Panelists included: Mr. Toyanath Adhikari, Joint Secretary, MoEWRI; Ms. Mana Devi Shrestha, Deputy Director General, DoED; Mr Kumar Pandey, Vice President, IPPAN; and Mr. Narayanhari Rijal, San Engineering.

Mr. Adhikari stated that the Nepali Constitution clearly emphasizes a balance between conservation and development and shared that MoEWRI is drafting two major pieces of legislation – the Water Resources

Bill and Energy Bill – which take this into account and include chapters specifically dedicated to the conservation of river systems. Training participants posed a variety of questions, especially regarding the validity of the 10% e-flow figure stipulated by the government and how EIA's will be enforced. Paani also coordinated with IFC for IWMI to present their e-flow calculator and experience working on e-flows in the Karnali and Mohana river basins. Paani also participated in the training sessions which covered:

- Environmental flows theory and terms
- Hydrology and the environment
- Environmental flows assessment – global and Nepal examples
- Stakeholder engagement and social aspects of E-flows

In Y4, IWMI submitted a grant proposal to Paani for Establishment of Environment Flow (E-Flow) for the Karnali Basin and guidelines for its implementation. The objective was to determine specific e-flow levels for the target locations (e.g., sites with operating and/or planned infrastructure including hydropower power plants, irrigation schemes and multi-purpose projects) within Karnali basins for all seasons and under different climate scenarios. IWMI proposed to work closely with the hydropower stakeholder fora to develop and disseminate a set of guidelines for implementation of established e-flow levels. Later, Paani and IWMI were expecting to convene hydropower operators and irrigation offices in the Karnali River basin to discuss the findings and develop strategies for implementation, including monitoring by government agencies, hydropower operators, and communities. However, Paani canceled the proposal based on its inadequate methodology for assessment, the lack of adequate time for ensuring GON uptake of established values, and based on guidance from USAID. Specifically, two activities were cancelled:

C2.2.1-1 Guidelines for e-flows design
C2.2.1-2 Guidelines for e-flows implementation

STRATEGIC APPROACH 3B: SUPPORT CSOS TO ADVOCATE FOR TRANSPARENT AND ACCOUNTABLE HYDROPOWER DECISION-MAKING

Most of the tasks under this SA are linked to those under SA 2C. Results under the advocacy strategic approach will contribute to Paani's priority focus initiative on sustainable hydropower development.

Y4 highlights for SA 3b include:

- Paani kicked off the three WWF-led studies (HCVR, EOA and SSP) in Y4 with technical workshops in Kathmandu and Surkhet that brought together key stakeholders at the national and provincial levels to provide input on the Karnali River system. These workshops introduced the concept and raised awareness among decision-makers of the value of the analytical studies and tools being produced.
- Paani formed an advisory group on HCVR, which has consistently provided input to the international research teams working on the HCVR studies. Paani held 5 advisory group meetings over the course of Y4, which include representatives from USAID, GON and academia.
- Paani shared its work on sustainable hydropower at two events with IFC: 1) hosting a panel on GON regulations/monitoring of e-flows at an IFC-ICH training on e-flows and 2) serving as a

panelist on IFC's Inclusive and Sustainable Development of Power Projects panel at the IPPAN Power Summit, an international event hosting more than 700 delegates in the energy sector.

- Paani and WWF hosted a webinar with GON, USAID, and other donor/development partners to get feedback and share progress and results to date on the three studies.
- Paani completed the English and Nepali drafts of the CSO guidelines and developed a related advocacy training for local grantee CSOs.
- Paani submitted its Sustainable Hydropower Advocacy Plan, which aims to encourage GON uptake of the HCVR, energy options and SSP studies, along with other sustainable hydropower development products.

TASK 3.2.1: CARRY OUT ANALYSES OF THE ENVIRONMENTAL AND SOCIAL COSTS AND BENEFITS OF HYDROPOWER DEVELOPMENT

On May 27, Paani and WWF organized the 5th HCVR advisory group meeting with GON, USAID, WECS/WB-Tractebel, IFC, ADB and other key stakeholders to present progress to date on analyzing HCV values and their weightage scenarios (more details under SA 2c). HCVR and EOA will feed into the SSP, which will serve as a decision support tool to evaluate the financial, economic, social and environmental trade-offs among different hydropower projects in the Karnali River Basin. The model will allow decision makers to search for a set of investment options (location, design and operation) that perform well across a range of economic, social and environmental objectives.

In Y4 Q4, Paani and WECS/WB-Tractebel began to exchange data. Paani's data will feed into Tracetbel's development of a Hydropower Master Plan and Strategic Environmental and Social Assessment (SESA) for the major rivers of Nepal. Tractebel is also analyzing and incorporating the data in their first river basin plan for the Koshi River Basin. In Y5, Paani will wrap up these studies and focus on packaging and sharing results through the Freshwater Center of Excellence (FCOE), partners/networks such as IPPAN, and virtual workshops.

TASK 3.2.2: DEVELOP BILINGUAL CIVIL SOCIETY GUIDE TO HEALTHY RIVERS, CLIMATE RESILIENCE, AND SUSTAINABLE HYDROPOWER AND STRENGTHEN CIVIL SOCIETY VOICES

This quarter, Paani completed translation of the CSO guidelines into Nepali, which is significant given that the main users will be local CSOs. Paani's technical experts are reviewing the relevant sections on roads, governance and hydropower to ensure the translation is accurate. Paani selected a local STTA candidate to work as Illustrator/Graphic Designer for the CSO Guidelines. Request for approval for the candidate will be submitted to USAID early in Y5 Q1.

This quarter, STTA Hydropower Advocacy Specialist Marjo Curgus finalized the training curriculum for the CSO guidelines as part of Paani's Advocacy Plan for Sustainable Hydropower, which was finalized in March. The training would have been incorporated into the scheduled training for champions identified through the PEA under SA 3a; however, both the advocacy and champions training were paused due to restrictions on in-person gatherings under the lockdown. As these activities were deemed non-COVID-19 responsive, Paani no longer plans to hold them.

TASK 3.2.3: DEVELOP NORMS AND STANDARDS FOR SUSTAINABLE HYDROPOWER DEVELOPMENT

In Y4 Q3, Paani met with the Nepal Bankers Association (NBA) to discuss their needs for a planned training on Nepal's Environmental and Social Risk Management (ESRM) Guidelines for financial institutions and identified potential international STTA candidates to facilitate the training. However, with the ban on in-person gatherings under the lockdown, and with this activity being deemed non-COVID-19 responsive, Paani no longer plans to organize this training.

Paani submitted its Advocacy Plan for Sustainable Hydropower to raise awareness of CSOs and user groups on their rights in relation to hydropower development, and to increase their capacity to engage and advocate on behalf of those rights to the appropriate bodies (i.e. government or hydro-operators) to USAID at the beginning of Y5 Q1. Paani was planning on holding a co-creation workshop to identify partners who could be brought together to form a Nepal Sustainable Hydropower Advocacy Alliance (NSHAA). However, Paani was not able to hold the workshop with the ban on in-person gatherings and restrictions on international travel (Ms. Curgus would have come to lead the workshop) under the lockdown. In addition, with this activity being deemed non-COVID-19 responsive, Paani no longer plans to hold the workshop or form the alliance.

Instead, Paani will focus on dissemination of results/tools from the WWF-led studies (HCVR, EOA and SSP), CSO Guidelines and sustainable hydropower monitoring checklists through different channels, including the FCOE once it is developed and through partners, such as IPPAN and IFC.

TASK 3.2.4: USE GRANTS TO BUILD CSO TECHNICAL, ORGANIZATIONAL AND ADVOCACY CAPACITY

As part of the Advocacy Plan for Sustainable Hydropower, Ms. Curgus developed an advocacy training curriculum to enhance the capacity of grantees to support/implement a variety of advocacy activities related to sustainable hydropower, roads and fisheries. The training curriculum builds advocacy skills that will help leverage messages on sustainable hydropower and the dissemination/uptake of the hydropower package. As mentioned above, this training has been cancelled.

Paani was supporting IPPAN through a grant to enhance the use of hydro-met data; provide training to hydropower developers on risk analysis; train developers to implement procedures for emergency response; and build capacities of developers to design, build and operate hydropower resilient to natural disasters as well as the risks posed by climate change. The overall objective was to build capacities of developers for sustainable practices in environmental safeguards and create a conducive environment for policy improvements and create a friendly environment for prospective IPPs. In Y4 Q1, IPPAN organized a training on hydro-met data and river basin planning based on a needs assessment conducted in Y2 Q2. Based on this, Paani and IPPAN prepared a draft training manual on hydro-met data. In Y4 Q3, IPPAN organized a two day training on Disaster Risk Management for Hydropower: Dam Breach Analysis and Emergency Preparedness in Province 5. In total, more than 50 independent power producers, including engineers, power plant operator, hydropower developers, government officials and academicians (see SA2c for more details) were trained. Paani and IPPAN were planning on the next round of training sessions to be held in Y4 Q4; however, the IPPAN grant and remaining activities were cancelled due to the ban on in person gathering during the lockdown and for being deemed non-COVID-19 responsive.

STRATEGIC APPROACH 3A: STRENGTHEN POLICY AND PLANNING FOR INTEGRATED WATER RESOURCE MANAGEMENT (IWRM)

The goal of this strategic approach is to increase the capacity of the GoN and sub-watershed/basin level actors to integrate climate change and biodiversity into policy and basin-level planning.

Highlights from Year 4 include:

- At the request of MOFE in July 2018, Paani reviewed, provided technical input, and drafted additional sections for the Environment Protection Bill. MoFE accepted most of the provisions that Paani proposed and drafted, including, 1) sections on detailed analysis of alternatives of the proposal to be carried out; 2) implementation of environmental management plan; environmental audit to be conducted; 3) report (environmental assessment) to be of quality; and 4) formulation of environmental conservation plan. In September 2019, the federal parliament enacted the Environment Protection Act, which entered into force from October 2019 and includes seven sections drafted by the Paani program. The draft of the Environment Protection Bill is available here.
- Paani continued to provide technical support to local governments in different watersheds to develop legislation on aquatic animal and biodiversity conservation. In Y4 Q4 alone, 8 local governments enacted the Aquatic Animal and Biodiversity Conservation Act (AABCA) in Bogatan Lagam, Tila Karnali, Middle Karnali and Jhimruk Khola watersheds. Earlier, in Y4 Q3, five local governments in the West Seti watershed and one each in the Jhimruk Khola and Lower Karnali watersheds enacted the AABCA – making for seven total. (Paani supported the development of a total of 15 Acts in Y4 endorsed by various local governments.) The AABCA also empowers CAACG members by handing over river stretches for conservation, management, sustainable use, and equitable sharing of the benefits arising from the utilization of aquatic animals and riverine ecosystems.
- In Y4, Paani developed statutes for registering CAACGs in Jhimruk, Middle Karnali, Tila Karnali and West Seti watersheds. Paani formed 76 CAACGs in Y4 and formally registered 14 CAACGs at respective local governments. River stretches have been duly handed over to the 14 CAACGs for conservation and co-management.
- Paani submitted written suggestions on the draft of the Fisheries Development Policy and Electricity Bill, respectively, to the Ministry of Agriculture and Livestock Development (MoALD) and the Ministry of Energy, Water Resources and Irrigation (MoEWRI), respectively. MoEWRI has revised the Electricity Bill considering a few of Paani's suggestions, including the stipulation that the hydropower developer, while developing and constructing the hydropower project, make necessary arrangement to release a prescribed amount of water for downstream aquatic and human communities and take measures to mitigate negative and adverse impacts, as prescribed in the Electricity Bill on the water ecology of the river system. Paani's written suggestions and comments on the Electricity Bill that Paani provided to the MoEWRI and Ministry of Agriculture and Livestock Development are available here. The draft of the Electricity Bill and Fisheries Development Policy is available here.
- Paani, through its partner IUCN, developed the log frame for the Rara Lake Ramsar Site Management Plan.
- In addition, the Senior Environmental Policy and Law Expert (Sr. EPLE) developed the draft of Environment Friendly Rural Road Guidelines with support from SWN for 15 local governments in three watersheds. Eight municipalities and rural municipalities (RM) endorsed the Guidelines, while 7 are preparing for the same. Eight local governments have allocated NR 5.81 million total for construction of environment friendly rural roads in their jurisdictions (more details under SA 1c).

- Throughout Y4, Paani continued to provide technical support to the Karnali Province's Ministry of Land Management, Cooperatives and Agriculture (MoLMAC) for finalizing and tabling the AABC Bill in the State Assembly. Paani is in regular contact with the MoLMAC officials and with the Under Secretary (Law) in the Ministry of Internal Affairs and Law to follow up on the finalization and tabling of the Bill in the State Assembly, which has been severely delayed due to COVID-19.
- As requested by MoEWRI, Paani and NHDP supported the development of "Case Studies on Dispute Settlement Mechanisms in Water Resources Disputes" to inform the drafting of the Water Resources Bill. In Y4 Q1, Paani and NHDP submitted the Case Studies to MoEWRI, which include reviews of dispute resolution mechanisms of five federal countries from three continents, including Brazil, Canada, India, Pakistan and U.S.A. The Joint Secretary (Legal) said he was very satisfied with the contents and quality of the studies, which will help guide a dispute settlement mechanism for Nepal to be included in the Water Resources Bill. MoEWRI is interested in the concept of setting up a water resources council at the federal level, and water resources committees at the provincial and watershed levels, based on the Brazilian model of dispute settlement.
- In order to develop the capacity of champions identified through the Political Economy Assessment (PEA), Paani engaged some of them in different activities and training programs. Select champions from Tila Karnali, Middle Karnali, Lower Karnali and Phoksundo Suligaad watersheds participated in the local government level Jalkachahari. Selected champions from Jhimruk Khola and Middle West Rapti participated in the Training of Trainers (ToT) on river stretch co-management and post-harvest fisheries in February. Champions from West Seti, Middle Karnali and Jhimruk Khola watersheds were engaged in the development of EFRC guidelines. Some champions from Lower Karnali, Tila Karnali and West Seti watersheds participated in community consultation meetings and consultation workshops on the development of the AABCB.

Additional progress from Q4 and Year 4 is reported below.

TASK 3.1.1: IDENTIFY CHAMPIONS FOR FRESHWATER POLICY CHANGE

In Y4 Q4, Sr. EPLE revised the session plan for champions' capacity development program. The topics featured in the session plan included basic hydrology; climate change and uncertainties; ecosystem functions, services and stresses; problems and challenges in promoting IWRM; political economy of freshwater biodiversity; freshwater biodiversity conservation policies, and laws; and political economy of formulation and implementation of policies and laws. The Paani team was developing a training module for each of the above-mentioned sessions. However, both the champions training was paused due to restrictions on in-person gatherings under the lockdown. As the activity was deemed non-COVID-19 responsive, Paani no longer plans to hold it.

TASK 3.1.2: DEVELOP AN ISSUES AND OPPORTUNITIES WHITE PAPER

[Paani dropped this task in Y4 Q1. Please see the Y4 Q1 quarterly report for further details.]

TASK 3.1.3: SUPPORT WECS AND OTHER GOVERNMENT BODIES TO REVISE, UPDATE, AND DRAFT NATIONAL POLICIES

Technical support to Far West Province

In Y4 Q4, Paani planned to approach the Secretary of the Far West Province's Ministry of Industry, Tourism, Forest and Environment (MOITFE) and other officials in the Ministry to provide technical support to draft an Aquatic Biodiversity Conservation Bill or River Conservation Bill. Developing Aquatic Biodiversity Conservation Bill or River Conservation Bill was included in the Ministry's policy and program for fiscal year 2019/2020 as suggested by Paani. However, the Paani team could not travel to meet the Ministry's Secretary and other staff in Q4 due to the COVID-19 lockdown. Paani plans to meet with the Secretary and other officials of MOITFE in Y5 Q1 and to support the Ministry in constituting a committee to coordinate and lead the development of the Bill. Once the committee is assembled, Paani will initiate drafting the GESI-responsive Bill and present to the members of the committee for feedback.

Technical input to local governments to develop AABCB

Paani has been providing technical support to different local governments per their requests to develop AABCBs. In Y4 Q4, Paani developed and provided an AABCB for Chaukune RM in the Bogatan Lagam watershed and Bhairavi RM and Turmakhand RM in the Middle Karnali watershed. As it was not possible to travel to these RM to organize community consultations, the Paani team reviewed and revised the drafts of the Bills. Four local governments in the Tila Karnali watershed, two local governments in Middle Karnali watershed, and one local government in the Bogatan Lagam and Jhimruk Khola watersheds enacted the AABCA. See Figure 8 for an illustration of where the AABCA has been enacted. The AABCA that has been enacted by more 30 local governments is available here.

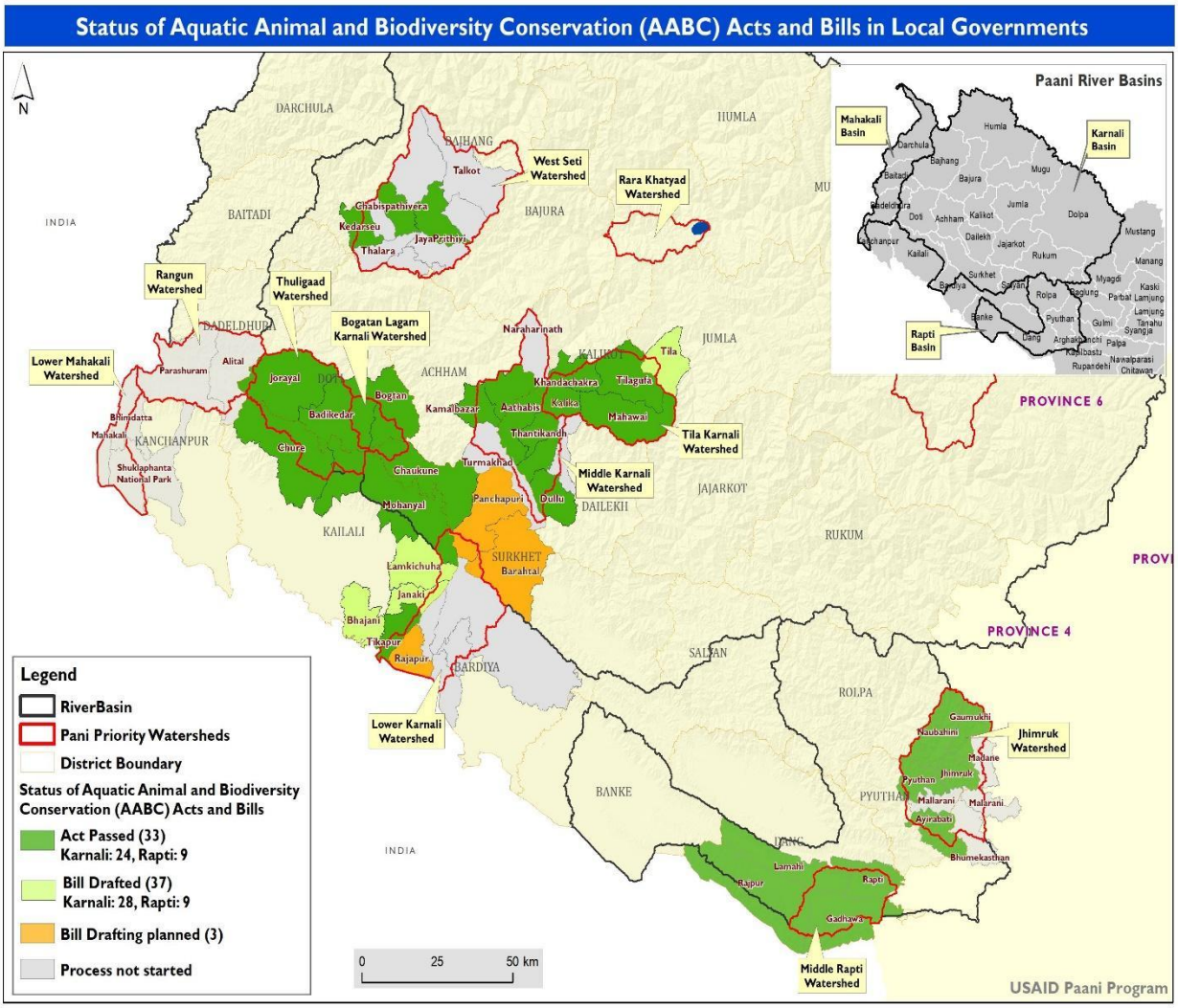


Figure 8: Status of the AABC Act and AABC Bill in the Karnali and West Rapti River Basins

Training on different elements of provincial or national laws

MoLMAC arranged a table for the AABCB in the Karnali Province's State Assembly in Y4 Q3. As the State Assembly's winter session was discontinued before it could complete its business due to the COVID-19 pandemic, the Ministry could not finalize and table the Bill. As it is yet to be passed by the State Assembly, Paani also could not organize the TOT program for different local governments, fisher folks, and CSOs on the different elements of the Province Level Act during this quarter. Even if the State Assembly had passed the Bill, it would not have been possible to organize the training program due to lockdown.

Develop statutes to register CAACGs

In Y4 Q4, the Sr. EPLE reviewed and revised the draft CAACG statutes for the Middle Karnali, Tila Karnali and West Seti watersheds. Altogether, in Y5 Q1, 19 CAACGs will be registered: 6 in Middle Karnali, 9 in Tila Karnali and 4 in West Seti. Once the CAACGs are registered with their respective local governments, different river stretches will be handed over to them for conservation and management. Based on the AABCA provisions, CAACGs will have legal personhood with the right and responsibility to conserve, co-manage, sustainably use, and equitably share the benefits arising from the sustainable use of fish and river stretches. An example of CAACG statute is available here.

Training on local laws

Paani had planned to organize a training program on the provisions of the AABCA, and the measures to be taken by the local governments and members of CAACGs to effectively implement the Act. The CAACGs require a clear understanding and appreciation of the powers and functions of the local government, of the actions they need to take for effective implementation of the Act, and for conservation and sustainable use of rivers and lakes to protect aquatic biodiversity. Some representatives and staff of local governments in the Lower Karnali, Tila Karnali and West Seti watersheds have requested trainings on the AABCA. The plan was to organize the training program in Y4 Q4; however, it could not be managed due to the COVID-19 lockdown.

Formulate Wetland Management Plan for Rara Lake - A Ramsar Site

Paani's partner, IUCN Nepal, has been developing a management plan for Rara Lake – a Ramsar site. The IUCN team developed the log frame for the plan and presented the draft to the Project Technical Committee in Y4 Q3 and then revised the log frame based on the feedback from this group, including the Director General and Deputy Director General of the Department of National Parks and Wildlife Conservation. IUCN then shared the revised version of the log frame with Paani team who reviewed it and provided its own feedback. IUCN had planned to visit Rara Lake and Mugu District headquarters for public consultation on the plan, which was not possible due to COVID-19.

Status of Karnali Province Aquatic Animal Conservation Bill

Even during the lockdown, the Paani team supported MoLMAC officials and the Under Secretary (Law) in the Ministry of Internal Affairs and Law to make arrangements to table the Bill in State Assembly. As most of the staff were absent due to COVID-19 lockdown, they could not process the Bill to table in the budget session of the State Assembly, which is currently underway. If the current session of the State Assembly continues for the next two months (as it has in the past), MoLMAC and the Ministry of Internal Affairs and Law may be able to make arrangement to table the Bill in the Assembly. A draft of Karnali Province's Aquatic Animal Conservation Bill is available here.

STRATEGIC APPROACH 4A: LEARN AND DISCOVER (GENERATE KNOWLEDGE) THROUGH A RESEARCH AGENDA THAT INFORMS SAS UNDER IRS 1 AND 2

The goal of this strategic approach is to fill knowledge gaps to implement i) river stretch co-management initiatives; ii) document freshwater biodiversity and associated knowledge; iii) develop various capacity building packages (SA 4B); iv) carry out system-scale planning for the Karnali River; v) identify high conservation value rivers nationwide (SA 2C, SA 2A); vi) provide input on national fishery policies, fishery conservation framework and market development strategies (SA 1A, SA 3B); and vii) develop business cases on capture fisheries. This approach underpins other Paani strategic approaches that lay the foundation for a priority agenda for grants and generates evidence to inform plans and policies.

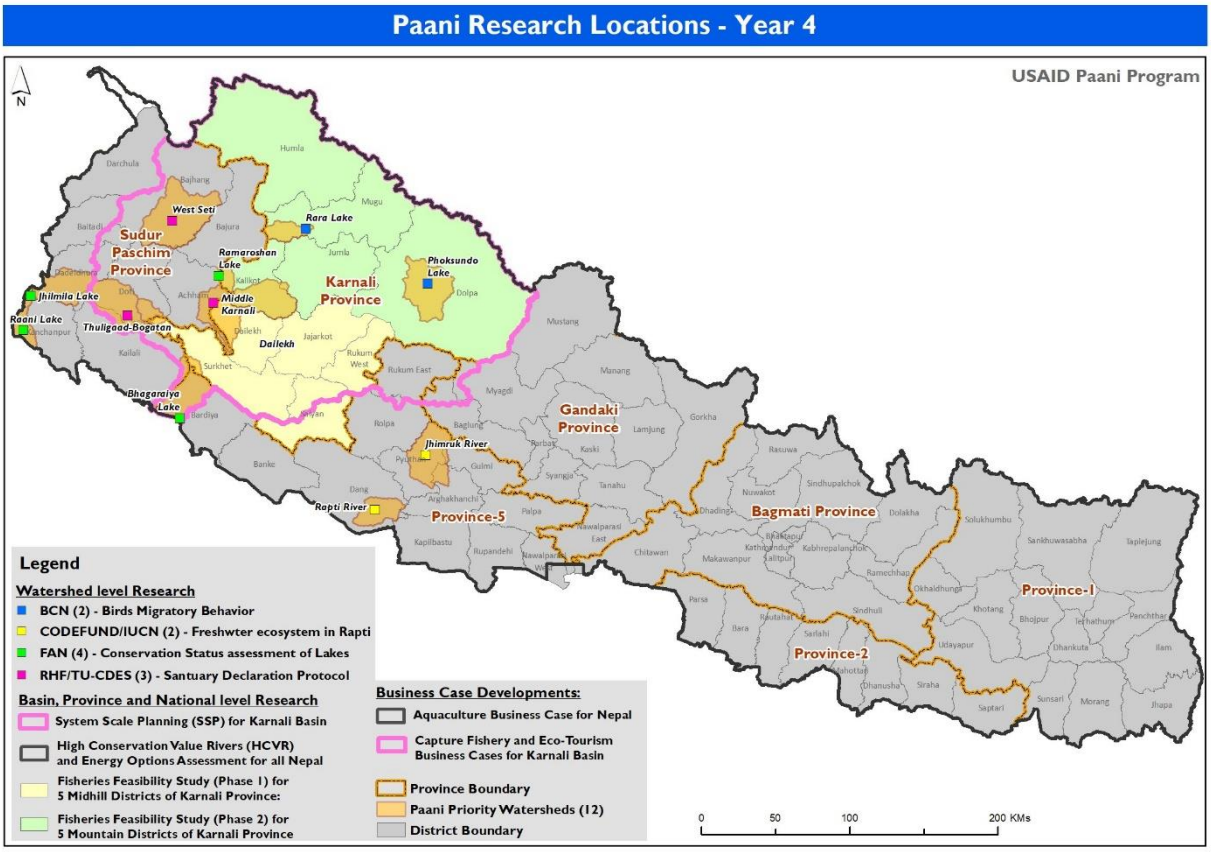


Figure 9: Paani Research implementation areas

Year 4 achievements include:

- Through Forest Action Nepal, Paani conducted a comprehensive assessment of biodiversity status (vertebrate, major invertebrate, and floral) in four wetlands of western Nepal: Jhilmila and Raanital in the Lower Mahakali Basin, and in Satti Karnali and Ramaroshan in the Karnali River Basin. Among the studied wetlands, two – Raanital and Satti Karnali – are located in the Tarai plain, where Jhilmila and Ramaroshan represent the Churia and Middle Mountain regions, respectively. Table 1 below presents the distribution of species diversity in the observed wetlands. In terms of overall diversity, Satti Karnali is the richest, but Ramaroshan, by far, had the greatest diversity of macrophytes.

  Table 1: Inventory of biodiversity recorded in four wetlands

Species	Mahakali River Basin		Karnali River basin	
	Jhilmila	Raanital	Satti Karnali	Ramaroshan
Birds	104	131	116	79
Fish	03	06	29	03
Amphibians	06	10	07	07
Reptile	06	16	08	05
Mammalian	07	10	11	13
Macrophytes	24	18	21	170
Aquatic macrophytes	28	15	37	30

Source: FAN Final Technical Report, 2019

- Through Bird Conservation Nepal (BCN), Paani carried out a winter season ornithological survey in the Lake Rara wetland, counting 104 species, 15 orders, and 39 families. Of the 104 bird species monitored, there were 29 waterfowl and 75 forest birds. The Common Coot (Fulicia atra) accounted for the highest count of waterfowls (489), while the plain mountain finch (Leucosticte nemoricola) accounted for the highest count among observed forest birds (420). A total of 102 bird species out of 104 listed, fall under the category of "Least Concern" on the IUCN Red List of Threatened Species. The team did spot the common pochard (Aythya ferina), which the IUCN lists as "vulnerable" and the bearded vulture (Gypaetus barbatus) as "near threatened."
- Paani's water quality results correspond with the results obtained by Okino and Satoh (1986) and Gurung et al. (2018). The analysis revealed a slightly high phosphorous concentration and ammonia, indicating that Rara Lake is entering the eutrophication process. However, the water quality of the Lake is within the defined threshold.
- A perception/opinion survey and field observations revealed that Rara Lake's conditions have degraded with increasing human activity that followed the opening of the road to Rara Lake.
- BCN developed several knowledge products that will inform the Rara Ramsar site management plan and the development of tourism promotional packages: 1) a leaflet describing the Rara catchment area and wetland quality 2) A poster highlighting keystone and unique and long-range migratory bird species and their activities while staying in Rara Lake and 3) A training manual on ornithology, which will be distributed to nature guides, local champions, bird watchers and surveyors. These materials will be made available through the Freshwater Center of Excellence (FCOE) to be established at CDES-TU.
- WWF has been conducting three interrelated assignments i) mapping of high conservation value rivers (HCVR) for Nepal, ii) system scale planning for Karnali and iii) assessment of energy mix options for Nepal. Through a webinar, the HCVR team presented the progress made during the quarter to the HCVR advisory group. The meeting participants discussed the rationale for assigning a weighted mean for key criteria, such as freshwater biodiversity, livelihoods, river

connectivity, and socio-cultural information used for identifying HCVR. These mean values lay the foundation for generating scenarios for clients to prioritize HCVR. For example, rivers with heavier values for freshwater biodiversity, river connectivity and livelihoods are candidates for HCV declaration. The conclusion and lessons learned from these studies inform policy and plans relating to river basin and freshwater biodiversity.

- Several key knowledge products were completed:
    - Briefers on ecotourism, gravel mining, political economy analysis and a fisheries conservation framework (available here)
    - As presented in Annex, Exhibit A5, knowledge products produced include briefers, papers, leaflets and case studies primarily related to wetland biodiversity, macroinvertebrates and EFRC IEC materials.

Detailed reports, especially watershed profiles, published journal articles, IEC materials, document for fish sanctuary declaration, and hazard mapping will be publicly accessible once the FCOE is established at CDES-TU (more details under SA 2a).

Since the announcement of nationwide lockdown in response to COVID-19, the Paani team and its research grantees engaged in desk-based telework. The telework included the development of key knowledge sub-products for a variety of end-users, including local planners, communities, and civil society organizations. Other important knowledge products completed since the lockdown began including:

- An article on the distribution of macroinvertebrates was published in the journal Geoscience;
- Flood hazard maps for 10 watersheds;
- A report with key informant interviews on Rara Lake's wetland condition; and
- A brochure on the birds of Rara Lake.

Detailed progress report for Y4 Q4

RESEARCH ON SYSTEM SCALE PLANNING TO CONTRIBUTE TO SUSTAINABLE HYDROPOWER DEVELOPMENT (SA 2A, TASKS 2.1.1, 2.1.2, 2.1.3)

With the WWF, Paani has led a consortium charged with i) identification of high conservation value rivers across Nepal; ii) Karnali River system-scale planning considering option values; and iii) energy options assessment for Nepal. More detailed results of the above on-going projects are reported under different tasks, especially SA 1.1, SA 2.3, and SA 3.2.

In Y4 Q4, the HCVR technical advisory committee met in May to update and upgrade the knowledge base on aquatic biodiversity, tracing its distribution across significant water bodies. The team reviewed the impacts of lockdown and travel restrictions on river basin planning yet to be done and supporting WECS to develop river basin planning. Further detailed information is available in SAs 1a, SA 2c, and SA 3b.

RESEARCH ON SUSTAINABLE CAPTURE FISHERY TO CONTRIBUTE TO IN SITU CONSERVATION OF FRESHWATER FISH SPECIES THROUGH VALUE ADDITION (SA 1.1, TASKS 1.1.1, 1.1.3 AND SA 4A, TASKS 4.1.1, 4.1.2, 4.1.3)

In Y4, Paani developed policy briefer to help promote a fishery strategy among policymakers and planners within concerned ministries and departments, including the "center of excellence" established at CDES-TU.

Building upon findings of phase I and phase II assessments, SNV consultants are developing business cases for capture fisheries, aquaculture and fishing linked eco-tourism to generate different scenarios to build confidence for private and/or public sector investment. The SNV team has been working remotely to develop methodology and tools to collect and generate data required for these business cases (SA 1.1.1). To assist SNV, the Paani team has drafted survey tools for catch assessment, fisher surveys, and livelihoods surveys to go with training manual for data collection. Further details are available in SA 1.1.

TASK 4.1.1, 4.1.2: RESEARCH TO INFORM RIVER STRETCH CO-MANAGEMENT

In Y4, Paani supported CODEFUND/IUCN to pilot six pillars of Integrated Lake Basin Management (ILBM) to assess how it might work at the river basin scale. To lay the foundation for field implementation, the team members of the CODEFUND/IUCN reviewed published and unpublished documents and "ground-truthed" map information through surveys and field visits. Working closely with local and provincial governments, the grantee identified suitable municipalities for piloting the issues related to multiple uses for agriculture and hydropower.

This quarter, CODEFUND/IUCN finalized a draft quarterly report by addressing comments offered by the Paani review team. Apart from this work, CODEFUND / IUCN selected Naubahini and Gadawa Municipalities (Figure 2) for piloting the Integrated Lake Basin Model with a particular focus on water governance (more detail in SAA 1.1).

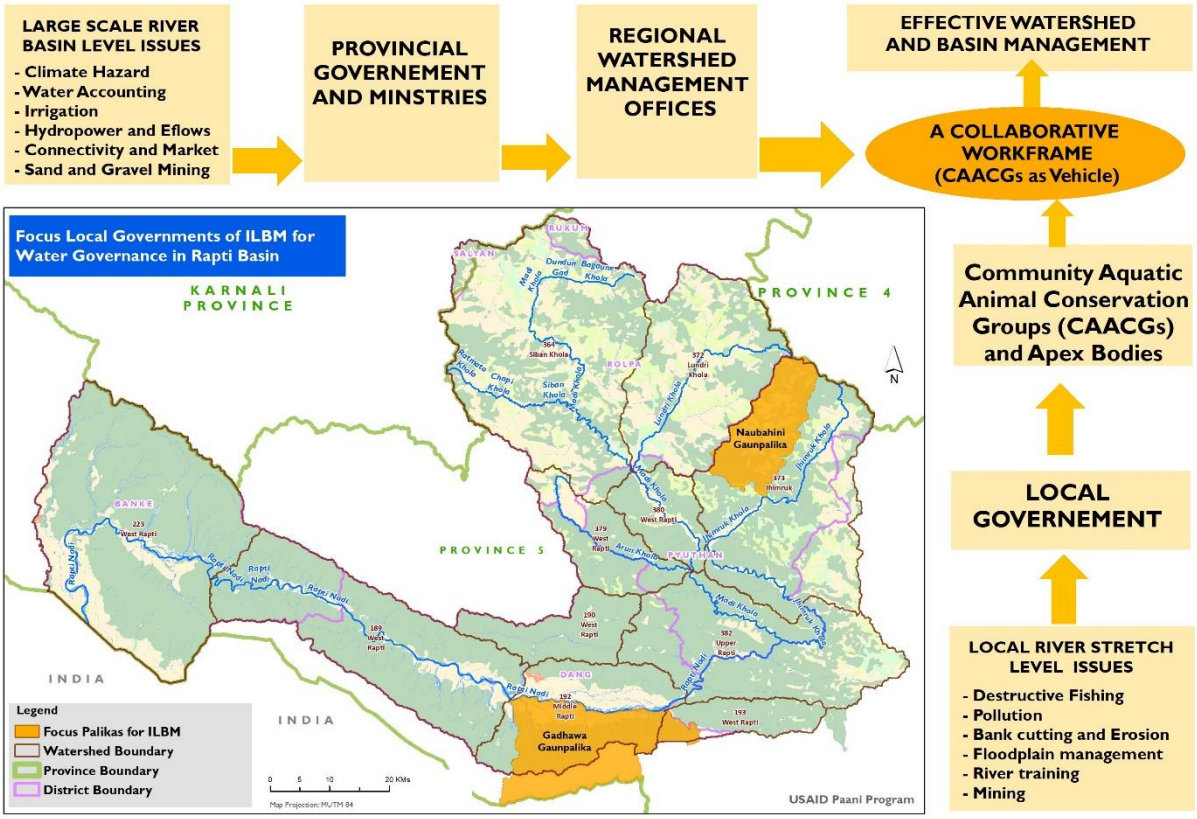


Figure 10: The two locations selected (in yellow) for piloting ILBM adapted for river basin management

In Gadawa, the team identified 24 different NRM groups to consider for engagement during the water governance process. In Naubahini, the team identified 14 NRM groups, including two CAACGs, to collaborate with on governance issues. When working with four irrigation groups, specifically, the team found socially-marginalized people to be significantly under-represented and a high degree of coordination and transparency in the groups' management and operation. Despite the continued effort to pilot elements of ILBM pillars, the remaining activities were canceled due to the prolonged COVID lockdown, which included stop-work orders, travel restrictions, and funding re-allocated to implement COVID response activities.

Wetland Bird Conservation

In Y4, Paani and BCN studied the migration and foraging behavior of high mountain wetland birds (SA 4.1.2). Lake water quality was analyzed through a review of previous research and direct analysis of water samples collected in the winter months. From 1986 to 2019, five studies conducted in Rara Lake that tested 11 parameters of water quality and these were used as a baseline to compare the water samples. The team found that while pollution levels had increased due to rising human activity in the areas, the water quality was still within limits recommended for aquatic life. The team also consulted 13 ex-park wardens and experts interviewed to gauge their opinions about the health of Rara Lake over time.

With BCN, bird diversity counts were taken using historical studies to compare with our own counts. Combining our observations with a study conducted by Hathan Chaudhary in October 2015 (unpublished), the Paani/BCN team added ten additional species to the list for a total of 294 bird species representing 58 bird families. The most numerous birds come from the Muscicapidae family (33 species), followed by Fringillidae (25), Accipitridae (22), Phylloscopidae (20 species), and Anatidae (17). A more detailed list of all birds with descriptions is attached with this report.

Paani also compared results from its water sample analysis (conducted using Akvo) with three historical tests. The results are presented in the Table 2.

Table 2: Water quality parameters of Rara Lake comparing historical tests (1983, 2015, 2016) against Paani's results (2018)

S.N	Water Quality Test Parameters	May 1983*	October 2015**	April 2016**	January 2020
1	Transparency	15.55	18.9	17.53	14.28
2	Water Temperature, (°C)	12.71	18.79 ± 1.7	14.83 ± 1.8	12.00±1.00
3	Electrical Conductivity, (µS/cm)	131.28	189.93 ± 5.3	189.22 ± 15.8	186.40±5.68
4	pH	8.53	8.42 ± 0.3	8.32 ± 0.22	7.90 ±0.23[b]
5	Turbidity, (NTU)	-	2.43 ± 3.48	1.71 ± 0.86	2.00±1.14
6	Dissolved Oxygen (mg/L)	7.56	6.73 ± 0.6	10.6 ± 1.5	7.67±0.58
7	Dissolved Oxygen (% saturation)	101.71	105.46±9.4	160.31±22.84	101±8.41
	Total Alkalinity as CaCO3, (mg/L)	-	-	-	129.20±2.68
	Residual Chloride (mg/L)	-	-	-	3.17±0.83
	Free Carbon Dioxide, (mg/L)	-	-	-	15.92±8.06
	Total Nitrogen, (mg/L)	ND	-	-	8.01±2.27
	Ammonia, (mg/L)	ND	-	-	0.06±0.03
	Total Phosphate, (mg/L)	Low	0.0 ± 0.01	0.06 ± 0.01	1.01±2.23

*Okino & Satoh, 1986; ** Gurung et al., 2018

[a] pH @20°C; [b]pH@15°C; ND- Not detected by portable measurement used

Taking the results as a whole, there seems to be no apparent change in water quality since 1980. However, changes in phosphate levels, while acceptable, reflect an increase in human activity (and thus waste disposal) in the park, which was corroborated through our interviews with park officials.

BCN had been making plans to conduct trainings for bird watchers, local champion and nature guides on monitoring bird health and bird populations in Rara Lake but the COVID lockdown has forestalled these programs. Instead, BCN focused on deskwork and preparing the training manual, which will include sections on biodiversity, bird ecology, methodology, and tools used in bird studies related to migratory, foraging, and breeding behavior. The final version of the training manual is available here.

TASK 4.1.3 RESEARCH TO INFORM THE FISH SANCTUARY DECLARATION PROCESS

With Resources Himalayan Foundation (RHF) and CDES-TU, Paani is working to locate suitable locations to develop fish sanctuaries for the purposes of preserving freshwater biodiversity. RHF has already produced a draft protocol based on a literature review of international research on this topic, but the document needs further revision to include feedback received through stakeholder consultations.

As shown in Figure 11, RHF has identified the most suitable locations for establishing fish sanctuaries but these will need to be approved by government authorities. For each zone, groundwork in the area has provided necessary information on socio-ecological profiles and health reports, mapping of fish spawning stretches, fishing zones, endorsement of AABCAs, and formation of CAACGs.

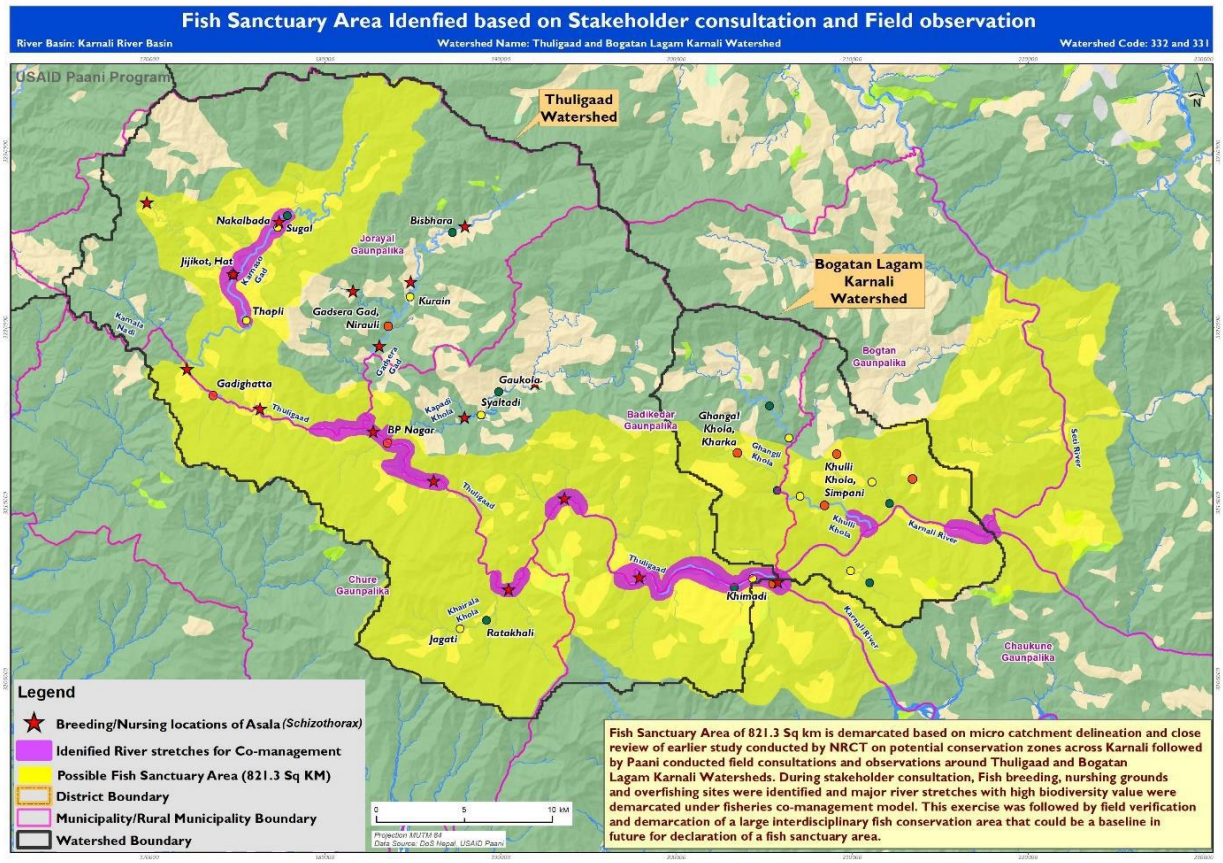


Figure 11: Fish sanctuary areas identified based on field studies, stakeholder consultations and field observations.

In Y5, RHF will create a database for river reaches with the potential to declare fish sanctuary. Based on past work, Paani has identified hot spots in the West Seti, Middle Karnali, and Thuligaad rivers suitable for fish sanctuary with cold and warm water fish species (Figure 4). The research grantee, RHF, will work closely with key stakeholders to develop sanctuary declaration proposals for those areas.

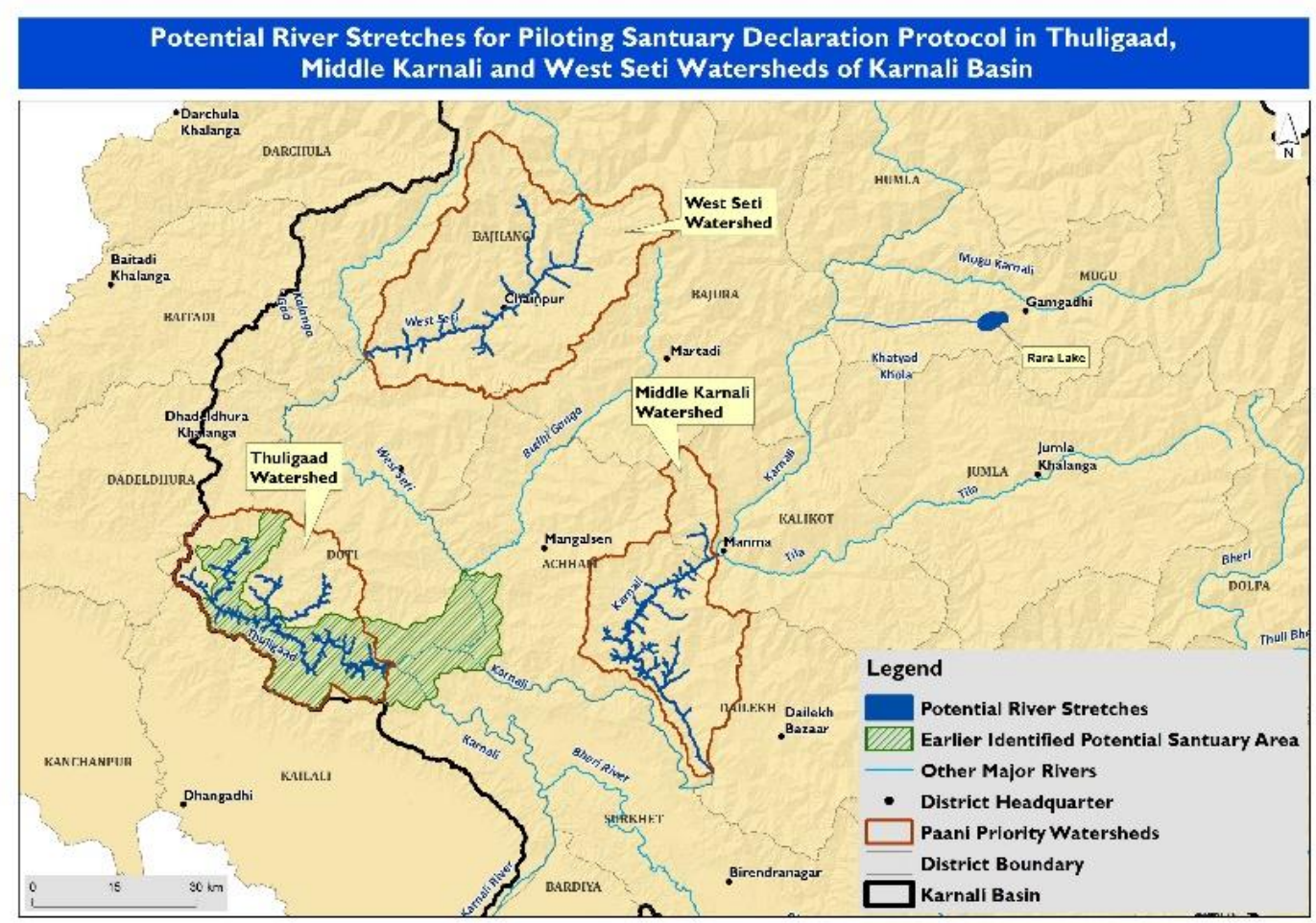


Figure 12: Potential river sites for piloting fish sanctuary protocols on the Middle Karnali, Thuligaad, and West Seti rivers

TASK 4.1.4 RESEARCH TO INFORM SUSTAINABLE INFRASTRUCTURE

To inform sustainable infrastructure development, Paani will consolidate data from desk reviews, case studies, and stakeholder consultations that focus on the impacts of rural roads, fish ladders, and hydropower dams. Lessons from ongoing research on High Conservation Value Rivers, system-scale planning, and energy options, as implemented by WWF US, will inform syllabus development on fish passage.

Through a vendor, Paani will develop a syllabus to be used for courses within a master's degree program on engineering. A report will be prepared based on the literature review, case studies, and feedback received from the consultations. The overall outcomes and lessons from this research work will lay the foundation to inform planning and policies, including the aforementioned course syllabus. Such knowledge products will be made available to the public at CDES-TU (see SA 4.2, year five plan for further detail).

TASK 4.1.5 RESEARCH TO INFORM POLICY ON INVASIVE CONTROL

This quarter, Paani has developed knowledge products based on its reviews of secondary data, field assessments, case studies, and stakeholder consultations at the central and local levels. Based on the main report regarding invasive species, a brief was also developed for wider dissemination and awareness raising, especially among the stakeholders in the areas where the impacts of invasive species on native fisheries are high. Further details available in SA 1.1.

TASK 4.1.6 AND 4.1.8 RESEARCH TO INFORM LOCAL WATER MANAGEMENT

Women Act conducted a leadership training organized four CAACGs from Amelia, Rawa, Rakam, and Triveni. These groups have now developed proposals to their local respective local governments for funding. Paani and Women Act supported developing the project following the government format. Local grantees, such as SEWAC in Middle Karnali, have been facilitating CAACGs to submit these proposals to Municipalities (e.g., Aathabisha) that have allocated budget to support CAACG. (See the GESI Section for more detail).

TASK 4.1.9 CONDUCT OUTREACH TO COMMUNITIES

An online survey of 25 Paani grantees asked them to state which sectors would be influenced by Paani knowledge products (Annex 1). Specifically, they were asked to state if they believed that policies and planning would incorporate Paani-generated research.

This quarter, Paani conducted a follow-up survey on the use of Paani knowledge products using MS Forms with 20 Paani research grantees to assess the extent to which Paani knowledge products are used to influence policies and plans. 95% of the grantees felt that these knowledge products will influence policies and plans, such as the Rara Ramsar Site Management Plan, Rara National Park and Buffer Zone Management Plan, EFRC other infrastructure development plans, aquatic biodiversity conservation plans, local and provincial level river conservation acts and policy, local DRR plans and policies, national irrigation management plan, Dalit-related plans at different levels, and plans for restoration of degraded wetland. 90% of the grantees are using the results of these knowledge products, including in; preparation of IEC materials for advocacy, preparation of various plans, river legislation of Nepal, new proposals/fundraising, training graduate and postgraduate students, and presentations and publications. More than 35% were aware that other organizations were using findings of this research. Some recommendations emerged include; scale-up research findings, publish research findings targeting policymakers, planners and government bodies, prepare print materials for different audiences, showcase the findings in appropriate forums and platforms, follow up with different stakeholder to see if these findings are used, establish long term partnerships with universities to advance academic knowledge among students, and share relevant products to other projects such as Tayar, etc.

To date, Paani has produced 29 individual knowledge products and plans to finalize 21 more in Y5Q1 and another eight by the end of Y5 (Annex 2). These knowledge products will be distributed to a wide range of end-users during year 5.

Paani will support CDES-TU to establish a Freshwater Center of Excellence through a grant. Paani will publish a request for proposals after grant approval from USAID early next quarter. TU's IT department has already agreed to host a bidder conference, which will provide more information to interested bidders (see SA 2a for more details).

STRATEGIC APPROACH 4B: SUPPORT CAPACITY BUILDING, LEARNING, AND KNOWLEDGE SHARING IN ACADEMIC AND OTHER LEARNING SPACES

The goal of this strategic approach is to build local capacity for watershed and basin management by building the capacity of Nepal's educational institutions (schools, universities), government agencies, non-governmental organizations, community groups, and research institutions to integrate academic/non-academic curricula and programming. The aim is to develop future career professionals and community advocates in the Karnali, Mahakali, and Rapti River Basins who are committed to protecting Nepal's water resources, biodiversity, and climate resilience.

Major accomplishments in Y4 under SA 4b include:

- In coordination with Nepal Environmental and Scientific Services (NESS), Paani supported Mid-Western University (MWU) to implement an Environmental and Social Impact Assessment (ESIA) course for 48 bachelor degree level students in the schools civil engineering program. The course will become part of the regular curriculum in the coming years.
- Paani also supported local grantees – Human Welfare and Environment Protection Centre, (HWEPC), the Rural Development and Empowerment Center (Rudec), and the Education Concern Centre (ECC) – to form eight eco-clubs in the Middle Rapti watershed, six in the Bogatan Lagam watershed, and one in the Thuligaad watershed. These eco-clubs help to raise community awareness on aquatic biodiversity conservation, advocate against destructive fishing practices and solid waste management, and monitor open defecation around riverbanks. In Y5, Paani will conduct a follow up survey to learn the effectiveness of eco-clubs throughout the year.
- Paani supported grant partners to build the capacity of local communities and government authorities in the following areas:
    - knowledge and skills in technical and social aspects of watershed management;
    - climate smart best practices;
    - disaster risk reduction;
    - river rafting;
    - homestay management for ecotourism and livelihood promotion; and
    - mainstreaming GESI in freshwater biodiversity conservation and leadership development.
- In all, Paani organized 45 training events for 1,045 people, including 574 women and 644 participants from marginalized groups (e.g., Janajatis, Dalit, Newar). Paani compiled comparative analytical results from pre- and post-testing of the various capacity building activities. The results revealed that knowledge of technical and social aspects of watershed management and climate-smart best practices increased by 38% in Rangun, 30% in Bogatan Lagam, 27.33% in Jhimruk, and 30% in Middle Rapti. Knowledge of collaborative leadership and advocacy skill development increased by 40% in Middle and Lower Karnali, 63% in Jhimruk and Middle Rapti combined.
- At the national level, IPPAN delivered a training for hydropower developers. The analytical results from pre- and post-testing of this training revealed that knowledge of disaster risk management for hydropower emergency action plans increased by 73.3% and knowledge of disaster risk management for hydropower dam breach situations increased by 72%.

- ISET Nepal developed a training manual on collaborative aquatic resources management via river stretch co-management and post-harvest fisheries production and marketing. They provided training of trainers to 25 participants including five women and 15 participants from marginalized groups (Janajatis, Dalit, and Newar). The analytical result from pre- and post-testing revealed that knowledge increased by 26.4% for river stretch co-management and 60.5% for post-harvest fisheries. The draft training manuals on river stretch co-management and post-harvest fisheries (English and Nepali versions) are available here.
- Paani prepared a process documentation on river stretch co-management. This publication will be used as a guideline for communities and local governments to scale out Paani's river stretch co-management model in areas with high aquatic biodiversity value.

Detailed progress from Y4 Q4 is reported below.

TASK 4.2.2: PROVIDE SCHOLARSHIPS, INTERNSHIPS, AND/OR MENTORSHIPS FOR NEPALI STUDENTS PURSUING RELATED FIELDS

Paani and MWU implemented elective courses on LVRE and Integrated Water Resource Management in the 2018 academic session and provided scholarships to 86 students. In Y4 Q4, a follow up assessment with the students revealed that 48% enrolled in the courses professional development.

> "Through the LVRE course, I've enhanced my knowledge on environmentally-friendly rural road construction in hilly areas and am able to lobby local stakeholders on conducive, cost-effective designs of local roads in rural areas."
> – Sagar Gauli, 2018.

Five LVRE students also received the opportunity to join the Paani team in Aathabis Municipality (Middle Karnali watershed) to take part in a survey on environmentally-friendly rural road construction, sponsored by U.S. Forest Service and Scott Wilson Nepal (SWN). The students assisted SWN in preparing the survey design and cost analysis for the same activity. Similarly, IWRM students reported the course was very useful and recommended to expand its availability in universities and government. MWU's success story is included in this report.

TASK 4.2.3: ENGAGE YOUTH ON FRESHWATER BIODIVERSITY AND CLIMATE CHANGE

Eco-clubs in schools are voluntary groups that promote engagement of youth in learning about and working towards freshwater biodiversity conservation and climate change resilience. In Y4, 15 eco-clubs with 254 members, including 133 women, were formed in the Middle Rapti, Bogatan Lagam and Thuligaad watersheds in collaboration with schoolteachers, school management committees, local governments, and other stakeholders. In Y5, a follow-up survey will be conducted to assess the effectiveness of the eco-clubs and to document their activities throughout the year. The survey will inquire about specific activities eco-club members took in advocating for environmental protection as a component of enhancing environmental awareness in their communities. The responses received through survey will then be used to develop a success story.

TASK 4.2.4: FACILITATE INTERNATIONAL COOPERATION BETWEEN NEPALI AND INTERNATIONAL SPECIALISTS AND STUDENTS REGARDING AQUATIC ANIMAL PASSAGE ISSUES AT DAMS AND OTHER WATER MANAGEMENT INFRASTRUCTURE

C4.2.4-4: Publish Nepal-focused engineering guide for designing hydropower projects that allow fish passage

In Y4 Q4, Paani published an RFP for a master's degree course syllabus on "Fish Passage in the Himalayan River System" to be used in the hydropower engineering program at Tribhuvan University (TU). The syllabus would develop case studies on the performance of different existing fish passage schemes in Nepal. Paani selected Hydro Lab Pvt. Ltd. Hydro Lab is the only hydraulic research laboratory in Nepal devoted to sustainability of water resources. They also operate as a river research laboratory in joint co-operation with TU's Institute of Engineering to carry out a physical hydraulic modelling studies of different hydropower projects in Nepal. Hydro Lab will begin their work on 1 July 2020.

TASK 4.2.5: DEVELOP AND IMPLEMENT WORKSHOPS AND TRAINING PROGRAMS RELATED TO FRESHWATER BIODIVERSITY CONSERVATION AND CLIMATE RESILIENCE

This quarter, ISET Nepal's contract for river stretch co-management and post-harvest fisheries training services was terminated due to new COVID-19 response priorities. The cancellation of these events has helped to reduce the potential risk of infection and spreading infection. Following the termination, ISET had to cancel the two remaining training of trainers and the finalization of those related training manuals. But prior to the cancellation, they had they delivered a draft training manual on river stretch co-management and post-harvest fisheries (English and Nepali versions) as agreed.

Similarly, all previously planned classroom-based trainings have been cancelled. These trainings included sessions on river stretch co-management, post-harvest fisheries, community-based disaster management, institutional capacity building, sustainable watershed management, and freshwater governance.

PARTNERSHIPS, COLLABORATION, KNOWLEDGE SHARING

The following table represents Paani's coordination activities with USAID/Nepal and other USAID activities for Y4 Q4:

Table 3: Meetings with USAID/Nepal and Other USAID Programs

MEETINGS WITH USAID/NEPAL AND OTHER USAID PROGRAMS		
PARTNER/PROJECT NAME	DATE OF MEETING	OUTCOME OF COLLABORATION
USAID	April 16	Paani had a learning/sharing meeting with USAID where the Paani FFS presented his experience from the participatingon in the IMC International Mahseer Conference in Thailand. After the presentation, the team discussed

		on the various approaches to river and mahseer conservation presented at the conferencepresented for the conservation of River and Mahaseer by participants in their respective countries.
USAID/Nepal	June 22	Paani's Chief of Party (COP) and Acting Deputy COP participated in the Implementing Partner Phased Lifting of Nationwide Lockdown Information Session hosted by USAID/Nepal via google meet. USAID provided guidance to IPs on current GON restrictions and USAID and IP operations (e.g., potential re-opening of offices) given the number of COVID-19 cases in Nepal and the related lockdown. USAID confirmed that its Stop Work Order was lifted effective June 21, 2020.

The following table represents Paani's coordination activities with stakeholders, including civil society, the private sector, GoN, and other development partners in Y4 Q4:

Table 4: Meetings with stakeholders

MEETINGS WITH STAKEHOLDERS		
PARTNER/PROJECT NAME	DATE OF MEETING	OUTCOME OF COLLABORATION
DNPWC, NARC, NRCT, WB/WECS-Tractebel SESA team, USAID, IFC, ADB, NESS and individual experts.	May 27	In Y4 Q4, Paani and WWF organized the 5th advisory group meeting for System Scale Planning and High Conservation Value Rivers. The team presented progress reports on several studies
FASA (Fisheries and Aquaculture Student Association), AFU	May 31	Paani delivered a talk on "Vulnerability and Threats to Aquatic Biodiversity, and Conservation Approach in Mahakali, Karnali and Rapti River Basin" to the Fisheries and Aquaculture Student Association. Renowned academicians from

		AFU, AIT and TU also participated in the webinar.
WWF, Tractebel/TMS Hydropower Master Plan study team	June 15	Paani met with the WWF Nepal team and Tractebel colleagues to discuss sharing data as input into the Hydropower Master Plan for the Koshi River Basin.
DSV Advisors	June 15	Paani had a virtual meeting with DSV Advisors to discuss their proposal for pivoting activities towards COVID-19 response. They proposed a two-pronged strategy for the project going forward: (a) a short-term plan with a greater focus on food security, livelihood development and job creation through the Karnali Basin Conservation Foundation and (b) a medium-term plan for a "Migration Mitigation Fund" as a pilot fund of Karnali River Basin Conservation Fund. The proposed strategy is informed by the reality that raising funds internationally in the present context is not feasible in the short term. DSV requested a meeting with USAID for feedback on their proposal, which Paani will arrange.
NEFIS (Nepal Fisheries Society)	June 20	Paani participated in a webinar on "Sustainable Aquaculture and Fisheries in the COVID-19 Era" organized by the Nepal Fisheries Society. The main conclusions of the webinar were that; (1) pressure on capture fisheries has increased due to the loss of local employment during the COVID-19 related lock down, which has further threatened endangered fish species such as Mahseer, and (2) COVID-19 has had a significant impact on aquaculture, with next year's fish production estimated to be reduced by approximately 35% due to a break in supply chain of fish seeds and materials during the lockdown.
Webinar on "Environment Management in Nepal: Policy, Plan, and Practice"	June 5	Sr. Environmental Policy and Law Expert (Sr. EPLE) delivered remarks in the webinar organized on the Environment Day on June 5.

		The Minister for Forest and the Environment highlighted the policies, laws and programs developed and implemented by the Ministry, including the enactment of the new Environment Protection Act and the Forest Act in 2019. Paani suggested the Minister to develop laws for conservation of rivers, lakes, and ponds, which is one of the Ministry's mandates per their Business Allocation Regulations, and which the Ministry has not yet prioritized.
Virtual Policy Dialogue on Environmental Policy and Law in Karnali Province	June 28	Paani's Sr. EPLE participated as a key speaker in a Virtual Policy Dialogue on Environmental Policy and Law of Karnali Province. Karnali Province's Minister for Industry, Tourism, Forest and Environment (MoITFE); a Finance and Natural Resource Committee Member, State Assembly, Karnali Province; and a Member of the Provincial Planning Commission also participated in the dialogue. Paani's Sr. EPLE highlighted the key provisions of Karnali Province's Environment Protection Bill and the Forest Bill, and suggested that MoITFE develop laws and policies considering the province's unique biodiversity, natural resources, culture and livelihoods. He also recommended that the Ministry strive to ensure its citizens the fundamental right to a clean and healthy environment, with State Policy enshrined in the Constitution of Nepal. The Sr. EPLE also highlighted how the content of Aquatic Animal and Biodiversity Conservation Acts (AABCAs) supported by Paani improved due to consultation with local government representatives and communities. In response to participants' questions, he emphasized the urgent need to develop river conservation policy

	and law; water resources policy and law; biodiversity conservation policy; and energy policy and law to support conservation and sustainable use of the Karnali River and its tributaries.

CROSS CUTTING ISSUES

Gender and Social Inclusion

In Y4, the Paani project was successful in integrating GESI into project activities. GESI was integrated into: policy drafts, research reports, training manuals, IEC materials, and grant activity design and implementation. For example, Paani provided GESI responsive inputs on the Fishery Policy (draft) 2074, including provisions for fisher communities, women groups and community participation in marketing, management and skills for fisheries development. The 2019 Gravel Mining Study report included the impacts of gravel mining on fishery based livelihoods, and its negative impact on river dependent communities such as the Sonaha, Tharu, Majhi, Raji. Paani also developed GESI responsive IEC materials on Environmentally Friendly Road Construction- EFRC. Additionally, Paani created two training manuals: 1) GESI mainstreaming into aquatic biodiversity conservation and river resource conservation and 2) Collaborative leadership and advocacy skills development. These trainings were integrated into river stretch co-management, fish post-harvest, ornithology, and champions capacity development training, among others.

Paani also provided GESI training to CAACGs, river resource user groups, and local communities to increase their awareness about the need for GESI to achieve the right to equal participation and equitable benefit sharing. The trainings also focused on the need for GESI in aquatic biodiversity policies, plans and programs; sectoral policies and related provisions; and aquatic biodiversity conservation and watershed management. As a result, the percentage of participants reporting increased agreement with the concept that men and women should have equal access to social, economic, and political resources and opportunities (GNDR 4) was 69.2%.

As a result of these activities, 29 grant partners included GESI provisions in their project documents and developed and implemented GESI plans. This has led to a total of 54 CAACGs formed with inclusive leadership, of which 71% of women and marginalized groups occupied key leadership and decision-making positions (chairperson, treasurer and secretary). A total of 16 CAACGs developed GESI responsive Collaborative Leadership and Advocacy Action Plans. Local governments in 4 watersheds (Jhimruk Khola, Middle Rapti, Lower Karnali and Middle Karnali) developed livelihood-based proposals.

As a major outcome of Y4, Paani aligned its livelihood component with recommendations from the GESI Assessment conducted in 2018. As a result, CAACGs, including traditional fisher groups, women and marginalized Janajati established environment friendly enterprises, e.g., aquaculture and vegetable farming. Paani also conducted and produced a report on an Assessment of Nature Based Tourism in the

Karnali River Basin. Based on this report, Paani conducted basic river guide training for 20 youth from fisher communities, including four young Raji women.

Overall in Y4, Paani achieved 41.72% women participation in project activities, which is better than the target (as per Paani's GESI policy, the target was at least 33% women participation). Similarly, Paani achieved its target of 50% fishers, Janajati Adivasi, Dalits and marginalized community participation (as per Paani GESI policy, the target wasat least 50%). A summary of Y4's major GESI integrated activities are in table 5.

MAJOR GESI ACCOMPLISHMENTS IN Y4:

GOAL 1: STRENGTHEN THE ABILITY OF GRANTEES TO APPLY GESI LENSES IN THEIR PROGRAM DESIGN AND IMPLEMENTATION

Task: Link GESI to relevant SAs including 1a, 1b and 1c

- Supported 29 grantees to include GESI provisions in their grant designs, with target indicators for women's participation of at least 33%, and marginalized/minority participation (Adivasi Janajati, Dalits) of at least 50%.
- Supported grantees to develop GESI plans to ensure the participation and develop the leadership of women and marginalized groups in each activity.
- Conducted an orientation on ethics and harassment to grantees' executive team members and staff from SAEWCC, RCDC, MPDS, KCDC, IDES, SNS, SBS, DCC, MRC, HWEPC, ECC, RCDC and SEAWAC in Nepalgunj. All grantee participants report that they are applying the ethics and harassment policies in their organizations. In addition, the GESI team established a GESI friendly system to address menstrual health i.e. sanitary pad as emergency kit in Paani Nepalgunj Office. Developed a GESI reporting template (monthly, quarterly and final) for grantees to report GESI progress, outcomes and success stories from the community.

Task: 1.3.2 Facilitate the preparation of LAPAs/CAPAs and WUMPs

- Reviewed 2 LAPAs of Rajapur Municipality and Naraharinath Municipality of Lower Karnali and Middle Karnali watersheds, respectively; reviewed the CAPA of Rajapur Municipality Ward no. 1 & 7. As a result, GESI provisions were incorporated into the drafts of LAPAs and CAPAs, including GESI sensitive safe shelters for disaster preparedness.

GOAL 2: SUPPORT PAANI AND GRANTEES WITH INTEGRATION OF GESI INTO CAPACITY BUILDING TRAININGS:

Task 4.2.5. Develop and implement workshop and training programs:

- Integrated GESI sessions into 20 capacity building trainings and discussed equal access of men and women to social, economic and political resources. The trainings were on the following:

climate-smart vegetable farming to women and marginalized groups, leadership building of CAACGs, resilience and environment friendly agriculture training, environment friendly agriculture technologies/practices, ecotourism/rafting guide training, capacity building training on climate change adaptation, and GESI mainstreaming training.

- Assessed the GNDR4 indicators using a pre-post test tool. Overall 69.2% of participants reported increased agreement with the concept that men and women should have equal access to social, economic, and political resources and opportunities (GNDR 4). Paani and Hariyo Ban held integrated GESI sessions and collaborated on two 2-day community based Early Warning System (EWS) trainings in Madhuwan and Thakurbaba Municipality, Lower Karnali. The importance of inclusion of vulnerable people (i.e. women, elderly, pregnant women, lactating women, children, disabled) during disaster and post-disaster relief was discussed. 46 females and 36 males were trained on flood risks and EWS. As a result of the training, KIRDRAC integrated GESI components into its training manual on disaster management.
- Supported Paani Grantee RuDeC Nepal in developing GESI mainstreaming sessions and conducted a leadership development training for 15 females and 17 males from 3 CAACGs. They were trained on leadership skills, team building, GESI, and legal provisions of the AABCB.

Task: 3.2.4 Use grants to build CSO capacity (GESI aware)

- Reviewed CSO guidelines and provided GESI relevant inputs on: GESI responsive community infrastructures, required representation of women and marginalized community members in user groups, GESI-response Irrigation Policy 2070, and GESI-sensitive EFRC.

GOAL 3: SUPPORT DEVELOPMENT OF AQUATIC RESOURCE CO-MANAGEMENT MODELS TO ENSURE RIGHTS OF INDIGENOUS PEOPLE AND DALITS AND TO PROMOTE LIVELIHOOD

Task: 1.1.2 Build capacity of fisheries Co-management (GESI Aware)

- Provided inputs to fishery business case development, linking it with ecotourism enterprises; ecotourism related to government policies, plans and programs; ecotourism managing and operating organizations and institutions; and challenges and issues that relate to ecotourism in Nepal.
- Supported the drafting of the three-year business plan of the newly formed Fish Cooperative by Rakam Karnali CAACG members with support from grantee SAEWCC.
- Aathbis Municipality, Dailekh allocated a budget of NRs. 20 lakhs to enhance the alternative livelihoods of fisher communities in FY 2075/76 (2019-2020). The budget supports constructing fish ponds through the fish cooperative and collective marketing mechanism.
- Assisted Sonaha CAACG of Bhimdutta Municipality/Lower Mahakali to form a Fish Cooperative, supported the development of the three-year Cooperative Business Plan, and provided cooperative management capacity building training. Supported Sonaha CAACG to develop a revolving fund of NRs. 75,000 through CIS, Kanchanpur/Lower Mahakali.
- Paani supported the draft of the GESI responsive AABCB in 37 municipalities and RMs of the Rapti, Mahakali and Karnali River Basin. 28 of 27 have endorsed the Bill.
- Parsuram Municipality and Alital RM municipality developed GESI aware fishery guidelines.

- Trained 12 participants on homestay operation and management through HWEPC to support alternative livelihoods to fisher groups to promote eco-tourism.
- NNSWA supported improved cooking stoves to vulnerable communities in the Rangun watershed, benefitting 31 vulnerable households.
- KDCN initiated two vocational trainings in collaboration with Jhimruk Skill Development and Vocational Education Pvt. Ltd: 1) Gabion box weaving training for 10 CAACG members and 2) fisheries training for 10 CAACG members. A Total of 20 CAACG members from vulnerable communities, whose traditional occupation is fishing and pottery, benefitted.
- CIS in Kanchanpur conducted a one-day orientation on aquaculture and a five-day exposure visit on fish farming and fish market management to enhance their skills and knowledge for creating alternative livelihoods options in the Lower Mahakali, Kanchanpur. The Sonaha CAACG leased one aquaculture pond, installed a boring machine, and filled up the pond with fresh water and fingerlings. Sonaha CAACG then submitted a proposal, in the amount of NRs. 1,000,000, jointly with local fish farmers in the Bhimdutta Municipality, Kanchanpur to expand their fish farming.

Task: 1.1.1. Capture fishery:

- Paani conducted an Assessment on Nature Based Tourism in the Karnali River Basin to analyze the existing tourism markets, ecotourism opportunities, and potential benefits to disadvantaged or vulnerable groups in or around the Karnali River Basin to integrate ecotourism alternative livelihoods into its aquatic co-management models. The report includes an analysis of tourism supply in the Karnali Basin, a strategic analysis of potential demand and an action plan for ecotourism development in the Karnali Basin.
- The ecotourism market survey found that there was a lack of skilled river guides in the Karnali rafting river sections. Therefore, Paani provided 14-days of basic river guide training to 20 fisher community youth including 4 Raji young girls. of the Lower Karnali Watershed through grantee FEDWASUN, and Karnali Rafting & Adventure Pvt. Ltd., which provided training experts.

GOAL 4: SUPPORT WOMEN ACT WITH GRANT IMPLEMENTATION TO BUILD CAPACITY OF GRANTEES AND COMMUNITIES IN FOUR WATERSHEDS

Task: 1.1.2 Build Capacity for fisheries co-management (GESI Aware)

- Based on recommendations from Paani's GESI Assessment, Paani developed training manuals on GESI mainstreaming in fresh water biodiversity and water resources management, and delivered two 3-day GESI mainstreaming trainings to CAACGs, Water Users Groups, WUGs, and CFUGs, in 4 watersheds (MK, LK, JK, MR) through GESI specific grantee Women Act. The main objective was to enhance the GESI capacity of the CAACGs in freshwater biodiversity conservation and river resource management. 28 women and 21 men from CAACGs of Jhimruk, Middle Rapti, Middle Karnali and Lower Karnali watershed attended the training.
- Developed a training manual on collaborative leadership and advocacy skills development in freshwater biodiversity conservation and river resources management. The main contents covered enhancing groups' strengths to overcome barriers to collaborate, using tools and

techniques for effective collaboration, building strategies and developing advocacy skills, resources mapping and networking skills.

- Supported Women Act in organizing two trainings on Collaborative Leadership and Advocacy Skill Development in freshwater biodiversity and river resource management. 28 women and 22 men from 42 CAACGs of Lower Karnali, Middle Karnali, Jhimruk and Middle Rapti watershed attended. The main objective of the trainings was to improve collaboration among local groups, local government and relevant government line agencies through enhancing leadership and advocacy skills. As an outcome of the training, participants developed 16 GESI integrated Collaborative Advocacy Action Plans containing six different issues: river water pollution, unmanaged gravel mining, lack of access women and marginalized groups to local resources, unsustainable fishing practices, drying water resources, and lack of financial resources for CAACG's sustainability.

LEADERSHIP ROLES AND DECISION MAKING POSITIONS

- In Y4, a total of 54 CAACGs were formed with inclusive leadership: approximately 71% of women and marginalized groups occupied key leadership roles and decision-making positions.

GESI related Day celebrations:

- In Y4, Paani commemorated the 16-day campaign against gender-based violence (GBV) in Paani's Kathmandu and Field offices by wearing orange (the designated color for the day), making a short presentation to the team about the campaign and its significance, candle lighting, and photo sessions.
- Paani celebrated International Women's Day 2020 in the "eachforequal#" theme by taking photos in groups to represent the theme and shared the photos through Paani's and DAI's social media channels.

Detailed progress from Y4 Q4 is reported below.

GESI INTEGRATION IN TRAINING MANUALS DEVELOPED:

In Y4 Q4, Paani integrated the GESI session into the River Stretch Co-Management Training Manual, Fish Post-Harvest Training Manual, Champion Capacity Building Training Manual, and Ornithology Training Manual.

DEVELOPED CAACG PROPOSALS:

In Y4 Q4, Paani supported four CAACGs (Amelia Raha CAACG, Pyuthan Municipality/Jhimruk Khola; RAWA CAACG, Gadhawa Rural Municipality/Middle Rapti; RAKAM CAACG, Dailekh/Middle Rapti: and Triben CAACG, Mohnyal/Lower Karnalii) to develop proposals based on collaborative advocacy action plans and rapid desk reviews of 25 R/Municipalities; and GESI responsive programming and budget allocation for livelihood, freshwater biodiversity and river resources management in Lower Karnali, Middle Karnali, Jhimruk and Middle Rapti Watershed respectively. The aim of developing these proposals is to enhance the capacity of CAACG members. Paani plans to link local governments to CAACG

members to submit proposals and request budget to improve their livelihood and conservation of aquatic biodiversity.

COVID_19 SITUATION IN PAANI WORKING AREA

Some of Paani's working areas experienced the highest rates of COVID-19 in the country. An estimated hundreds of thousands of migrants returned to Nepal from India and Middle Eastern countries as COVID-19 became a global pandemic, losing their employment and increasing the risk of transmission, food insecurity, sexual harassment, social crime, suicide, and maternal and child death. In particular, migrant returnees, women, daily wage dependent people, rural families, fisher groups, Dalit, poor and marginalized families are increasingly vulnerable to the virus and economic impacts of the lockdown. Women are at even more risk of facing domestic and sexual harassment inside their homes while quarantining. Pregnant and lactating mothers face challenges in terms of finding nutritious food and safe delivery. According to the Ministry of Health and Population, by July 1, Nepal had 13,564 recorded cases of COVID-19, 3,194 cases of recovery and 29 deaths. The data below shows that the Provinces #5 and 7 (where Paani works) are among the most vulnerable.

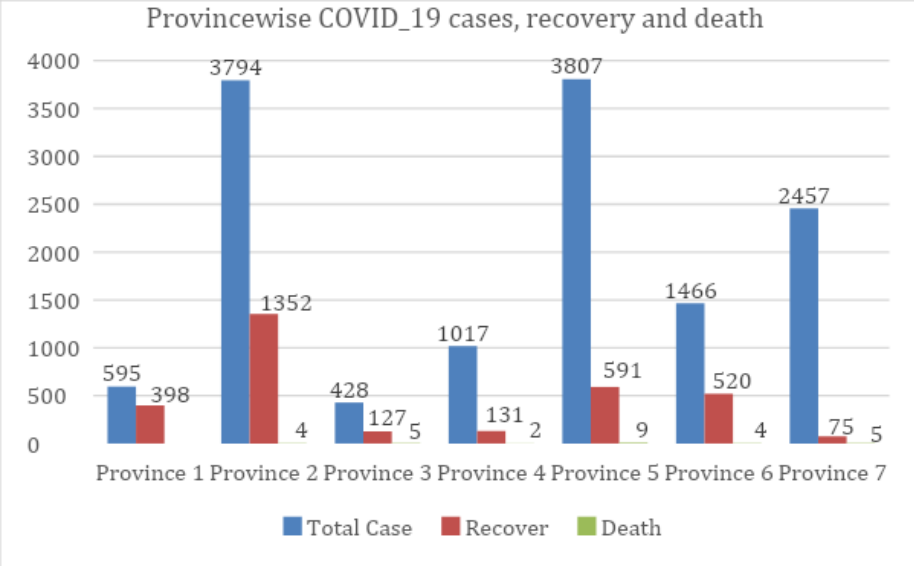


Figure 13: COVID -19 status by Province level (Source: Ministry of Health and Population Nepal, 1 July 2020)

GESI RESPONSE DURING COVID-19 PANDEMIC SITUATION:

In Y4 Q4, during the lockdown, grantee Women Act published a press release appealing on their own initiative to all three provincial governments and their health, security, and service providing units, political parties, development agencies, CSOs, media, and local governments to arrange women-friendly separate areas in quarantine, conscious of women's security. Women Act also appealed to local governments to meet WHO standards for the provision of food and water for pregnant and lactating women, mothers, senior citizens, children and people with disabilities in quarantine. Women Act also asked the government to count the heads of poor fisher communities, Dalits, marginalized, single women, people with disables, and all vulnerable people groups for food relief distribution. Meanwhile,

the press release requested all Nepalese citizens to maintain proper handwashing, use of masks and social distancing, and to follow GON rules to prevent spread of the virus.

Women Act also conducted virtual meetings on their own initiative about GESI issues during the COVID-19 pandemic, addressing the role of government and civil society, more than 40 national and international participants attended. The program panelists consisted of Ms. Bandana Rana, Vice Chair of the UN Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) Committee and Honorable Krishna Bhakta Pokharel, a member of the national parliament, who shared their experiences and responded to queries about current GESI related issues during the lockdown, including:

- The need for gender friendly safe quarantine to protect against child rape, and pregnant women/maternal death during lockdown; and
- Steps the government is taking to address GESI issues

Paani's Sustainable Livelihoods and GESI Specialist Sangita Adhikari hosted the program and spelled out the vulnerable situation of fisher groups due to the COVID-19 pandemic crisis.

PIVOTED GESI SENSITIVE COVID-19 RESPONSE ACTIVITIES:

At the request of USAID/Nepal, Paani pivoted its activities in Y4 Q4 to respond to COVID-19, especially: food security, livelihood and cash income, and fish for food, in order to support COVID-19 affected families, migrant returnees, poor, women and vulnerable groups. In addition, Paani's local grantees provided relief materials to the poor, vulnerable and most needy CAACG members in coordination with respective local government. The GESI team provided inputs based on proposed COVID-19 responsive activities to new grantees, for example: beneficiary selection, livelihood activities, and locations. The GESI team developed a GESI outcome results reporting template and shared it with all grantees. Grantees have started on their GESI reports with the support of the GESI team.

Table 5: Details on Y4 Q4 GESI Integrated Major Outcomes

S.N.	ACTIVITIES	LOCATION	NARRATIVE	OUTCOME (Q4).
I	River Guide raining to river fisher community youths.	Lower Karnali watershed, Jamu, Surkhet.	In Y4 Paani's grantee FEDWASUN conducted river guide training to fisher community youths from Raji, Tharu, Sonaha total 20 including 4 Raji women at Lower Karnali watershed in 20 Dec, 2019 to 2 Jan, 2020.	In Y4 Q4, River Guide training graduates have earned cash in hand total NRs. 191,300 as economic benefit from working as Assistant River Guides hired by the local company - Karnali Rafting and Adventure Pvt. Ltd. during the season from January - May, 2020.

2	Cooperative Management and Leadership Development Training and Account Keeping Training to Sonaha Fish Cooperative.	Lower Mahakali watershed, Kanchanpur	In Y4, Paani's Grantee CIS, Kanchanpur supported Sonaha CAACG in the registration process of the Sonaha Fish Cooperative under Bhimdatta Municipality; conducted Cooperative management and leadership development training; account keeping training.	In Y4 Q4 CAACG members regularly deposit monthly savings in the amount of NRs. 8,000. Now, they have total amount of Nrs. 58,000 in the revolving fund, among them NRs.50, 000 invested to one of CAACG member for poultry farming and goat rearing.
3	Homestay training and homestay management committee formed in Ringmo Village, Shey Phoksundo RM, Dolpa District.	Shey Phoksundo Watershed, Dolpa Ringmo village	With technical support from Paani, Shey Phoksundo RM conducted 3-day home-stay training. The training is one of the outcomes of a NEFEJ town hall meeting Action Plan. The main objective of the training was to establish home stays to improve the livelihood of marginalized communities through promoting eco-tourism. 50 women out of 61 people from marginalized communities trained on homestays through the Shey Phoksundo RM's budget of NRs. 400,000 with Paani's technical support.	1) Phoksundo Community Homestay Management Committee formed and registered under RM. 55% women included in the committee. 11) In Y4 Q4 MOITFE and Division Forest Office, Dolpa allocated NRs. 2,840,050 for newly registered Phoksundo Community homestay for its management and promotion of eco-tourism. An agreement was made between the homestay management committee and the Division Forest office Dolpa on May 14, 2020. Now committees are maintaining and decorating home stays.
4	Vulnerability and Capacity Assessment (VCA)	Chure and Mahonyal RM	ECC facilitated the design of two LDCRPs in Chure and Mohanyal RMs, Thuligaad Watershed and conducted a Vulnerability and capacity assessment (VCA). ECC completed a VCA to identify disaster risks and prepare plans to minimize the risk. 132 males and 94 females engaged in the VCA process.	In Y4 Q4, LDCRP prepared Chure and Mohanyal RMs to address the findings of the VCA to reduce disaster and climate change related shocks and stresses in vulnerable communities.
5.	Support plastic tunnel and drip irrigation sets for marginalized CAACGs to support	Middle Rapti Watershed, Ghadawa RM, Dang	Paani grantee MRC Nepal provided plastic tunnel houses with drip irrigation to marginalized CAACGs members aiming to adopt environmentally friendly technologies/practices to improve their agricultural	20 CAACG members from marginalized communities, including 7 males and 13 females, constructed plastic tunnels and installed drip irrigation sets in Middle Rapti. In Y4 Q4 CAACG members cultivated vegetables like

	alternative livelihoods.		practices and productivity, as part of Climate Change Adaptation efforts.	bitter gourd, bottle gourd, okra, cucumber and earned NRs 170,500. Due to heavy rainfall and COVID-19, CAACG members could not earn as much as expected.
6	Support plastic tunnel and drip irrigation sets for marginalized CAACGs to support alternative livelihoods.	Lower Mahakali Watershed, Mahakali Municipality Ward no # 7, Kanchanpur.	CIS, Kanchanpur constructed 20 plastic tunnel houses with solar drip irrigation to adopt environmentally friendly technologies/practices to improve their agricultural practices and productivity, as part of climate change adaptation efforts.	Rampure Tapu CAACG constructed one permanent nursery tunnel shed with financial support from Mahakali Municipality Ward no # 7 of NRs. 82,800. In Y4 Q4 Rampure Tapu CAACG earned a total of NRs. 24,928 in sales of off-season vegetables in their tunnel houses.
7	Develop draft constitution of Women Cooperative	Shey-Phoksundo Watershed	In Y4 Q4, Paani prepared a constitution for Women Cooperative in Phoksundo watershed. Women Cooperative will contribute to the sustainable local traditional handmade goods (small bag, liu, blanket, sweater, jacket, bakkhu etc.) and its marketing to enhance the alternative livelihood, leadership and advocacy skill of marginalized women groups.	Drafted the constitution of Women Cooperative in Shey Phoksundo Suligadh Watershed.

COMMUNICATIONS

In Y4, Paani hired Foundations for Development Management (FDM) to conduct an assessment of the project's communications activities with 426 households in 4 watersheds in the Tarai, mid-hills and high mountain watersheds (Middle Karnali, Lower Mahakali, Middle Rapti and West Seti). Results showed that these activities (96 TV shows, 96 radio programs, 69 town hall meetings, 840 watershed-related articles hakihakionline.com, and hoarding boards with conservation messages in the project's 12 priority watersheds) implemented from early 2017 to the end of 2019 played a significant role in raising awareness and changing behavior related to aquatic biodiversity conservation. For example, 84.9% of those exposed to Paani's communications activities engaged in conservation activities vs. 49.1% of those not exposed. Of those who were exposed, 80.3% of those who watched the TV show reported engaging in conservation activities, along with 86.8% of radio listeners, and a remarkable 96% of those who attended the town hall meetings. In terms of reach, approximately 330,000 people listened to the radio show, and 180,000 watched the TV show in the watersheds surveyed. Survey participants reported that the project's communications activities helped them become more aware about pressing issues in their communities, such as destructive fishing practices, river conservation, local water management, and the importance of protecting aquatic biodiversity. Based on this, along with other Paani interventions, they decided to form committees to work on various aspects of conservation, participate in public awareness campaigns, and collaborate with their local governments, among other actions. These findings demonstrate the key role that a robust, multi-faceted communications campaign can play in helping communities conserve the aquatic resources upon which their livelihoods depend.

Paani also completed and released three impact videos and one learning video on river stretch co-management (RSC) in Y4. The impact videos profiled three local champions who have become leaders of CAACGs to stop destructive fishing practices with the support of Paani. Collectively, the three videos reached more than 876,000 people through Paani's and USAID/Nepal's social media channels. In Y4 Q4, Paani shared its learning video via email with USAID, partners, grantees and local governments on World Water Day 2020. The video is for use in training on RSC to guide new CAACGs as they advocate in their communities or pass legislation. Other USAID implementing partners, programs, and community groups wishing to implement similar activities in their watersheds may also use the video.

Dhan Kumari Chaudary shares her experience as leader of a newly formed CAACG in Paani's impact video. Photo credit: Aura Creations

In terms of media coverage in Y4, USAID's Biodiversity Results and Integrated Development Gains Enhanced (BRIDGE) Project published a case study on the successes and challenges of Paani's integrated approach to IWRM on Medium.com. Paani's work was also covered in variety of local and national news outlet. For example, SetoPati.com covered penalties for catching juvenile fish in the Karnali River; News24Nepal covered Paani's approach to conservation in West Seti Watershed; HimalKhabar.com covered plans being developed for the conservation of Rara Lake through support from Paani; and BBC's Nepal News Service aired a radio story on indigenous river-dependent communities in western Nepal on working aquatic animal conservation. Nagariknews.com covered the first Jalkachahari held in Dolpo; and Setopati.com covered drying water sources in Rangun watershed. Kantipur Daily covered: a story on one women's group patrolling the river to stop destructive fishing practices;

villagers' efforts to protect aquatic biodiversity in Rangun and Lower Mahakali; and community initiatives on lake conservation in Lower Mahakali. Karobar National Daily covered how fishers are returning to traditional methods after seeing how these methods helped to increase fish stock. In Y4 Q4, SetoPati.com covered how IWMI is using its e-flow calculator to measure e-flow in the Karnali and Mahakali River. Dineshkhabar.com covered restrictions on overfishing in West Seti Watershed during the lockdown.

NEFEJ's second and final grant came to an end in Y4 Q2. In total NEFEJ, broadcasted 96 episodes of TV and radio program covering 336 good practices. It featured total 182 champions through the TV program and 105 though radio. NEFEJ conducted 69 town hall meetings on 14 different issues, reaching 5,000 people in 12 watersheds (more details under SA 2a). It also reached to 2,500 people with conservation message through narrow casting. Since it launched its environmental news portal "Hakahaki" in Februrary 2018, NEFEJ reached to more than 370,000 visitors.

As mentioned under SA 3b, Paani finalized its Advocacy Plan for Sustainable Hydropower, which aims to raise awareness of CSOs and user groups on their rights in relation to hydropower development and increase their capacity to engage and advocate on behalf of those rights to the appropriate bodies. Paani also finalized a set of advocacy training materials, which can be used in conjunction with CSO advocacy guide for healthy rivers. This quarter, Paani finalized the Nepali translation of the guide and hired an illustrator who will work on the layout and graphics in Y5 Q1 (see SA 3b for more details).

As mentioned under SA 1C, SWN conducted 15 IEC awareness campaigns (in tandem with workshops on EFRC guidelines) in Jhimruk, Middle Karnali and West Seti Watersheds. Paani distributed/provided overviews on posters, brochures and flipcharts for more than 450 participants. This quarter, Paani finalized the EFRC tutorial video, which was disseminated to 117 stakeholders, including local government representatives, technical officers, engineers, district offices, community groups, grantee partners, early adopters and champions and NGOs. These materials will enhance their awareness on EFRC and support advocacy and promotion of EFRC at the local level. In Y4 Q4, during the lockdown, HWEPC (at its own cost) broadcasted a radio jingle through three local radio stations (Rapti FM, Highway FM and Naya Yug FM) of Middle Rapti Watershed to raise awareness on destructive fishing practices and the AABCA to promote sustainable fishing gear.

This quarter, Paani prepared and finalized the grant submission package for an in-kind grant to CDES-TU for the establishment of a Freshwater Center for Excellence (FCOE). Paani will submit the grant to USAID for approval if/once the NCE is approved (more details under SA 2a).

In Y4, Paani distributed hard and digital copies of profile knowledge products in 12 priority watersheds. In total, 240 watershed profiles, 660 health reports, 1,800 profile briefers and 120 profile posters were distributed to local government, community groups, grantees and civil society organizations (CSOs). As a result, three municipalities/RMs in two watersheds shared Paani's watershed profiles and health reports in English and Nepali on their websites, thereby taking ownership of these products and making them more widely available to the public. In Y4 Q4, Paani worked on a variety of technical briefers on some of Paani's key studies, including Fisheries Conservation Framework, Eco-tourism of Karnali River Basin, Impact of Mining on Aquatic Biodiversity, Political Economy Analysis, and Strategic Consideration for River Conservation Legislation in Nepal. The technical briefers may be found here[3].

This quarter, Paani conducted an online survey with the project's current and former grantees to assess their knowledge dissemination efforts and collect input for Paani's dissemination plan in Y5. Preliminary

[3] Briefers will be uploaded to this file as they are finalized.

finding showed that 95% (of 21 respondents) expect that their research will influence policies and plans; 90% of the grantees are using the results for publication, sharing, training and advocacy purposes; 35% reported that their research is being used by government agencies and development partners. A full report of the survey will be prepared in Y5 Q1.

SECTION IV: ADMINISTRATION AND MANAGEMENT

Administration and management of Paani is based on five main modalities of Paani's technical and financial resources, which mutually reinforce each other:

- Research,
- Training,
- Technical Assistance (well-targeted, through a mix of Nepali and international long-term and short-term specialists),
- Events (workshops, conferences, public education events, and working groups), and
- Grants.

Year 4 highlights include:

Grant activities that were put on hold and cut by 25% early in Y4 (based on communication from USAID that the Paani contract may not have been fully obligated) resumed. During the reduction exercise, Paani had to work with grantees to adjust to their new scopes of work and budgets. Eventually, the grantees adjusted, and activity implementation resumed according to plans/budgets in the revised grants.

Paani also faced some administrative challenges in Y4. GON informed USAID/Nepal and its projects of new regulations and procedures for acquiring visas for international staff; however, process this was not very transparent and Paani's international staff and dependents faced delays and fees. Additionally, the contribution-based Social Security Act 2017 (2074) enacted by Parliament on July 24, 2017 and signed into law on August 13, 2017 was an issue for local Paani staff, who were not accustomed to contributing a portion of their salary to SSF. Staff were very vocal, requesting that their money not be deposited into the SSF. Paani sought legal advice and communicated regularly with staff on both issues, which were resolved.

In Y4, several Paani staff were promoted and a few staff resigned. Ms. Prativa Tamang was promoted from Front Office Associate to Administrative and Logistics Officer; Mr. Sanjog Sriwastav was promoted from Grants Manager to Grants and Sub-Contracts Manager; Mr. Pushkar Khanal was promoted from Communications Officer to Communications Manager; Ms. Sarah Gray was promoted to Acting Deputy Chief of Party/Senior Communications Specialist. Lastly, five staff resigned: Mr. Jeremy Keeton, Deputy Chief of Party; Mr. Johannes Go, Senior Operations Manager; Mr. Jagadish Bhatta, Watershed Management Specialist (WMS); Mr. Laxmi Bhatt, WMS; Mr. Suresh Ranjit, Procurement Officer; and Ms. Sajina Thapa, Human Resource Officer. In addition, Ms. Amy Conlee joined the project as Director of Operations.

The global COVID-19 pandemic began in Y4 Q3, greatly program operations and implementation. On March 23, 2020, the GON issued a national lockdown in Nepal. They restricted all gatherings, international and domestic travel, and eventually all movement within the country. In addition, Paani received a Stop Work Order (SWO) from the USAID Contracting Officer, where grantees could work to finish activities remotely but not to start any new activities until the SWO was lifted. With the lockdown and SWO that was extended multiple time well in June, some of Paani's activities were significantly delayed and/or seasonal activities were missed altogether. Paani submitted a no cost extension (NCE) to USAID in June, which, if approved, will allows Paani to complete some of these activities in the next season. As GON began to ease to lockdown in June, USAID/Nepal followed suit and informed implementing partners that the SWO was lifted effective June 21, 2020. DAI then notified grantees and subcontractors they could start to work on their re-opening plans and resume activities, but they must follow GON COVID-19 guidelines.

In Y4 Q4, in consultation with USAID, Paani analyzed the grants portfolio to pivot activities toward COVID-19 response. This led to classifying all existing grantees into three categories:

- Grants that could not realign activities in support of a COVID-19 response, and should be cancelled;
- Grants that will operate with a reduced scope, due to a partial alignment with COVID-19 responsive activities or to complete a contract deliverable and;
- Grants that can completely pivot grant activities towards a COVID-19 response.

Paani formally notified the seven grantees unable to pivot that their grant agreements would be terminated. Grants that can pivot are currently being revised, and new grant agreements will be issued over the next few weeks.

Also in Y4 Q4, the Project Management Team focused on the following areas beyond the day to day activities and key challenges

1) Finalizing the project close down plan. This will be submitted if/once Paani receives the NCE.

2) Re-scoping grant activities through grant modification and cancelling grants per the needs and priorities of a COVID-19 response.

3) Managing the teleworking of staff due to COVID-19 and GON lockdown.

The following requests were submitted to USAID in Y4 Q4:

Request	Date of request
Request for Case Specific SWO Exception #1 for Paani staff to return home	4/15/2020
Request for LOE and Period of Performance Extension for Peter Newsum	4/16/2020
Request for Case Specific SWO Exception #2 for urgent tasks	4/24/2020
Request for Case Specific SWO Exception #3 for Tractabel Data	5/13/2020
Request for a Period of Performance Extension for Allen Turner	5/27/2020
Notification of Key Personnel Change and Leave Monetization Request	5/30/2020
Request for Case Specific SWO Exception #4 for Banking Tasks	6/4/2020
Deliverable Due Date Extension Request	6/5/2020
NCE Request	6/16/2020
Request for Remote STTA Approval for Priscila Powell	6/18/2020

ONGOING, CANCELLED AND IN-DEVELOPMENT GRANTS

This section summarizes grants that are ongoing, cancelled and in-development, as well as grant funding projected for Year 5.

CANCELED GRANT PROGRAM ACTIVITIES

Paani prioritized grants and activities that actively respond to the insecurity in Nepal resulting from COVID-19 according the criteria mentioned above. After an in-depth analysis, Paani chose to cancel seven grants that could not align with a COVID-19 response.

ONGOING GRANT PROGRAM ACTIVITIES

In Y5, Paani will continue implementing the 19 remaining grants (including 4 grants that are ending in Aug. 2020). Paani will pivot its ongoing grant activities to ensure direct livelihood support to COVID-19 affected families and migrant returnee families in the 12 targeted watersheds. Paani will give priority to those activities which generate employment locally and address food security issues in a post COVID-19 context. The ongoing grants will directly respond to COVID-19 and focus on conserving and promoting sustainable capture fisheries, managing invasive species, integrated water resources management, and disaster risk reduction. The main areas of interventions are the following:

- Capture fisheries: Paani will continue to promote fish aquaculture by supporting construction of fish ponds in the Karnali.
- IWRM: Paani will respond to COVID-19 by focusing on promoting handwashing and social distancing at key communal water sources and promoting natural recharge of water sources.
- DRR: Paani will assist communities in integrating COVID-19 precautions into LCDRCPs and RSLUPs.

In addition, Paani will continue to work with all grantees on river stretch co-management, with CAACGs patrolling river stretches for illegal, unreported and unregulated fishing activities.

This year, the Paani Operations team facilitated the implementation of the following procurements:

- Establish and Mobilize a Karnali River Basin Conservation Fund (KRBCF)
- River Stretch Co-Management and Post-Harvest Fisheries Training Services
- Environment Friendly Rural Road Construction Support Activity
- Survey on Paani Communications Activities
- Feasibility study for aquaculture and culture-based fisheries in mountain areas of Karnali Province
- Development of Rara Lake Ramsar Site Management Plan
- Paani Program Videos on Improving Local Management of Capture Fisheries
- Flood Hazard Mapping Service for DHM
- Development and commissioning of water mower in Bhagraiya Lake and other Oxbow Lakes in Lower Karnali watershed
- Ecotourism Visitor's Survey Across High Value Sites in Karnali River Basin (canceled due to COVID-19)
- Nepal Sustainable Hydropower Advocacy Alliance (canceled due to COVID-19)
- Audit Services for Annual Financial Audit and Corporate Income Tax Filing Services for DAI Nepal Branch office for 2020 in coordination with DAI /TAYAR program.
- Syllabus Design for the Integration of "Fish Passage in the Himalayan River System" course, Master's degree program, Hydropower Engineering, Institute of Engineering, Tribhuvan University

Key administrative and management events from **(April 1 – June 30, 2020)** are presented in Table 6.

Table 6: Key administrative and management tasks completed during Y4 Q4

Y4 Q4 KEY ADMINISTRATIVE & MANAGEMENT EVENTS	
TASKS	COMPLETED BY
GON issued a nation-wide lockdown to prevent the spread of COVID-19	March 2020
Paani rolled out changes from the updated DAI Nepal consolidated Salary Compensation and modified Employment Agreements accordingly so as to be in line with USAID's approved minimum rate effective from January 2020.	April 2020
USAID issued a SWO to IPs; thus, Paani issued a SWO to its Grantees, Subcontractors, and STTAs at the field level.	March 2020
Director of Operations and Deputy Chief of Party and dependents were temporarily evacuated from Nepal due to the risks associated with the COVID-19 outbreak and bega working remotely from their Homes of Record in the U.S.	April 2020
Paani's Risk Management Plan (RMP) submitted and approved by USAID	May 2020
Submitted DAI's Risk Assessment Tool (RAT) for reopening the office. DAI requires this tool before any DAI offices can reopen.	June 2020
Selected Audit firm, CSC & CO, for Annual Audit 2020 for to conduct a joint audit for Paani and Tayar starting July 2020.	June 2020
GON announced a relief package in response to COVID-19 and the lockdown. For the lockdown period (March–May 2020), the government contributed to the SSF on behalf of the employer and employees. Paani adjusted accounts accordingly, resulting in benefits to both the employees and employer at the rate of 11% and 20%, respectively, for the period of lockdown.	June 2020
Jeremy Keeton, Deputy Chief of Party, resigned from Paani, and Sarah Gray assumed the role of Acting DCOP.	June 15, 2020

CONSTRAINTS AND PROPOSED REMEDIES

Last quarter, Paani identified five issues confronting the project. One has been addressed, as summarized in the below table. Four issues remain, and the team identified one additional issue during the current quarter, all of which are described below.

Table 7: Addressed constraints from the Y4/Q3 quarterly report

ADDRESSED CONSTRAINTS FROM Y4 Q2	
Y4 Q3 ISSUE	STATUS
Issue: Delay in supporting GON and IWMI to promote e-flow adoption	**Resolved**. To execute this task, Paani was dependent on e-flow values for the KRB from IWMI's Digo Jal Bikas' (DJB) project, which were not provided as expected earlier in Y4, ultimately delaying the task and incurring additional costs for Paani. Paani released a tender for this task in Y4 Q2 and selected IWMI, who submitted a proposal and presented its methodology to USAID. Unfortunately, the proposal contained a number of flaws. First, the timeline to conduct the task

	over a five month period would have been insufficient to collect the extensive field data required to validate the e-flow calculator/tool. In addition, the field data collection portion, a key component of the grant activity, only made up 10% of the proposed total budget. Finally, even if the tool was finalized, there would not have been time to advocate to GON to adopt it. As a result, neither Paani nor USAID was convinced of IWMI's ability to complete this task given the above constraints and thus rejected the proposal. Finally, this activity was deemed non-COVID-19 responsive; as such, Paani will no longer carry out this activity, which USAID agreed with.

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ISSUE 1: PROGRAMMATIC IMPACTS DUE TO COVID-19 VIRUS

The COVID-19 global pandemic continued to heavily affect Paani's programs this quarter. In coordination with USAID, Paani began following restrictions on in-person gatherings and travel put in place by GON beginning in early March. On March 22, USAID issued the first of multiple "stop work orders" (SWOs) for Paani, i.e., the project should only proceed with activities that can be done through telework and should not initiate any new activities. On March 24, GON announced a nationwide lock-down order after the second COVID-19 positive case was identified. The lock-down continued until June 14. Despite a three month lockdown, COVID-19 positive cases continue to increase, including in Paani working areas, which has effected implementation of all field activities, as both the Kathmandu and Nepalgunj offices remain closed and Paani working areas remain under lockdown. On June 12, the government formalized its decision to ease the ongoing lockdown by unveiling a new modality, which GON is referring to as the "loose-down." This includes three phases, each lasting for 21 days. The first phase started from June 12, where private clinics, agriculture and animal related businesses, stores that sell essential foodstuffs and transport goods were allowed to open. Private vehicles were also allowed on the streets from June 12 onwards, on an "odd-even" basis. Development projects, including infrastructure and hydropower, extraction, collection, transportation and distribution of materials from rivers and mines for construction work were allowed to open immediately, while solid waste management, electricity, media broadcasting, postal service, and forest-related businesses could continue their activities from June 15. Other businesses remained closed, and international and domestic flights are banned through August 16. With the ease in the GON lockdown, USAID/Nepal announced that its SWO would no longer apply effective June 20, 2020 and suggested that projects continue to telework and operate according to their Risk Management Plans (RMP), which Paani submitted and received USAID's approval for this quarter. Paani also drafted a Risk Assessment Tool (RAT), required by DAI, which outlines the COVID-19 situation in Nepal and provides a detailed plan for re-opening.

Due to the lockdown restrictions and SWO, Paani was not able to meet certain targets set for last quarter or this quarter. In addition, some grantees and sub-contractors had to request cost and no-cost extensions. For example, the WWF study experienced delays when international teams were unable to travel. Tractebel, who also agreed to provide data for the EOA, remains closed and unable to collect data. As USAID has directed Paani to collect data in person rather than phone, Paani will also not be able to collect data or conduct in-person trainings for the SNV-led CAS. As a result, Paani missed collecting data during this year's peak fishing season. DSV Advisors' work has also been heavily impacted, with international fundraising and investment coming to a virtual standstill during this time. In addition, based on guidance from USAID, Paani had to reorient its entire program to respond to COVID-19, a challenging task given that the project's mandate was not directly related to health or emergency response.

Remedy: Paani has continually adjusted to the situation as it has evolved. For example, it moved as many activities as possible online (e.g., webinars, SNV CAS TOT will be conducted virtually, etc.). The project also developed a business continuity plan (available here) and continues to share a telework plan for all SAs with USAID on a bi-weekly basis. Paani's grantees and sub-contractors continue to work according to their approved telework policies and action plans. Paani is aiming to re-open its Kathmandu office in Y5 Q1, once its RAT is approved. Initially, it will open in a very limited fashion, with only essential staff allowed to return and with many new social distancing and sanitation measures put in place, e.g., fewer staff in each office, no outside visitors, temperature checks, sanitation stations throughout the office, etc. As the COVID-19 situation evolves/improves, Paani will move through Phases 2 and 3 of the RAT, which ease some of the stricter measures in Phase 1. Paani will adjust and re-submit their RMP to USAID as required. On a programmatic level, the team swiftly and successfully pivoted its portfolio of activities to respond to COVID-19. Paani was fortunate to have team members with experience in food security, which helped the program come up with unique solutions such as IFF, which will directly support livelihood opportunities for those most affected by COVID-19 and the lockdown, including migrant returnees and marginalized groups. USAID was very receptive to Paani's efforts and ideas to pivot to COVID-19 response, which were woven into the NCE submitted to USAID this quarter.

ISSUE 2: Unable to meet various targets due to lockdown restrictions. The table below presents standard indicators which were either not met or for which data was not collected.

Table 8: Paani indicators not met due to COVID-19 restrictions in Y4

Number of hectares of biologically significant areas showing improved biophysical conditions as a result of USG assistance (EG 10.2-1)	89,021	Not assessed	Not assessed	Annual (Jul'19 – Jun'20)	Paani underwent an internal DQA for this indicator. Based on the DQA recommendations, Paani updated the methodologies and tools to measure this indicator. There are possibilities of changes that could have occurred, but Paani could not measure these developments during this period as a result of the lockdown. We will report these changes once we can travel to the field to conduct field level measurements.
Number of hectares of biologically significant areas under improved natural resource management as a result of USG assistance (EG 10.2-2)	205,854	Not assessed	Not assessed	Annual (Jul'19 – Jun'20)	Paani underwent an internal Data Quality Assessment (DQA) for this indicator. Based on the DQA recommendations, Paani updated the methodologies and tools to measure this indicator. There are possibilities of changes that could have occurred, but Paani could not measure these developments during this period as a result of the lockdown. We will report these changes once we can travel to the field to conduct field level measurements.
Number of people using climate information or implementing risk-reducing actions to improve resilience to climate change as supported by USG assistance (EG 11-6)	1209	620	-48.71%	Quarter 3 (Jan'20-Mar'20)	Targets were not met due to lockdown restrictions. Will continue to implement activities and track this indicator in Y5.
	484	----------	-100%	Quarter 4 (Apr'20-Jun'20)	
Number of people with increased economic benefits derived from sustainable NRM and conservation as a	20000	Not assessed	Not assessed	Annual (Jul'19 – Jun'20)	Paani underwent an internal DQA for this indicator. Based on the DQA recommendations, Paani updated the methodologies and tools to measure this indicator. There are possibilities of changes that could have occurred, but Paani could

result of U.S. assistance (EG 10.2-3).					not measure these developments during this period as a result of the lockdown. We will report these changes once we can travel to the field to conduct field level measurements.
Number of institutions with improved capacity to assess or address climate change risks supported by USG assistance (EG 11-2)	15	----------	Not assessed	Annual (Jul'19 – Jun'20)	Data could not be collected for this indicator as a result of the lockdown beginning early March. Since activities are pivoted to respond to COVID-19, this indicator will not be tracked in Y5.
% of leadership positions in USG supported community management entities that are filled by women or member of a vulnerable group (1.3.2-1).	85%	71.1%	13.9%	Annual (Jul'19 – Mar'20)	This is the achievement made until the 3rd quarter (July 2019 – March 2020), as there were no more groups formed in the 4th quarter because of lockdown and movement restrictions. This figure will be updated in year 5 in case there are any restructuring of the existing groups.
Number of people trained in sustainable natural resources management and/or biodiversity conservation as a result of USG assistance (EG 10.2-4)	654	351	-46.33%	Quarter 3 (Jan'20-Mar'20)	Targets were not met due to lockdown restrictions. Since this indicator is also linked to COVID-19 response, there are training activities planned that contribute to this indicator in year 5. So this will be tracked in Y5.
	470	--------	-100%	Quarter 4 (Apr'20-Jun'20)	
Number of innovations supported through USG assistance (STIR-10)	5	3	-40%	Annual (Jul'19 – Jun'20)	Targets were not met due to lockdown restrictions. Will be tracked in Y5 as pivoted activities to respond to COVID-19 can be counted under this. In Y4, the following innovations were achieved. ● Community based river ecotourism ● Environment friendly road constructions guidelines in Jhimruk and Middle Karnali, and ● Watershed level platforms. The definition of this indicator was broadened to capture various groups/platforms at different levels, including watershed management platforms. Below is the status of other innovations planned for Y4 that could not be achieved. ● Ramsar site wetland management plan (Rara). Due to lockdown and travel restrictions, field activities were impacted so the contract period is extended ● Fish sanctuary declaration. This activity is also modified, and will be accomplished by November end in year 5.
Number of peer-reviewed scientific publications resulting from USG support to research and implementation programs (STR-12)	7	1	-83.33%	Annual (Jul'19 – Jun'20)	Lockdown and travel restrictions have affected data collection activities and field verifications of the data. Below is the status updates of different peer reviewed publications planned for the year. ● Landuse scenario and springs distribution in the Mid Hills of Nepal (YAE) planned. The mapping on land use and springs distribution is currently under review. Will be in place in Y5. YAE will publish articles based on research carried out from 5 watersheds (Rangun, Thuligaad, Bogatan Lagam, Middle Karnali and Jhimruk) across 3 river basins

					• Assessment of river health and freshwater biodiversity for informing Karnali River basin planning (KU): Achieved. • Response of migratory birds in relation to habitat characteristics (BCN). This grant has been cancelled. However, there is one draft manuscript under review to make see if the data and other information adequate for publishing. • Assessment of Conservation Status of Aquatic Biodiversity in Lower Karnali and Mahakali River Basin (FAN). FAN is drafting. • FAN, KU and TU scholars have drafted a manuscript focusing on wetland biodiversity, Ramaroshan of Achham District is ready. Will be in place in Y5. • Comparison of aquatic biodiversity of two Nepali river basins - with and without hydropower development (CMDN). Paani provided feedback and inputs in the draft. They are bringing in other database and reports to come up with the comprehensive. • Mapping of spring sources in western mountain watersheds of Nepal (YAE). Receive 2nd draft which is under review. Will be achieved in year 5.

Remedy: Paani used online instead of in-person tools to collect data for assessments, e.g., the follow-up manuscript. assessment of MWU students who took Paani-supported courses on LVRE and IWRM. For those indicators that require direct field assessments and interactions with people (e.g., hectares with the improved biophysical condition and improved management, people with increased economic benefits, etc.), Paani has updated all the tools to be used to collect data once the lockdown and restrictions are lifted. Regarding targets, Paani will not emphasize those activities that do not support or contribute to COVID-19 response. Instead, Paani has pivoted activities to address COVID-19 for Y5 and reoriented grantee program descriptions accordingly. Based on these, Paani has come up with two new indicators related to livelihoods and economic opportunity to measure and track these COVID-19 responsive activities.

ISSUE 3: STAFF RESIGNATIONS AS PROJECT ENTERS FINAL YEAR

Paani staff have gradually begun to resign and look for other employment as Paani enters its final year. For example, the DCOP, two WMS, and the Nepalgunj-based Finance Officer and one Driver resigned this quarter. The Senior Communications Specialist (SCS) has taken on the role of Acting DCOP and is currently filling both key personnel roles, which are quite substantial. This also affects programming at the watershed level, as there is no Paani presence in that area once that person leaves, and no one to liaise with the local government or support local grantees on a regular basis. It is also difficult to replace staff when Paani can only offer contracts of less than one year through the end of the project in mid-December.

Remedy: Paani's field team has proposed ways to manage the work load in the field, with RBTLs covering watersheds in their river basins and/or WMS covering more than one watershed. With the SCS taking on the role of Acting DCOP, the team will pursue additional communications/editing support to ensure the project continues to deliver high quality products. Finally, Paani is exploring other ways to incentivize staff to stay until the end of project, which would be put in place next quarter.

ISSUE 4: DIFFICULTY GETTING PERMISSION LETTER FROM SHEY PHOKSUNDO NATIONAL PARK (SPNP) AND THE DEPARTMENT OF NATIONAL PARKS AND WILDLIFE CONSERVATION (DNPWC)

As described last quarter, FECOFUN and WUDAN faced difficulties obtaining permission letters from SPNP and DNPWC to implement activities in Phoksundo Suligaad watershed. This quarter, the FECOFUN grant was cancelled, as it was deemed non-COVID-19 responsive. However, WUDAN continues to face challenges getting the permission letter, even though it has worked with both SPNP and DNPWC since January 2020 to obtain it. The contradictory guidance and lack of clarity around the process of getting permission to operate in SPNP, coupled with restrictions put in place due to COVID-19 in March, delayed implementation of WUDAN's grant activities. Paani is now holding on implementation of this grant until it is clear what process should be followed. If delays carry on into November, when snow usually starts falling in Dolpha, the grant may have to be cancelled.

Remedy: This quarter, Paani learned that any organization that plans to work inside of the national parks in Nepal needs to get permission from MOFE (DNPWC's parent Ministry). Next quarter, Paani will meet with WECS to request support for permission for WUDAN to work inside SPNP. Paani may need a letter from MOFE to allow WUDAN to work inside the park; however, this may not be necessary, since MOFE and USAID designated WECS as Paani's GON counterpart in writing at the start of the project (and therefore the agreement with WECS and Paani to work in the 12 priority watersheds may be sufficient). Paani will begin implementation of the grant if/once it receives clear guidance.

ISSUE 5: REORIENTATION OF ACTIVITIES BASED ON A NEW GOVERNMENT SYSTEM

Government engagement during a period of political and institutional restructuring continues to be a challenge for Paani. The biggest challenge related to this issue is the lack of human resources and capacity, especially in the areas of local government where Paani works, and knowing who to engage with, especially at the municipal and provincial levels that are still not yet sufficiently staffed. In fact, municipalities still have not been given permission to hire their own staff. Those local leadership roles which are filled still lack capacity because their offices are short-staffed, and resources remain scarce. Thus, they are overburdened and unable to adequately engage with Paani in implementation of activities in their jurisdictions. As explained in detail in previous quarters, this lack of policy and legal and institutional arrangements has also impacted Paani's ability to move forward on select tasks, including development of a white paper analyzing institutional options and opportunities for holistic and integrated water management to support policy development (Task 3.1.2, dropped) and formation of river basin platforms (Task 3.2.1, adjusted to watershed level).

Remedy: Paani will continue to proactively engage with newly elected officials in areas where Paani works and will continue to seek support from WECS as early as possible. WMSs and RBTLs continue to build relationships with newly elected local provincial and municipality/RM government leaders. Since previous field visits with GON have proved fruitful in raising awareness of Paani's work at the national level, Paani will speak with WECs and USAID about organizing a joint field visit next spring to observe IFF projects once they are up and running.

PERSONNEL UPDATES

Individuals who joined or supported Paani between April 1 – June 30, 2020 are presented in Table 8.

Table 9: Paani personnel updates Y4 Q4

PAANI PERSONNEL UPDATES	
NAME	ROLE
LTTA	
Resignation of Laxmi Bhatt effective April 10, 2020	Watershed Management Specialist
Resignation of Sajina Thapa effective April 30, 2020	Human Resource Officer
Resignation of Jeremy Keeton effective June 15, 2020	Deputy Chief of Party
Sarah Gray, June 15, 2020	Promoted from communication Manager to Acting Deputy Chief of Party/Senior Communications Specialist
STTA	
Anju Pandit, Jan. 10 – June 30, 2020	Data Analysis Manager
Ashutosh Shukla, March 11 – July 31, 2020	Political Economic Analysis Specialist
Marjo Curgus, September 15, 2019 - May 31, 2020	Sustainable Hydropower Advocacy Specialist - LOE Increase and POP Extension
Ram Devi Tachamo Shah, May 10 - June 30, 2020	Fish Catch Assessment National Consultant
Bidhan Rajbhandari, April 3 - November 30, 2020	Graphic Designer - STTA
Arthur Neiland, Martin Van Brakel, Madhav Shrestha, SNV, March 16 - August 30, 2020	Business Case Development on Nepal's Fisheries

GRANTS - COMPLETED, ONGOING, CANCELED AND MODIFICATION

Table 10: Closed and completed Paani grants as of Y4 Q4

CLOSED AND COMPLETED GRANTS				
GRANT NO/ TYPE	GRANTEE	GRANT TITLE	[redacted]	STATUS
G-KAT-001 Fixed Amount Award (FAA)	Dali NGO Federation (DNF)	Strengthening Capacity of Nepal's Water Users to Adapt to Climate Change at the Central and Grassroots Levels - Dalit Members Watershed: Tila		Closed
G-KAT-002 Fixed Amount Award (FAA)	Federation of Community Forest Users Nepal (FECOFUN)	Strengthening Capacity of Nepal's Water Users to Adapt to Climate Change at the Central and Grassroots Levels - Forest Users Watersheds: Middle Karnali and Phoksundo Suligaad		Closed

G-KAT-003 Standard Grant	Himalayan Grassroots Women's Natural Resource Management Association (HIMAWANTI)	Strengthening Capacity of Nepal's Water Users to Adapt to Climate Change at the Central and Grassroots Levels - Himalayan Grassroots Women's Natural Resource Management Association (HIMAWANTI) Nepal Watershed: West Seti	[redacted]	Closed
G-KAT-004 FAA	Federation of Drinking Water and Sanitation Users Nepal (FEDWASUN)	Strengthening Capacity of Nepal's Water Users to Adapt to Climate Change at the Central and Grassroots Levels - Drinking Water and Sanitation Users Watersheds: Lower Karnali, Jhimruk, Mugu Karnali		Closed
G-KAT-005 FAA	National Federation of Irrigation Water Users Association Nepal (NFIWUAN)	Strengthening Capacity of Nepal's Water Users to Adapt to Climate Change at the Central and Grassroots Levels - Irrigation Water Users Watersheds: Seti Nadi, Thuli Gaad, Rangun Khola		Closed
G-KAT-006 FAA	Nepal Federation of Indigenous Nationalities (NEFIN)	Strengthening Capacity of Nepal's Water Users to Adapt to Climate Change at the Central and Grassroots Levels - Indigenous Nationalities Watersheds: Lower Mahakali, Middle Rapti,		Closed
G-KAT-007 Standard Grant	Nepal Forum of Environmental Journalists (NEFEJ)	Strengthening knowledge and partnerships on healthy watersheds		Closed
G-KAT-008 Standard Grant	Midwestern University (MWU) Surkhet	Advancing Freshwater Biodiversity, Climate Change Adaption and integrated Water Resources Management through Community Based and Advance Academic Education at Mid-Western University		Closed
G.KAT-009 In-Kind Grant	Water and Energy Commission Secretariat (WECS)	Strengthening Institutional Capacity of Nepal's Waters and Energy Commission Secretariat (WECS)		Closed
G-KAT-010	Nepal Forum of Environmental	Strengthening Knowledge of Nepal's Citizens on Healthy Watersheds and Healthy River		Closed

In-Kind Grant	Journalists (NEFEJ)	Basins Through Media Channels, Technologies and Platforms		
G-KAT-011 In-Kind Grant	Nepal National Committee on Irrigation and Drainage (NENCID)	Strengthening Institutional Capacity- Support Nepal National Committee on Irrigation and Drainage (NENCID) Nepal in organizing 8th Asian Regional Conference (ARC) on Irrigation in Support of an Evergreen Revolution (2-4 May, 2018, Kathmandu, Nepal).	[redacted]	Closed
G-KAT-012	Center for Molecular Dynamics-Nepal (CMDN)	A Multi-Disciplinary Assessment of Biodiversity and Socio-Economic Status of the Karnali River of Nepal		Closed
G-KAT-013	Kathmandu University (KU)	River Health and Biodiversity Profiling in the Karnali and West Rapti Watersheds: Implications to Basin Planning and Sustainable Water Resource Management in the Western Nepal		Closed
G-KAT-014 FAA	Youth Alliance for Environment (YAE)	Mapping and Assessing Pollution Stresses on Water Resources in four Watershed (Jhimruk, Middle Karnali, Thuligad and Rangun) of Midwestern and Far western, Nepal		Closed
G-KAT-015 FAA	Institute for Social and Environmental Transition-Nepal (ISET-Nepal)	Political Economy Analysis to Identify Champions for Freshwater Policy Change and Conservation of Aquatic Biodiversity		Completed
G-KAT-016 FAA	Balchaur Forest and Environment Resource Development Center, Nepal (BAFER-Nepal)	Aquatic Biodiversity Conservation Project (ABC)		Closed
G-KAT-017 FAA	Center of Research for Environment Energy and Water (CREEW)	Climate Smart Watershed Management at the Selected Sub-Watersheds of Thuligaad Watershed		Closed
G-KAT-018	Eco Agro DRM	Development/update of DRR Harmonized Local Adaptation		Closed

FAA		Plans for Action (LAPA) in Thuligaad Watershed, Doti		
G-KAT-019 FAA	Federation of community Forestry Users' Nepal (FECOFUN)	Promoting Environment Friendly Roads and Climate Smart Watershed Management Practices to Increase the Climate Resilience of Community through Grassroots Capacity Building.	[redacted]	Closed
G-KAT-020 Standard Grant	Human Welfare and Environment Protection Center (HWEPC)	Sustainable Economic Growth through Freshwater Biodiversity Conservation in Rapti River.		Closed
G-KAT-021 FAA	Karnali Integrated Rural Development and Research Center (KIRDARC)	JAL KACHAHARI: A Multi-Stakeholder Process for Resilient Water Resources Management in Karnali Basin		Closed
G-KAT-022 Standard Grant	Mallarani Rural Development Concern Center (MRDCC)	Jhimruk Watershed Management Project		Closed
G-KAT-023 FAA	National Environment and Equity Development Society (NEEDS)	Community Based Watershed Management Initiatives of the Lower Mahakali Watershed		Closed
G-KAT-024 FAA	Nepal National Social Welfare Association (NNSWA)	Strengthening Community Resilience in Rangun Khola and Lower Mahakali Watersheds		Closed
G-KAT-025 FAA	Nepal River Conservation Trust (NRCT)	Karnali River Corridor Management Project		Completed
G-KAT-026 FAA	People's Help Group (PHG)	Effective and Efficient Water Use Techniques to Combat Climate Change		Closed
G-KAT-027 In-Kind Grant - Gov	Nepal Agriculture Research Council (NARC)	Strengthening Institutional Capacity of Nepal Agriculture Research Council on Molecular Biology Studies		Closed

G-KAT-028 FAA	Research and Development Center Nepal (RDC Nepal)	Increasing Adaptive Capacity of Communities in Upper Rangun-Khola Sub-watershed through Improved Water Resources Management	[redacted]	Closed
G-KAT-029 FAA	Resources Himalaya Foundation (RHF)	FISH (Fostering Indigenous Sustainable Harvest) for Climate Resilient Livelihoods in Middle Karnali Watershed of Karnali River Basin		Closed
G-KAT-031 FAA	Samudayik Sarathi	Increasing Community Resilience and Freshwater Biodiversity Conservation in Lower Karnali River basin, Nepal		Closed
G-KAT-040 In-Kind Grant	Department of Hydrology and Meteorology (DHM)	Strengthening DHM Hydro-Met Stations and Flood Risk Warning in Paani Watersheds		Completed
G-KAT-041 FAA	Forest Action Nepal	Assessment of the conservation status of aquatic biodiversity in Karnali and Mahakali River Basins		Completed
G-KAT-044 Standard Grant	Independent Power Producers' Association, Nepal (IPPAN)	Sustainable Hydropower Development		Completed
G-KAT-045 Standard Grant	Nepal Forum of Environmental Journalists (NEFEJ)	Strengthening Knowledge on Healthy Watersheds		Closed
G-KAT-046 In-Kind Grant	Nepal Forum of Environmental Journalists (NEFEJ)	Strengthening Knowledge on Healthy Watersheds		Closed
	TOTAL		[redacted]	

Table 11: Ongoing Paani grants as of Y4 Q4

ONGOING GRANTS					
GRANT NO/ TYPE	GRANTEE	GRANT TITLE	AMT (USD)	DISBURSED (USD)	STATUS
G-KAT-033 FAA	Rural Development Center (RUDEC)	Improve dry water resources in Badikedar, Boktan and Chaukune Rural Municipality, in Bogatan Lagam Karnali	[redacted]		On going

		watershed		
G-KAT-034 FAA	Sustainable Agriculture or Environment & Water Source Conservation Center (SAEWCC)	Action to support aquatic biodiversity conservation through promoting river stretch co-management practices in Middle Karnali Watershed.		On going
G-KAT-035 FAA	Multi-Dimensional Resource Center (MRC)	Strengthening Actions for Fostering Community Resilience through Integrated Water Management and Disaster Risk Reduction in the Gadhawa Rural Municipality of Middle West-Rapti Watershed (SAFoR)		On going
G-KAT-036 FAA	Federation of Drinking Water Supply and Sanitation Nepal (FEDWASUN)	Actions for capacity enhancement of local users aligning with aquatic biodiversity conservation and climate change adaptation practices (ACACA) in Jhimruk and Lower Karnali watershed		On going
G-KAT-037 FAA	Kalika Development Center Nepal (KDCN)	Reducing vulnerability through local water management and livelihood improvements		On going
G-KAT-038 FAA	Creation of Innovative Society (CIS)	Increasing Community Capacity for Climate Adaptation and Fisheries Co-Management		On going
G-KAT-039 FAA	Fulvari Integrated Rural Development Organization (FIRDO)	Community mobilization for sustainable management of Middle Rapti and Jhimruk watershed		On going
G-KAT-042 FAA	Environment Coordination Committee (ECC)	Support local governments and fishing communities to reduce threats to aquatic biodiversity in Thuligaad watershed		On going
G-KAT-047 FAA	Mallarani Rural Development Concern Center (MRDCC)	Jhimruk Khola Watershed Management Project II		On going
G-KAT-048 FAA	Human Welfare and Environment Protection Center (HWEPC)	Sustainable economic growth through freshwater biodiversity conservation in the Rapti river.		On going
G-KAT-049 FAA	Resources Himalaya Foundation (RHF)	SuChaK: Surface Water Change and Knowledge Enhancement: An Indicator Assessment of Aquatic Biodiversity, Habitat Disturbances and Conservation Options in West Seti River Watershed, Nepal		On going

G-KAT-054 FAA	Sonaha Bikash Samaj (SBS)	Strengthening community capacity for river stretch co-management	[redacted]	On going
G-KAT-055 FAA	Sundar Nepal Sanstha	Promoting community based aquatic biodiversity conservation initiatives in the Lower Karnali watershed		On going
G-KAT-056 FAA	Karnali Integrated Rural Development and Research Center (KIRDARC)	JAL KACHAHARI: Dialogue for Water and Life		On going
G-KAT-057 FAA	Sahara Nepal	Raising awareness and capacity building of local communities for conservation and sustainable use of aquatic biodiversity in West Seti Watershed		On going
G-KAT-059 FAA	Multipurpose Development Society (MPDS)	Building Community Resilience for the Management of Rangun Watershed in Alital Rural Municipality of Dadeldhura District		On going
G-KAT-061 FAA	Karnali Community Development Centre (KCDC)	Action to support capacity building of local institutions towards biodiversity conservation and solid waste management in Rara Khatyad Watershed		On going
G-KAT-062 FAA	Rural Situation Nepal (RSN)	Freshwater Biodiversity Improvement Thorough Co-Management Practices in Tila Karnali Watershed		On going
G-KAT-063 FAA	Western upland development association Nepal (WUDAN)	Promoting native fish farming and increasing park/people coordination, Community resilience to climate change through increasing capacity and established good governance		On going
G-KAT-064 FAA	Integrated Development Society (IDeS)	Enhancing community capacity for collaborative management of Thuligaad watershed		On going
G-KAT-067 FAA	Research and Development Center Nepal (RDC Nepal)	Increasing Adaptive Capacity of Communities through Improved Water Resources Management (Second Grant)		On going
G-KAT-071 In-Kind Grant	Federation of Drinking Water Supply and Sanitation Nepal (FEDWASUN)	Actions for capacity enhancement of local users aligning with aquatic biodiversity conservation and climate change adaptation practices (ACACA) in Jhimruk and Lower Karnali watershed		On going
G-KAT-072 In-Kind	Shey Phoksundo RM	Strengthen Shey Phoksundo Rural Municipality on Climate Smart Watershed Management Practices to Increase the Community Resilience to		On going

Grant	Climate Change through Increasing	
	TOTAL	[redacted]
	GRAND TOTAL	

Table 12: Paani grants canceled as of Y4 Q4

GRANTS PIPELINE					
NO	ORGANIZATION	PROPOSAL TITLE	ESTIMATED/ AMT (USD)	TO BE DISBURSED (USD)	DESCRIPTION
G-KAT-032 FAA	Dolphin Conservation Center (DCC)	Action to Establish Dolphin Science Through Institutional Development and Community Learning in the Lower Karnali Watershed	[redacted]	[redacted]	Cancelled
G-KAT-043 FAA	Conservation Development Foundation (CODEFUND)	Enhancing community ability to manage watersheds for reducing threats to freshwater ecosystem in West Rapti River Basin, Nepal			Cancelled
G-KAT-050 FAA	Women Act	Empowering Women and Marginalized Groups in Freshwater Biodiversity Conservation and River Resources Management			Cancelled
G-KAT-051 FAA	National Federation of Irrigation Water Users Association Nepal (NFIWUAN)	Enhancing local capacity of Water User Associations (WUAS) to improve irrigation systems and water source protections through community engagement			Cancelled
G-KAT-058 FAA	Rural Community Development Centre (RCDC)	Resilience through Ecological Restoration of Sub-Watersheds through Community Engagement			Cancelled
G-KAT-069 FAA	Federation of Community Forestry Users Nepal (FECOFUN)	Promoting Climate Smart Watershed Management Practices to Increase the Community Resilience to Climate Change through Increasing Capacity, Livelihood Promotion and Establish Good Governance			Cancelled

G-KAT-070 FAA	Bird Conservation Nepal (BCN)	Ornithological Survey to Understand Migratory Behavior and Threats to Birds in Phoksundo and Rara Lake	[redacted]	Cancelled
		TOTAL		

SECTION V: LEARNING

Follow up Assessment on Usefulness of MWU Courses

Paani conducted a follow-up assessment in June 2020 with the 50 MWU students who took Paani-supported courses on LVRE and IWRM in 2019. With lockdown and travel restrictions still in place in June, Paani used an online survey using MS Forms. The survey showed that almost half of the students joined these courses for professional development, followed by about one fourth who said they joined to get a better job in the future. The majority (71%) reported using the acquired learning after completion of the courses. More LVRE students (83%) reported using what they learned compared to their IWRM counterparts (65%). Interestingly, a higher proportion of women (40%) opted to study further after completion of the courses compared to men (32%). However, a higher proportion of men (47%) applied the learning professionally compared to women (33%). Of the students who reported not using the acquired learning, the majority (79%) said that they did have opportunities for future work or studies, while 14% said that the course was relevant but not detailed enough. The key recommendations that emerged include: 1) continue to support similar courses in the future 2) provided more detailed and practical content and 3) coordinate with employment agencies or provide internship opportunities following the course.

LESSONS LEARNED AND HOW THEY ARE USED TO INFORM PROGRAM PERFORMANCE

- **A lack of patrolling protocols is constraining effective conservation of aquatic animals.** CAACGs are required by the AABCA to make community-based arrangements for preventing and controlling the unlawful or unauthorized collection or killing of fish or other aquatic animals in their respective river stretches. The presence of opposing interests (e.g., riverbed mining, unsustainable fishing practices) often exacerbates the exploitation of rivers. The CAACGs often encounter different interest groups at the river stretches, leading to potential conflict with these groups. CAACG members often come from marginalized groups and are unaware of the legal complications that can arise during patrolling and bringing offenders to justice. Therefore, clear and precise guidelines for patrolling rivers, approved by the respective local governments, are required. Accordingly, in Y5, Paani will develop such guidelines in consultation with CAACGs and local governments in Middle Karnali watershed.
- **CAACGs continue to need additional support to develop effective operational plans.** Paani grantees are facilitating CAACGs to form and register as units to manage defined river stretches; however, Paani has realized that they are not necessarily implementing conservation activities (e.g., implementing the AABCA or monitoring aquatic resources) in a standardized way. Paani recognizes that sustainable management of river stretches requires sufficient resources and a clear action plan defining strategic objectives to guide and motivate CAACGs in implementation of the AABCA. Therefore, in Y5, Paani will draft a model operational plan for all CAACGs that can be customized according to the specific needs of the river stretch.
- **Further support is required to revise regulations/guidelines to manage/regulate exotic fish species.** Paani's extensive review of invasive plants and animals in Nepal has shown that many exotic invasive fish species of commercial interest are increasingly being used in aquaculture in the Lower Karnali, Lower Mahakali and Middle Rapti watersheds. The review also indicated that the introduction, trade and rampant use of exotic fish would have a more severe impact than invasive plant species. There are multiple cases of invasive fish escaping from aquaculture facilities into natural waters of these watersheds that could pose threats to native fish, although their direct impact has not yet been well studied. To control the spread of exotic

invasive fish species and their impact, there is an urgent need to develop appropriate regulations/guidelines to regulate the introduction, trade and farming practices of aquaculture species (plant and/or animal).

- **Sharing/exchange of data requires consistent efforts, close review and adaptability.** Although WECS gave its blessing to Paani and Tractabel to share data that would feed into the Hydropower Master Plan and SESA, this process has been slow and cumbersome. With the onset of COVID-19 and the lockdown, Tractabel's office close as per guidance from WECS. Various team members returned to their home towns in Nepal or home countries, and data collection came to a halt. Even in this context, Paani and WWF managed to collect some hydropower and energy data from Tractebel; however, upon review, the team realized that the data is inconsistent and limited to the Koshi River Basin. Realizing it could not rely on this data, Paani had to change course and decided to build on its own HCVR data, which will also be fed into the EOA. Having a Plan B is crucial given that data from GON and its project may not arrive in a timely or reliable fashion. In addition, Paani and WWF need to investigate further how the HCVR, EOA and SSP studies will be used to influence policy. In Y5, Paani and WWF will look into WWF's previous experience forming policy working groups in other countries, and how this can be applied to Nepal.

SECTION VI: SUCCESS STORIES

STORY 1: LOCAL GOVERNMENTS ALLOCATE FUNDS FOR MODEL EFRC ROADS IN WEST SETI WATERSHED

Four local governments prepared and are implementing Environment Friendly Rural Road Construction (EFRC) guidelines in West Seti watershed with support from USAID's Paani (Water) Project in Nepal. Following endorsement of the guidelines in March, Talkot Rural Municipality (RM), Jaya Prithvi Municipality, Chabbis Pathivera RM and Thalara RM allocated a total of10.8 million Nrs. to EFRC in the new fiscal year 2076/77 BS (2020/2021).

"Not realizing the consequences of haphazard road construction, we ruined the condition of our roads and their surroundings," said Birendra Khadka, Chief of Jaya Prithvi Municipality, and one of the early adopters of the EFRC guidelines. *"Fortunately, we understand the issue better now and are ready to implement the EFRC guidelines."*

West Seti is known throughout Nepal for its haphazard and substandard road construction. Heavy equipment such as bulldozers operate without following basic engineering criteria, including proper alignment, geometry, water management, and retaining structures. This has led to major environmental, economic and physical damage in recent years. At least 24 people died during the monsoon season in 2018, 11 in 2019, and 2 in 2020 because of landslides – a direct result of poorly constructed roads. According to the Agricultural Knowledge Center in Bajhang, cultivable land of more than 2,000 families has been buried by landslides and 282 irrigation projects destroyed. In addition, 150 drinking water projects were damaged, 14 micro hydro projects have been shut down, and more than 4,000 houses in 43 villages are considered at high risk for landslides. Furthermore, many spring water sources in the watershed are drying up. And aquatic animal habitats have been destroyed by soil, stones and pebbles dumped directly into the river during road construction. Poor road construction has also altered the natural flow of water, drying up some streams while creating new water channels in other areas. Rushing water, particularly during heavy rains, flows through the weaker areas of the landscape (especially in hilly areas), leading to more frequent flash floods. Sometimes, these flash floods create landslides and cause debris to flow downstream, wreaking havoc on settlements and agricultural land.

In this context, Paani has worked closely with local governments to prepare and introduce the EFRC guidelines. First, the project raised awareness of greener approaches with local governments through consultations and workshops. Paani also sought local government and community feedback throughout drafting of the guidelines to ensure buy-in and ownership. This process encouraged local government representatives and community members to advocate for allocation of adequate funds to EFRC to protect the people and the environment in their watershed. The guidelines also indirectly address the contentious issue of corruption, which impairs the road construction process. For example, the guidelines require that the local government form a road construction user group to be involved from start to finish, including: prefeasibility/feasibility studies and design; construction; maintenance; public procurement; environment management plans and repair and maintenance. This more inclusive and transparent process reduces opportunities for collusion.

> "*The guidelines help to direct us as we change from our traditional approach to road construction to one that respects the environment and engineering standards, "* - Hikmat Rawal, Engineer, Chabbis Pathivera Rural Municipality. *"This has really helped us institutionalize the EFRC approach."*

For example, now the governments will only start road construction after preparing a technical plan that includes an environmental study and risk minimization plan, as well as input from the local community.

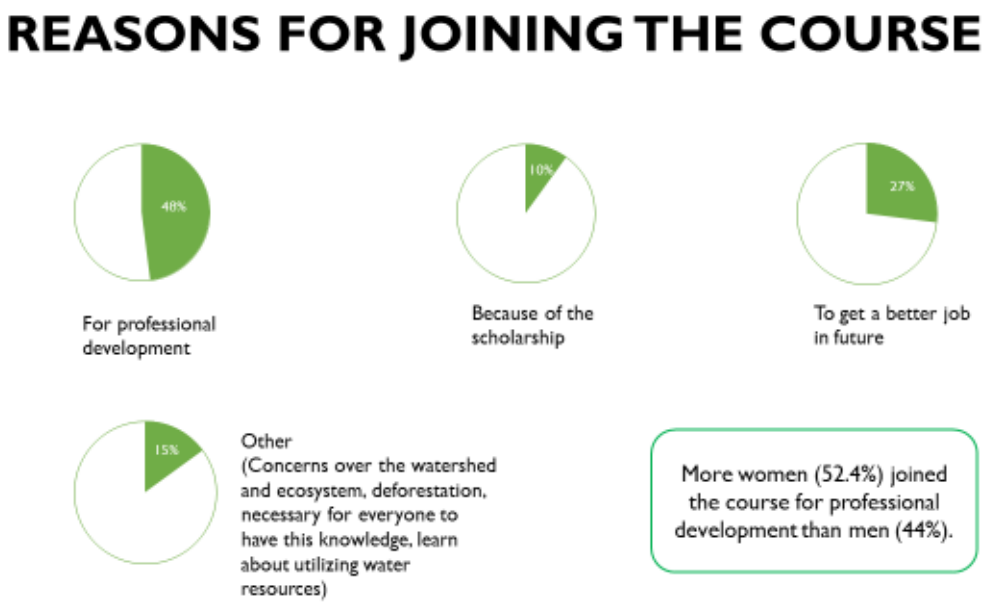
> "*We now ensure the participation of geologists in addition to engineers in the survey design of the road,*" - Akkal Bahadur Dhami, Chairperson of Chhabispathibhera RM.

With beneficiaries included throughout the entire process, West Seti's roads will benefit the communities they run through, rather than harm them.

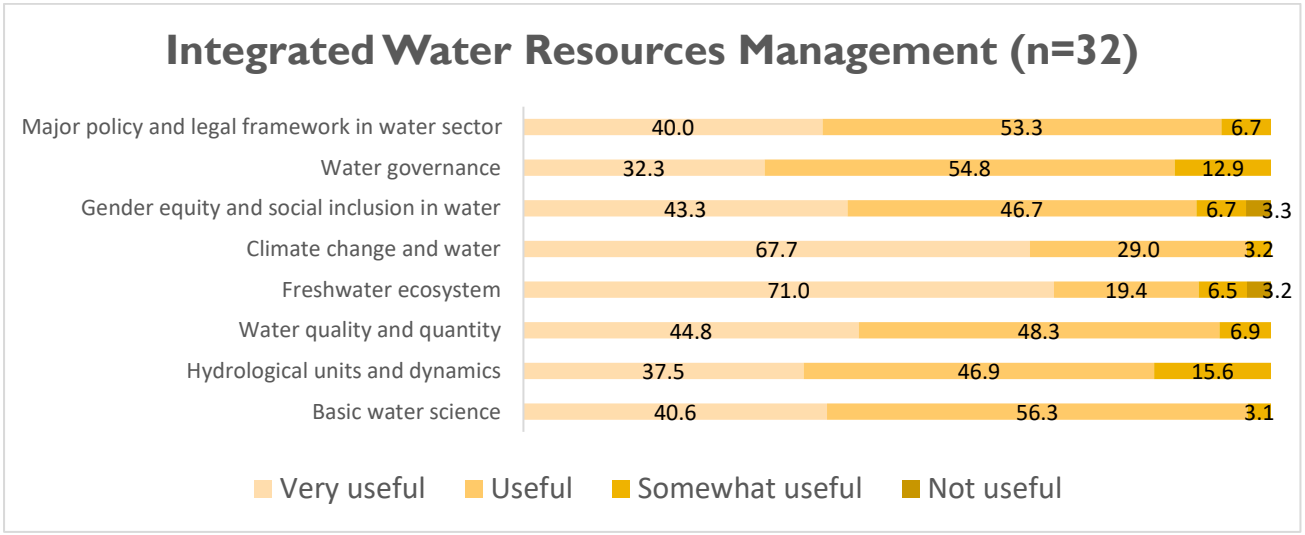
STORY 2: EQUIPPING FUTURE GENERATIONS WITH KNOWLEDGE AND SKILLS ON ROAD CONSTRUCTION AND WATER MANAGEMENT

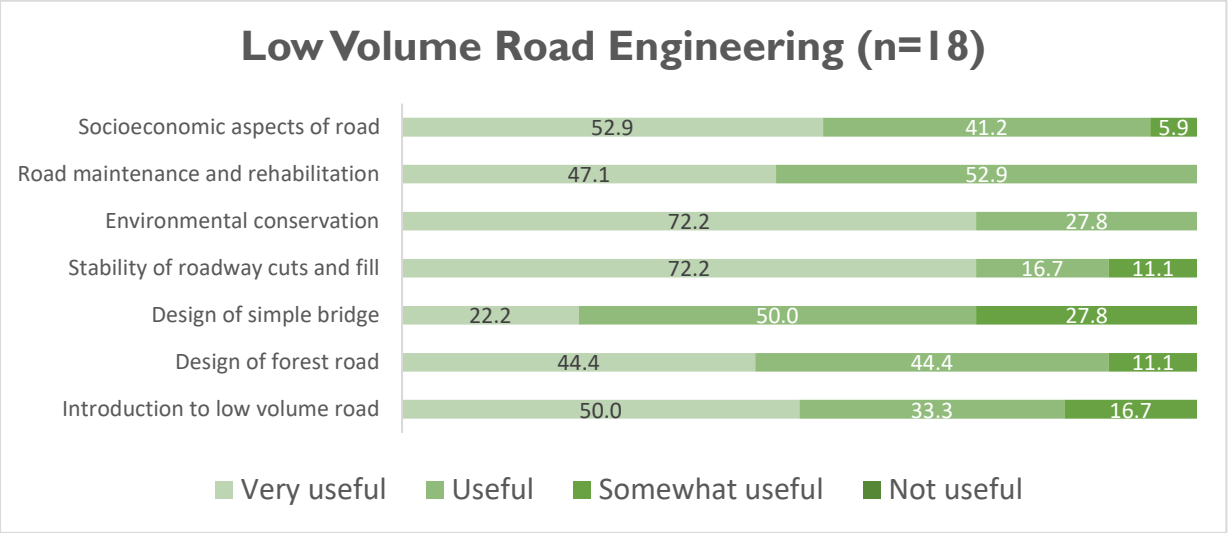
Nepal's next generation of local leaders will not be able to address the complex issues surrounding haphazard rural road construction and ineffective local water management without sufficient knowledge, skills and drive. That's why USAID's Paani (Water) Project in Nepal supported Mid-Western University (MWU) to prepare and deliver an interdisciplinary three-credit course on integrated water resource management (IWRM) for 40 bachelor degree sixth semester students in the Rural Development, Sociology, Social Work and Science Department and a low volume road engineering (LVRE) course for 46 bachelor degree sixth semester students studying Civil Engineering in 2018. To encourage enrollment, Paani provided scholarships to all the students and a stipend for female students.

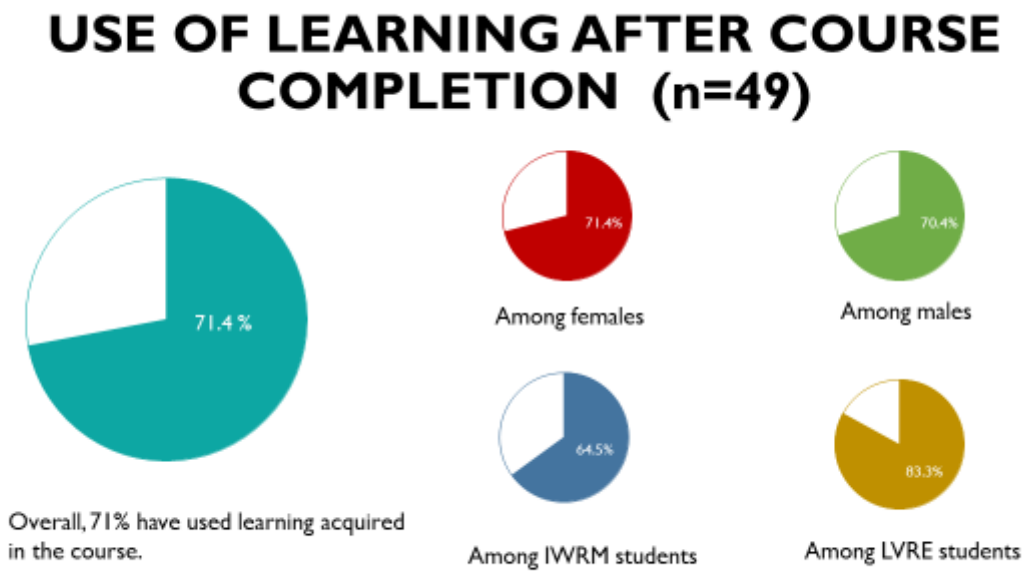
In June 2020, Paani conducted a follow up online assessment with 50 students who participated in the courses to understand how useful the courses were and how they have applied the acquired knowledge and skills. The survey showed that 48% of the students joined the courses for professional development, followed by about one fourth who said they joined to get a better job in the future. The majority (71%) reported using the acquired learning after completion of the courses. More LVRE students (83%) reported using what they learned compared to their IWRM counterparts (65%). Interestingly, a higher proportion of women (40%) opted to study further after completion of the courses compared to men (32%). However, a higher proportion of men (47%) applied the learning professionally compared to women (33%). Of the students who reported not using the acquired learning, the majority (79%) said that they did have opportunities for future work or studies, while 14% said that the course was relevant but not detailed enough. The key recommendations that emerged include: 1) continue to support similar courses in the future 2) provided more detailed and practical content and 3) coordinate with employment agencies or provide internship opportunities following the course.

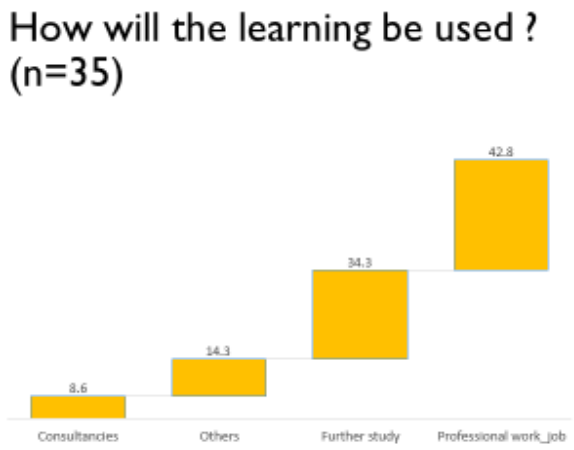


The IWRM course was designed for multidisciplinary students with an interest in science. Survey responses showed that the course succeeded in providing knowledge on basic water sciences, hydrological units and dynamics, water quality and quantity, freshwater ecosystem, climate change and water, and IWRM. Similarly, the LVRE course delivered useful knowledge on the technical aspects of low volume road design standards, the importance of socio-economics and social screening, and both the beneficial and adverse impacts of rural road construction.




Low Volume Road Engineering (n=18)
Socioeconomic aspects of road
52.9
41.2
5.9
Road maintenance and rehabilitation
47.1
52.9
Environmental conservation
72.2
27.8
Stability of roadway cuts and fill
72.2
16.7
11.1
Design of simple bridge
22.2
50.0
27.8
Design of forest road
44.4
44.4
11.1
Introduction to low volume road
50.0
33.3
16.7
Very useful
Useful
Somewhat useful
Not useful


USE OF LEARNING AFTER COURSE COMPLETION (n=49)
71.4 %
Overall, 71% have used learning acquired in the course.
71.4%
Among females
70.4%
Among males
64.5%
Among IWRM students
83.3%
Among LVRE students



A higher proportion of women (40%) opted to study further compared to men (32%).

However, a higher proportion of men (47%) used learning in a professional aspect, compared to women (33%).

"Through the LVRE course, I enhanced my knowledge on environmentally friendly rural road construction (EFRC) in hilly areas and feel equipped to lobby local stakeholders on cost-effective designs of local roads in rural areas," - Sagar Gauli.

Sagar was one of five LVRE students selected to join the Paani team in Aathabis Municipality, Middle Karnali Watershed for a survey on EFRC with the U.S. Forest Service and Scott Wilson Nepal (SWN), both Paani partners. Following the visit, the students helped SWN to prepare an EFRC survey design and cost analysis, therefore directly applying their skills.

Based on the success of these courses in 2018, MWU has continued to deliver them to its students. Now equipped with knowledge and skills on IWRM and LVRE, the students have a better change of securing work in these sectors, and advocating for better roads and water where they live.

SECTION VI: MAJOR ACTIVITIES PLANNED FOR NEXT QUARTER

Table 13 presents the major activities planned for the period of April 1 – June 31, 2020. In consistency with Paani's Y4 AWP, the activities are prepared according to strategic approaches.

Table 13: Major activities planned for next quarter

STRATEGIC APPROACH 1A: Improve local management for capture fisheries *SA Lead: Freshwater Fisheries Specialist (Suresh Wagle)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
Biological & socioeconomic information available for commercial and CC impacts (Greater understanding of impact of destructive fishing and CC)	1.1.1: Assess capture fisheries	C 1.1.1.1 Prepare fisheries and biodiversity inventories	Develop catch assessment survey (CAS) manual (SNV Consultants+Local consultant)	Karnali River Basin	1 CAS manual developed 1 CAS training manual (Nepali) developed	X	X		
			Design and implement three one-day training course on Data Collection, Data Processing and Reporting (SNV Consultants)	Karnali River Basin	3 trainings conducted	X	X		
			Provide hands on training to the enumerator at field level for CAS data collection (Local consultant+Paani)	Karnali River Basin	1 trainings conducted	X	X		

STRATEGIC APPROACH 1A: Improve local management for capture fisheries *SA Lead: Freshwater Fisheries Specialist (Suresh Wagle)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
			Undertake CAS data collection at key sites (Tila, Middle Karnali & Lower Karnali) [Local consultant+Paani]	Karnali River Basin	3 data bank prepared			X	X
			Undertake CAS data processing, screening and summary reporting (SNV Consultants)	Karnali River Basin	3 site specific reports produced			X	X
			Produce and finalize fish market survey manual (Nepalese) [Local consultant+Paani]	Karnali River Basin	1 fish market survey manual produced	X	X		
			Undertake market survey data collection at key sites [Local consultant+Paani]	Karnali River Basin	3 site specific summary report		X	X	
			Undertake market survey data processing, screening and summary reporting (SNV Consultants)	Karnali River Basin	3 site specific reports produced		X	X	

STRATEGIC APPROACH 1A: Improve local management for capture fisheries *SA Lead: Freshwater Fisheries Specialist (Suresh Wagle)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
			Complete case-study reports at each key site (SNV Consultants)	Karnali River Basin	3 site specific report & 1 CAS report			X	X
			Undertake data collection of livelihood at key sites [Local consultant+Paani]	Karnali River Basin	3 site specific summary report		X	X	
			Undertake data processing, screening and summary reporting of livelihood survey (SNV Consultants)	Karnali River Basin	3 site specific reports produced		X	X	
			Complete case-study reports of livelihood at each key site (SNV Consultants)	Karnali River Basin	3 site specific reports and 1 main case-study report			X	X
Incentive for community-CAACG available to engage in conservation activities	1.1.1: Assess capture fisheries	C.1.1.1-2 Build capacity of fisher community to engage in alternative business enterprises	Elaborate supporting study on business case of capture fisheries (SNV consultants+Paani)	Karnali River Basin	1 preliminary report		X	X	

STRATEGIC APPROACH 1A: Improve local management for capture fisheries *SA Lead: Freshwater Fisheries Specialist (Suresh Wagle)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
			Elaborate supporting study on business case of aquaculture (SNV consultants+Paani)	Karnali River Basin	1 preliminary report		X	X	
			Elaborate supporting study on business case of fisheries-based ecotourism (SNV consultants+Paani)	Karnali River Basin	1 preliminary report		X	X	
			Identify and collect additional information and data for each business case including collection of primary data through field survey	Karnali River Basin	1 summary report			X	X
River group formed-GESI aware	1.1.2: Build capacity for fisheries co-management	C 1.1.2-3 Support to form Community Aquatic Animal Conservation Groups (CAACG)	Form and register CAACG groups, [Grantees SBS, Sahara Nepal, RSN]	Karnali River Basin	24 CAACG groups registered to undertake conservation activities.	X	X	X	
			Facilitate and support for handover of the delineated river stretch by R/M municipalities to CAACG (Grantees MRDCC, HWEPC)	Rapti River Basin	3 river stretches handed over	X	X	X	

STRATEGIC APPROACH 1A: Improve local management for capture fisheries *SA Lead: Freshwater Fisheries Specialist (Suresh Wagle)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
			Facilitate and support in the formation of fish cooperative involving CAACG by complying all legal procedures (FIRDO, SBS)	Karnali, Rapti River Basin	2 fish cooperatives established	X	X	X	
			Facilitate in the development of business and operation plan of cooperative (SAEWCC)	Karnali, River Basin	1 business & 1 operation plan developed	X	X	X	
			Support in the establishment of fish collection center with preservation and processing facility for the fish cooperatives and CAACG (HWEPC, SAEWCC)	Karnali, Rapti River Basin	2 fish collection centers established	X	X	X	
			Facilitate and support in the promotion of traditional fishing gear to the CAACGs (HWEPC, SBS, SNS)	Karnali, Rapti River Basin	18 CAACGs supported for traditional fishing gear production and marketing	X	X	X	
			Provide native fish seed for fish farm enterprise operated by CAACG (CIS)	Mahakali River Basin	20000 fish seed supplied	X	X		

STRATEGIC APPROACH 1A: Improve local management for capture fisheries *SA Lead: Freshwater Fisheries Specialist (Suresh Wagle)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
Community involved monitoring enforcement of regulations against poaching & illegal fishing			Support CAACGs through wage labor for patrolling and monitoring of river stretches {HWEPC, MRDCC, FIRDO, SNS, SBS, SAEWCC, RSN, RuDec)	Karnali, Rapti River Basin	60 CAACGs involved, 170 monitoring events, 3320 person days employment generated	X	X	X	

STRATEGIC APPROACH 1B: Improve local capacity for water management *SA Lead: Integrated Water Management Specialist (Bhawani Dongol)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
Participatory (GESI aware) adaptation plans (LAPAs, CAPAs and WUMPs) are developed and endorsed (plan development)	1.3.2 Facilitate the preparation of CAPAs, LAPAs, and WUMPs.	C1.3.2-4 Support plan implementation and assess effectiveness of learning and adaptive management.	Coordinate with Chure and Mohanyal RM to endorse LDCRPs Facilitate and support implementation of LDCRP activities	Thuligad watershed	2 LDCRPs endorsed LGs prioritize # of activities to fund	X	X	X	X

STRATEGIC APPROACH 1B: Improve local capacity for water management *SA Lead: Integrated Water Management Specialist (Bhawani Dongol)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
Better (GESI aware) local level land and water management practices implemented	1.2.3 Develop and promote climate-smart best management practices	C1.2.3-2 Promote best practices through existing mechanisms (NGOs, etc.)	ECC will support local level livelihood through climate smart vegetable farming MPDS will support local level livelihood through climate smart vegetable farming RuDeC will support local level livelihood through climate smart vegetable farming SAEWCC will support local level livelihood through climate smart vegetable farming Sahara Nepal will support local level livelihood through climate smart vegetable farming IDeS will support local level livelihood through climate smart vegetable farming KIRDARC will support local level livelihood through climate smart vegetable farming	Thuligad watershed Rangun watershed Bogatan Lagam watershed Middle Karnali watershed West Seti watershed Thuligad watershed Tila watershed	3500 man days of labor work 500 HHs benefitted	X	X	X	X

STRATEGIC APPROACH 1B: Improve local capacity for water management *SA Lead: Integrated Water Management Specialist (Bhawani Dongol)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
Communities have equitable access to skills and resources to implement appropriate climate smart and watershed management activities. (5) (implementation)	1.2.2 Training and support for watershed management activities (implementation)	C1.2.2-4 Provide grants for implementation activities.	HWEPC will implement bioengineering and water source conservation activities MPDS will implement bioengineering and water source conservation activities FIRDO and MRDCC will establish recharge ponds and water source protection activities Sahara Nepal will implement water source conservation activities	Middle Rapti watershed Rangun watershed Jhimruk watershed West Seti watershed	4000 man days of labor work 200 Ha area under improvement	X	X	X	X

STRATEGIC APPROACH 1C: Improve local capacity for regulation and management of roads and mining *SA Lead: IWRM Specialist (Bhawani Dongol)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
Municipalities/rural municipalities prioritize funds for roads with EF designs	1.2.1 Climate-smart road construction and environmentally-friendly (EF) gravel mining	C 1.2.1-4: Assist municipalities/rural municipalities/local elected bodies in developing criteria (Construction guidelines) for prioritizing funding and assuring contracts that includes environmental clauses (Link to 1.3.3: EFLG)	Coordinate with the local governments in EFRC guideline endorsement Conduct follow up on implementation of EFRC road construction against fund prioritized in year 4 Follow up engagement of early adopters and champions in EFRC advocacy	Jhimruk, Middle Karnali, West Seti watersheds	7 EFRC guidelines endorsed At east 1 road constructed that applied EFRC guideline	X	X	X	X
Communities advocate for local	1.2.1 Climate-smart road	C 1.2.1-10 Provide TA to miners	Mobilize community groups in monitoring of illegal mining	Lower Karnali and Lower	4 community groups monitoring mining activities	X	X	X	X

STRATEGIC APPROACH 1C: Improve local capacity for regulation and management of roads and mining *SA Lead: IWRM Specialist (Bhawani Dongol)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
bodies and municipality to better regulate aggregate mining	construction and environmentally-friendly (EF) gravel mining	(individuals and companies) on better practices C 1.2.1-11 Raise awareness of communities of impacts of gravel mining and regulations (linked 4.1.9: outreach) C 1.2.1-12 Provide TA to rural municipalities on monitoring activities in compliance with IEEs	Collaborate with local government in reviewing and revising existing IEEs Form a joint monitoring committee Conduct joint monitoring of IEEs	Mahakali watersheds	700 man days of monitoring by community groups 2 IEEs reviewed/revised 2 Joint monitoring committee				

STRATEGIC APPROACH 1D: Improve local capacity for managing invasive species *SA Lead: Freshwater Fisheries Specialist (Suresh Wagle)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
Community groups understand and select the aquatic invasive plant control measures	1.1.3 Support local efforts to combat invasive species OR Training and/or technology transfer on methods proven successful for combating invasive freshwater species and develop and test	C 1.1.3-6 Asses potential incentives	Provide hands-on training on water hyacinth-based compost and silage preparation, use methods, and sources of invasive in wetlands to the members of BLMC [APS grant]	Lower Karnali	20-30 members trained	X	X		
			Support in the preparation of water hyacinth-based organic compost by involving BLMC members [APS grant]		10 pilot sites of composting		X	X	

STRATEGIC APPROACH 1D: Improve local capacity for managing invasive species *SA Lead: Freshwater Fisheries Specialist (Suresh Wagle)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
	new control methods								
			Support in preparation of water hyacinth-based silage involving BLMC members [APS grant]		10 pilot sites of silage preparation		X	X	
		C1.1.3-9 Facilitate selection of control measures	Facilitate BMLC in the operation of water mower for cleaning invasive plants from deep water of Bhagaraiya Lake and other wetlands in middle Karnali Watershed [APS grant]		Report on water mower operation.	X	X	X	
			Support BMLC to remove invasive aquatic plant from Bhagaraiya and Anarhawa Lakes manually by using local wage labor [APS Grant]		15 ha lake area cleaned from invasive plant	X	X		
			Support in restocking of native and herbivorous fish species as biological control agent in Bhagraiya and Anarhawa Lake for invasive plant control and production of fish		20000 fingerling fish restocked				

STRATEGIC APPROACH 2A: Improve river basin planning *SA Lead: Senior Communications Specialist (Sarah Gray)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
Basin-level groups convened with representation on priority topics	2.3.2 Organize distinguished speaker series	C2.3.2.-1 Conceptualize and develop plans for distinguished speaker series	Identify future IFC events for potential collaboration	National		X			

STRATEGIC APPROACH 2A: Improve river basin planning *SA Lead: Senior Communications Specialist (Sarah Gray)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
		Conduct speaker series	Participate in IFC events if possible	National	# of workshops participated in # of people who received information on RB planning/sustainable hydropower	X	X	X	X
	2.3.3 Hold series of roundtable discussions at rural mun/mun. (and basin) levels	C2.3.3-1 Convene roundtable discussions	Conduct outcome harvesting on town hall meetings and jalkachahari	12 WS in KRB, RRB and MRB	# town hall meetings # Jalkachahari Amount of funds allocated	X	X	X	
	2.3.1 Create Integrated River Basin Management Platforms (IRBMPs)	C2.3.1-1 Convene and engage stakeholders C2.3.1-2 Stakeholder mapping	Conduct outcome harvesting on integrated watershed level management platforms	JK, MR	# of platforms # of stakeholders convened # of solutions implemented	X	X	X	
IWRMPs supported with best available biodiversity and climate info	2.3.4 Provide biodiversity and climate information for basin level planning	C2.3.4-1 Share Paani research information	Submit in-kind grant for Freshwater Center of Excellence (FCOE) at CDES-TU Hire vendor to develop FCOE Widespread dissemination of Paani knowledge products through FCOE	National	Watershed profiles, health reports and other research shared with partners in soft and hard copy	X X			X

STRATEGIC APPROACH 2A: Improve river basin planning *SA Lead: Senior Communications Specialist (Sarah Gray)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
NRBCF designed	2.1.2 Explore development of Nepal River Basin Conservation Fund (NRBCF)	C2.1.2-1 Prepare feasibility and design study	KRBCF office set up in Surkhet COVID-19 responsive proposal approved Hold KRBCF Launch Initial investments identified/secured		KRBCF office set up	X X		 X	 X
		C2.1.2-3 Provide technical support to NRBCF operations	Ongoing support to KRBCF			X	X	X	X

STRATEGIC APPROACH 2B: Improve local capacity for disaster risk reduction *SA Lead: IWMR Specialist (Bhawani S Dongol)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/ Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5Q2**

STRATEGIC APPROACH 2B: Improve local capacity for disaster risk reduction *SA Lead: IWMR Specialist (Bhawani S Dongol)*									
Communities and other stakeholders are able to respond to floods and other climate risks	2.2.3 Support DHM and local stakeholders to disseminate information on flood risks and warnings linked to local and community based response plans	2.2.3.1 Support DHM and local stakeholders to disseminate information on flood risks and warnings linked to local and community-based response plans.	Mobilize local community members in monitoring floods (through grantees KIRDARC and IDeS)	Thuligaad and Lower Karnali Watershed	360 man days of employment to community monitoring	X	X	X	X
			Provide flood risk warning (and including COVID relevant message) in the monsoon seasons with the established FEWS network	Thuligaad and Lower Karnali Watershed	1300 HHs receiving food early warning message	X	X	X	X
			Conduct orientation and awareness on hazard mapping and community based disaster management manual to the local stakeholders (through grantees KIRDARC and IDeS)	Thuligaad and Lower Karnali Watershed			X	X	X
			Handover the FEWS to the respective local governments	Thuligaad and Lower Karnali Watershed	4 plans prepared		X	X	X
			Support local governments in preparing municipal level "COVID sensitive Monsoon preparedness and response plan for Madhuwan and Thakurbaba Municipalities and Badikedar and Chure Rural Municipalities (through grantees KIRDARC and IDeS)	Thuligaad and Lower Karnali Watershed			X	X	X
			Disseminate flood hazard maps	Lower Karnali, Lower Mahakali, Rangun, Middle Rapti Watersheds	20 local goverrntments receive flood hazard maps		X	X	X

STRATEGIC APPROACH 2C: Support Sustainable Hydropower *SA Lead: Sustainable Hydropower Specialist (Pradip Gautam)*									
OUTCOME	**TASK**	**SUB-TASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						July	**Aug**	**Sept**	**Y5 Q2**
The profile of sustainable hydropower development is raised in Nepal	2.1.1 Organize an international seminar on sustainable hydropower development to raise the profile of sustainable hydro.	C2.1.1-1 Organize a seminar	Hold advisory group meetings in Kathmandu Consultation meetings in Karnali Basin for three studies Complete drafts and final reports for: ● High Conservation Value Rivers of Nepal ● An energy options assessment Report for Nepal ● Database on System Scale Planning for the Karnali River Basin	National, Karnali Basin	2 meetings, participants list, meeting notes 1 meeting, participants list, presentation slides 1 draft report dissemination and consultation meeting 1 final report and a dissemination meeting with3 final reports on 1. High Conservation Value Rivers of Nepal 2. Nepal energy options assessment 3. Report on System Scale Planning for the Karnali River Basin and a decision support database/tool.	X	X X		X X

STRATEGIC APPROACH 2C: Support Sustainable Hydropower *SA Lead: Sustainable Hydropower Specialist (Pradip Gautam)*									
OUTCOME	**TASK**	**SUB-TASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						July	**Aug**	**Sept**	**Y5 Q2**
The profile of sustainable hydropower development is raised in Nepal	2.1.1 Organize an international seminar on sustainable hydropower development to raise the profile of sustainable hydro.	C2.1.1-1 Organize a seminar	Hold advisory group meetings in Kathmandu Consultation meetings in Karnali Basin for three studies Complete drafts and final reports for: ● High Conservation Value Rivers of Nepal ● An energy options assessment Report for Nepal ● Database on System Scale Planning for the Karnali River Basin	National, Karnali Basin	2 meetings, participants list, meeting notes 1 meeting, participants list, presentation slides 1 draft report dissemination and consultation meeting 1 final report and a dissemination meeting with3 final reports on 1. High Conservation Value Rivers of Nepal 2. Nepal energy options assessment 3. Report on System Scale Planning for the Karnali River Basin and a decision support database/tool.	X	X X	X	X X

STRATEGIC APPROACH 2C: Support Sustainable Hydropower *SA Lead: Sustainable Hydropower Specialist (Pradip Gautam)*									
OUTCOME	**TASK**	**SUB-TASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						July	**Aug**	**Sept**	**Y5 Q2**
Private (IPP) and govt hydropower operators (NEA) have greater capacity to use hydromet information and modelling for operations	2.1.3 Build hydropower operator capacity to use hydro-meteorological information and modeling	C2.1.3-1 Conduct needs assessment of hydropower operation	Support Institute of Engineering (IOE) at Tribhuvan University (TU) to develop a course design "Fish Passage in the Himalayan River System" and integrate this course into the master's degree program in Hydropower Engineering Program. Together with Sa4B, discuss the draft course plan with experts and finalize the course design	National, Karnali Basin	1 case study report 1 Course plan 1 consultation workshop	x	x	x	x

STRATEGIC APPROACH 3A: Strengthen Policy and Planning for IWRM *SA Lead: Environmental Policy and Law Expert (Narayan Belbase)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
Local, Provincial and Federal government supported to develop GESI smart laws/policies	3.1.3 Provide support to WECS, national, provincial, and local governments on policies, laws, and plans.	C 3.1.3 -1 Provide support to WECs, national, provincial, and local governments on policies, laws, and plans	Provide technical support to Far West Province's Ministry of Industry, Tourism, Forest and Environment (MOITFE) to develop river conservation bill or aquatic biodiversity conservation bill.	Far West Province	Draft Bill		X	x	x
			- Convene a meeting with the Secretary and other officials of MoITFE to develop the modus operandi for developing the aquatic biodiversity conservation Bill or river conservation Bill	Far West Province				x	
			- Support the Ministry to constitute a committee to coordinate the development of the Bill	Far West Province					

STRATEGIC APPROACH 3A: Strengthen Policy and Planning for IWRM *SA Lead: Environmental Policy and Law Expert (Narayan Belbase)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
			- Develop draft outline of the Bill and revise it with feedback from the members of the Committee	Far West Province				X	
			- Develop GESI-responsive Bill based on the revised outline and present to members of the Committee and revise it based on feedback from members of the Committee	Far West Province					X
			- Organize a consultation workshop on the Bill at selected districts to inform citizen concerns about the Bill at the district level.	Far West Province					x
			- Revise the Bill based on district level and community level workshops and submit to the Committee and the Ministry	Far West Province					x
			-Support local governments to develop Environment Protection Bill and Regulations	Far West Province	Draft Bill	x	X	X	x

STRATEGIC APPROACH 3A: Strengthen Policy and Planning for IWRM *SA Lead: Environmental Policy and Law Expert (Narayan Belbase)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
			- Develop draft of the Bill and revise it based on the feedback from Paani team's peer review	Far West Province		x	x		
			- Draft the Bill and Regulations based on the revised outline	Far West Province			X		
			- Organize community consultation meeting and consultation workshop on the Bill and Regulations	Far West Province				X	x
			- Revise the draft incorporating suggestions and comments from the members of local governments and local communities and submit to the concerned RMs and MPs	Far West Province					X
Incentive for community-CAACG available to engage in conservation activities	1.1.1: Assess capture fisheries	C.1.1.1-2 Build capacity of fisher community to engage in alternative business enterprises	-Work together with local governments to amend or revise the AABC Act	Far West Province	Draft of Revised version of the AABC Bill		X	X	x

STRATEGIC APPROACH 3A: Strengthen Policy and Planning for IWRM *SA Lead: Environmental Policy and Law Expert (Narayan Belbase)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
			- Develop Bill for amending the Aquatic Animal and Biodiversity Conservation Act (AABC Act)	Far West Province			x		
			- Organize consultation meeting with CAACGs and a consultation workshop on the Bill to revise the AABC Act	Far West Province				x	
			- Revise the Bill based on feedback from CAACG members and the consultation workshop and submit to local governments for enactment.	Far West Province					X
			-Work with Rajapur Municipality, Geruwa Municipality, Panchapuri Municipality and other local governments to develop the AABC Bill	Lower Karnali Watershed	Penultimate draft of the statues		X	X	x
			- Develop draft of the AABC Bill	Lower Karnali Watershed			X		

STRATEGIC APPROACH 3A: Strengthen Policy and Planning for IWRM *SA Lead: Environmental Policy and Law Expert (Narayan Belbase)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
			- Organize community consultation meeting and consultation workshop on the Bill	Lower Karnali Watershed					x
			- Revise and finalize the Bill incorporating suggestions from community and local government stakeholders and submit the Bill to the concerned local governments	Lower Karnali Watershed					x
			-Assist DNPWC and Rara National Park to formulate Wetland Management Plan of Rara Lake - a Ramsar site	National		X	X	X	x
			- Develop draft of the Ramsar Site Management Plan	National		x			
			- Organize consultation workshop and consultation meetings in Mugu to solicit feedback from local stakeholders and provincial stakeholders on the Management Plan	National				x	x

STRATEGIC APPROACH 3A: Strengthen Policy and Planning for IWRM *SA Lead: Environmental Policy and Law Expert (Narayan Belbase)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
Community involved monitoring enforcement of regulations against poaching & illegal fishing			- Publish RFP to conduct initial environmental examination (IEE) study of the management plan and select the most competitive vendor	National			X		
			- Submit the revised draft to DNPWC, Rara National Park officials and Paani program for review and input and revise the plan incorporating comments from these agencies	National					X
			- Monitor and supervise the IEE study including public consultations and ensure the quality of the IEE report	National					X
			- Revise the Management Plan per the findings of the IEE report and submit to DNPWC for approval	National					X

STRATEGIC APPROACH 3A: Strengthen Policy and Planning for IWRM *SA Lead: Environmental Policy and Law Expert (Narayan Belbase)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
		3.1.3.-2 Develop Guidelines for Patrolling of river stretches by members of CAACGs	-Develop Guidelines/Procedures for patrolling river stretches monitored by CAACG members				x		
			- Collect suggestions from CAACG members on the problems they are facing, the obstacles they need to overcome while patrolling, and potential solutions and good practices from literature review Preliminary draft of the Management Plan				x		
			- Interact with members of community based anti-poaching units (CBAPU) to learn from their experiences and practices						x
			- Prepare the first draft of the guidelines and revise it based on the input from WMSs and RBTLs						x

STRATEGIC APPROACH 3A: Strengthen Policy and Planning for IWRM *SA Lead: Environmental Policy and Law Expert (Narayan Belbase)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
			- Organize consultation workshop on the draft of the guidelines for the local members of CAACGs and local governments						x
			- Revise the guidelines addressing the comments and suggestions from the workshop and submit to local governments for endorsement						x

STRATEGIC APPROACH 3B: Support CSOs to Advocate for Transparent and Sustainable Infrastructure Decision-making *SA Lead: Senior Communications Specialist (Sarah Gray)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5 Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
CSOs better understand sustainable hydropower	3.2.1 Carry out analysis on environmental and social costs and benefits of hydropower	C3.2.1-3 Analyze and disseminate info on social costs and benefits	Hold advisory group meetings in Kathmandu Consultation meetings in Karnali Basin for 3 studies Sharing/dissemination for the following - Report detailing HCVR of Nepal including interactive mapping tool?	KRB, National	2 advisory meetings organized 1 final report dissemination meeting with final reports on HCVR, EOA and SSP for KRB	X	X	 X	 X

STRATEGIC APPROACH 3B: Support CSOs to Advocate for Transparent and Sustainable Infrastructure Decision-making *SA Lead: Senior Communications Specialist (Sarah Gray)*									
OUTCOME	**TASK**	**SUBTASK**	**Y5 Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
			- EOA report for Nepal - A report and decision support database tool on SSP for the KRB						
CSOs have increased capacity for constructive engagement and to advocate for sustainable hydropower	3.2.2 Develop a bilingual civil society guide to healthy rivers, climate resilience and sustainable hydropower and strengthen civil society voices		Finalize translation of CSO guidelines into Nepali Hire Illustrator/Graphic Designer Complete illustrations and layout for guidelines Develop dissemination plan and disseminate guidelines	National	Guideline content finalized in Eng/Nep Final illustrated CSO Guidelines Guidelines disseminated to local and national CSOs	X	X	X	X
CSOs have increased capacity for constructive engagement and to advocate for sustainable hydropower	3.2.3 Develop norms and standards for sustainable hydropower development	C-3.2.3. Promote IFC and other best industry practices. (Linked with 3.2.2)	Work with IFC, IPPAN, IWMI to promote norms and standards through quarterly speaker series (ongoing) (Task 2.3.2)	National	Participation in IFC events (if possible) Dissemination of Paani sustainable hydropower package: 1) HCVR, EAO and SSP reports 2) CSO Guidelines 3) E&S monitoring checklist	X	X	X	X

STRATEGIC APPROACH 3B: Support CSOs to Advocate for Transparent and Sustainable Infrastructure Decision-making ***SA Lead: Senior Communications Specialist (Sarah Gray)***									
OUTCOME	**TASK**	**SUBTASK**	**Y5 Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
CSOs have increased capacity for constructive engagement and to advocate for sustainable hydropower	3.2.4 Use grants to build CSO technical, organizational and advocacy capacity		N/A	N/A	N/A				

STRATEGIC APPROACH 4a: Fill Knowledge gaps ***Lead: Chief Technical Specialist (Deepak Rijal)***									
Outcome	**Task**	**Subtasks**	**Y5 Q1 Action plan**	**Location**	**Outputs**	**Timeline**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
Fish sanctuary proposals developed for keystone species of cold and warm water fishes	4.1.3 Identify river reaches for declaration of fish sanctuaries	RHF/CDES-TU research action plan (Protocol development)	Consolidate existing knowledge for watershed and river reaches for declaration of fish sanctuary Identify and map of river reaches for declaring fish sanctuary Draft protocol for declaration of fish sanctuary, leveraging	West Seti, Middle Karnali and Thuligaad Consultation workshop each at Karnali province capital and in Kathmandu	1. Review report and recommendation of river reaches within studied watersheds for declaration of fish sanctuary 2. Fish Sanctuary declaration protocol 3. Fish sanctuary declaration proposal	x	x	x	

Outcome	**Task**	**Subtasks**	**Y5 Q1 Action plan**	**Location**	**Outputs**	**Timeline**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
			knowledge from international practices To draft fish sanctuary proposal by using required information						
Publication and dissemination of knowledge products for wider communities	4.1.9 Conduct outreach and development of knowledge products	• Identify priority grants for developing knowledge products. • Support communication team in dissemination of knowledge products.	To work with different SA leads and communication team to develop the content for knowledge products	Kathmandu Office	1. Develop knowledge sub-product for wider dissemination: 1.1 Summary report on use and dissemination of Paani produced knowledge products	x	x		
			To provide oversight in terms of methods, implementation and reporting	Kathmandu	1.2. Briefer on Catch assessment survey	x	x		
To develop consolidated knowledge products integrating results from independent studies	Dissemination of knowledge		Coordinating with SA leads, communication team develop workshop schedule and convening modality in consultation with grantees.	Kathmandu	1.3. Organize event for dissemination of research results through workshops, webinars and digital platform as appropriate	x	x		
Manuscript submission to the publisher			To work with scholars to draft manuscripts for publication in peer reviewed Journal	Kathmandu	1.4. Support joint publication between FAN and KU and YAE	x	x		

Outcome	**Task**	**Subtasks**	**Y5 Q1 Action plan**	**Location**	**Outputs**	**Timeline**			
						Jul	**Aug**	**Sep**	**Y5 Q2**
			To support the team by providing technical backstopping and technical quality control	Kathmandu	1.5. Coordinate in knowledge product development of High Conservation Value rivers, Energy Options, System Scale Planning for wider dissemination	x	x		
			To provide oversight in terms of methods, implementation and reporting	Karnali and Kathmandu	1.6. Business cases on capture fisheries, aquaculture and fisheries linking with ecotourism		x		
			Provide technical inputs to communication team	Kathmandu	1.7. Coordinate in developing briefers on wetland birds, invasive management, hazard mapping,	x			
			Provide guidance and technical suggestion to the communication team	Kathmandu	1.8. Briefer on Rapid prioritization of watersheds delineation	x	x		
			Guide team to screen the knowledge products for the center of excellence established at CDES-TU	Kathmandu	1.9. Consolidation of all Paani developed database including GIS database, maps, knowledge products to upload in the web portal of center of excellence established in the TU-CDES and relevant materials in USAID online GIS platform	x	x		

STRATEGIC APPROACH 4B: Integrate into academic and other learning spaces *SA Lead: Capacity Building and Higher Education Specialist (Anjana Shakya)*									
OUTCOME Increase participation of women and disadvantaged groups in freshwater biodiversity conservation and climate resilience	**TASK**	**SUBTASK**	**Y5/Q1 ACTION PLAN**	**LOCATION**	**OUTPUTS**	**TIMELINE**			
						July	**Aug**	**Sep**	**Y5Q2**
	4.2.3 Engage youth/college students/secondary students/citizen scientists on freshwater biodiversity and climate change.		Work with MEL team to prepare an assessment of eco-club members in Paani-supported grantees under outcome harvesting activities	Bogatan Lagam, Thuligaad, Middle Rapti	One report on effectiveness of eco clubs-their function and activities through Paani supported grantees	x	x	x	
	Task 4.2.4: Facilitate international cooperation between Nepali and international specialists and students regarding aquatic animal passage issues	C4.2.4-4: Publish Nepal focused engineering guide for designing hydropower project that allow fish passage.	Support Hydro Lab to develop a course syllabus on "Fish Passage Design in Himalayan River Systems" to be included in the master's degree program in hydropower engineering at the Institute of Engineering at Tribhuvan University. The syllabus will include case studies, developed by Hydro Lab, on the performance of different existing fish passages in Nepal.	National	One syllabus for course on "Design of fish passage" for Master's degree in Hydropower Engineering at IOE, TU One report containing case studies on the performance of different existing fish passage in Nepal	x	x	x	x
	Task 4.2.5. Develop and implement workshops and training programs related to freshwater biodiversity conservation and climate resilience		Prepare process documentation of river stretch co-management	All watersheds	One report on process documentation of river stretch co-management	x	x	x	x

ANNEXES

EXHIBIT A1: INDICATOR PERFORMANCE TRACKING Y4 Q4

Table 14: Indicator performance tracking table

This table presents Paani's overall performance against targets for Y4 Q4. For consistency with Paani's Y4 AWP, the indicators are presented by Paani's Strategic Approaches, the program's guiding management and implementation framework.

Indicators	Targets / Actuals				Notes
	Year 4/ Quarter 4 (Apr - Jun 2020)		Year 4 (July 2019 – June 2020)		
	Target	Actual	Target	Actual	
Standard indicators					
Number of hectares of biologically significant areas showing improved biophysical conditions as a result of USG assistance (EG 10.2-1)			89,021	Not assessed -	Paani underwent an internal DQA for this indicator. Based on the DQA recommendations, Paani updated the methodologies and tools to measure this indicator. There are possibilities of changes that could have occurred, but Paani could not measure these developments during this period as a result of the lockdown. We will report these changes once we can travel to the field to conduct field level measurements.
Number of hectares of biologically significant areas under improved natural resource management as a result of USG assistance (EG 10.2-2)			205,854	Not assessed	Paani underwent an internal DQA for this indicator. Based on the DQA recommendations, Paani updated the methodologies and tools to measure this indicator. There are possibilities of changes that could have occurred, but Paani could not measure these developments during this period as a result of the lockdown. We will report these changes once we can travel to the field to conduct field level measurements.

Indicators	Targets / Actuals				Notes
	Year 4/ Quarter 4 (Apr - Jun 2020)		Year 4 (July 2019 – June 2020)		
Number of people using climate information or implementing risk-reducing actions to improve resilience to climate change as supported by USG assistance (EG 11-6)	484	--	2509	1069	Progress are till Q3. Targets were not met due to: • During Oct-Dec 019, project underwent a budget modification. Paani had to make an approximately 25% cut to its grant program, This affected the grantee activities as many had to adjust their scopes of work and budget and they were put on hold for almost two months including Dashain and Tihar holidays. • During Jan-Jun 020, COVID-19 heavily affected Paani's programs, as it became a global pandemic this quarter. Paani began following restrictions put in place by GON. Beginning in early March, GON entities at the municipal-level placed restrictions on holding in-person gatherings, including workshops, trainings and other events. This has affected the implementation of grantee activities. Will continue to implement and will track this indicator in year 5.
Number of people with increased economic benefits derived from sustainable NRM and conservation as a result of U.S. assistance (EG 10.2-3).			20000	Not assessed	Paani underwent an internal DQA for this indicator. Based on the DQA recommendations, Paani updated the methodologies and tools to measure this indicator. There are possibilities of changes that could have occurred, but Paani could not measure these developments during this period as a result of the lockdown. We will report these changes once we can travel to the field to conduct field level measurements.
Number of institutions with improved capacity to assess or address climate change risks supported by USG assistance (EG 11-2)			15	Not assessed	Data could not be collected for this indicator as a result of the lockdown beginning early March. Since activities are pivoted to respond to COVID19, this indicator will not be tracked in Y5.

Indicators	Targets / Actuals				Notes
	Year 4/ Quarter 4 (Apr - Jun 2020)		Year 4 (July 2019 – June 2020)		
Percentage of participants reporting increased agreement with the concept that men and women should have equal access to social, economic, and political resources and opportunities (GNDR 4)			65%	69.2 %	

Indicators	Targets / Actuals				Notes
	Year 4/ Quarter 4 (Apr – Jun 2020)		Year 4 (July 2019 – June 2020)		
	Target	Actual	Target	Actual	
Number of (national level) policies/regulations/administrative procedures in each of the following stages of development as a result of U.S. assistance in each case: Stage 1: Analyzed; Stage 2: Drafted and presented for public/stakeholder consultation; Stage 3: Presented for legislation/decree; Stage 4: Passed/ approved; Stage 5: Passed for which implementation has begun (1.4.1-2,)		8	29	28	This also includes seven EFRC guidelines endorsed. Will track and report in year 5.
EG.10.2-5 Number of laws, policies, or regulations that address biodiversity conservation and/or other environmental themes officially proposed, adopted, or implemented as a result of USG assistance		8	28	28	The target is based on the policies, bills and acts at different levels: national, provincial and municipal. Q4 updates: Pyuthan Municipality in Jhimruk Watershed, Khadachakra and Tila Gufa Municipalities and Shuva Kalika Rural Municipality in Tila Karnali watershed, and Narahari Nath and Turmakhand Rural Municipalities in Middle Karnali and Thalara in West Seti enacted the AABCA. Q4 Updates: Talkot RM in West Seti endorsed a EFRC Guidelines EFRC Guidelines Other seven guidelines were endorsed during Q3 in Jhimruk, West seti, Middle Karnali and
EG.11-3 Number of laws, policies, regulations, or standards addressing climate change adaptation formally proposed, adopted, or implemented as supported by USG assistance			1	1	Environmental protection bill enacted

Number of people trained in climate change adaptation supported by USG assistance (EG 11-1)			431	678	Progress are till Q3. Targets were not met due to: • During Oct-Dec 019, project underwent a budget modification. Paani had to make an approximately 25% cut to its grant program, This affected the grantee activities as many had to adjust their scopes of work and budget and they were put on hold for almost two months including Dashain and Tihar holidays. • During Jan-Jun 020, COVID-19 heavily affected Paani's programs, as it became a global pandemic this quarter. Paani began following restrictions put in place by GON. Beginning in early March, GON entities at the municipal-level placed restrictions on holding in-person gatherings, including workshops, trainings and other events. This has affected the implementation of grantee activities. Will continue to implement activities and track this
% of leadership positions in USG supported community management entities that are filled by women or member of a vulnerable group (1.3.2-1).			85%	71.1%	This is the achievement made until the 3rd quarter (July2019 – March2020), as there were no more groups formed in the 4th quarter because of lockdown and movement restrictions. This figure will be updated in year 5 in case there are any restructuring of the existing groups.

Number of people trained in sustainable natural resources management and/or biodiversity conservation as a result of USG assistance (EG 10.2-4)	470	--	2326	666	Progress are till Q3. Targets were not met due to: • During Oct-Dec 019, project underwent a budget modification. Paani had to make an approximately 25% cut to its grant program, This affected the grantee activities as many had to adjust their scopes of work and budget and they were put on hold for almost two months including Dashain and Tihar holidays. • During Jan-Jun 020, COVID-19 heavily affected Paani's programs, as it became a global pandemic this quarter. Paani began following restrictions put in place by GON. Beginning in early March, GON entities at the municipal-level placed restrictions on holding in-person gatherings, including workshops, trainings and other events. This has affected the implementation of grantee • activities. This indicator will be

Number of innovations supported through USG assistance (STIR-10)			5	3	Targets were not met due to lockdown restrictions. Will be tracked in Y5 as pivoted activities to respond to COVID-19 can be counted under this. In year 4, the following innovations were achieved. • Community based river ecotourism • Environment friendly road constructions guidelines in Jhimruk and Middle Karnali, and • Watershed level platforms. The definition of this indicator was broadened to capture various groups/platforms at different levels, including watershed management platforms. Below is the status of other innovations planned for the year, but could not achieve. • Ramsar site wetland management plan (Bara). Due to lockdown and travel
# of fishing groups to which municipalities have given exclusive access rights and the legal authority to manage their river fisheries under agreed guidelines		-	**10**	**13**	All progresses were in Q3. 11 fisher groups in Thuligad Watershed and two in Lower Karnali Watersheds (where Act endorsed, group's statutes endorsed and groups registered in sequential manner as per act)
P/A of guidelines developed through participatory process	2	2	11	4	Q3. One guideline is drafted for Chure RM in Thuligad Watershed Q4. One guideline is drafted in Mohanyal RM in Thuligadd Watershed.

# of municipalities/rural municipalities that have endorsed sustainable fisheries guidelines	**2**	**1**	8	4	Q3. Parshuram municipality in Rangun watershed endorsed the guideline in Q2. Two were endorsed in Mahakalai and Bhimdatta municipalities in Q1. A total of 3. One guideline endorsed in Alital municipality in Rangun.
% of observed fishing effort by fishing group members for each fishing group that includes only sustainable fishing practices*, Defined according to the Guidelines for each fishing group	90%		>85%	-	COVID19 heavily affected Paani's program in Year 4/ Q 3. Beginning early March, GON placed restrictions on holding gatherings at local level, and
P/A of sustainable economic opportunities identified with partnership formed for each selected economic opportunity		-	7	5	The economic opportunities identified are: eco-tourism (river guide, home stay, nature guide), fish co-operatives, and environment friendly agriculture technologies, fish value additions (collective marketing and drying).
STRATEGIC APPROACH 1 b : Increase Local Knowledge, Engagement and Benefits For Local Water Management					
# of communities and municipalities/rural municipalities in targeted watersheds that have developed and endorsed the local plan (CAPAs, LAPAs, LDCRP, sub watershed management plan)	2		2	-	
# of target municipalities/rural municipalities that have taken initiative or received funding from a source other than Paani for implementation of an adaptation activity	5		13	5	Q2: In Lower Mahakali, the municipality has supported worth NRs. 76,000 for tunnel farming.
# of target communities and settlements implementing climate smart watershed management activities (tied to LAPA and CAPA)		-	11	2	
STRATEGIC APPROACH 1c : Improve Local Capacity for Regulation and Management of Roads and Mining					
# of user groups that advocate for environment-friendly road designs	**2**		**6**	2	Based on SWN final report 2 user groups advocated. This process was on-going until the COVID-19 Pandemic. Nonetheless, additional 3 user groups have reported over telephone that they have started EFRC advocacy. But, only two evidences received so far.
# of municipalities/rural municipalities that prioritize funds for projects with environment-friendly road designs		1	**2**	**8**	8 Municipals (two in Jhimruk, four in west seti and 2 in Middle Karnali) all Together Rs 58,100,000 was allocated
# of user groups aware of national guidelines and impact of gravel mining	2		2	-	
# of user groups that advocate for better regulated gravel mining	1		**1**	**-**	Planned for BAFER grant earlier and not on board yet, will be little changed to pivot to COVID and will focus on monitoring by CBAPUs and
STRATEGIC APPROACH 1 d : Improve Local Capacity For Managing Invasive Species					

# of CFOPs, sub watershed management plans, and buffer zone management plans with invasive control section [with removal targets] in place for affected waterbodies	-		2	-	

Indicators	Targets / Actuals				Notes
	Year 4/ Quarter 4 (Apr - Jun 2020)		Year 4 (July 2019 – June 2020)		
	Target	Actual	Target	Actual	
% (#) of community groups meeting removal targets for affected waterbodies			1	1	The lake management committee in Bhagraiya using the water mower to remove invasive plants from the lake.
P/A of regulations in place and enforcement of fish farms in targeted affected waterbodies in selected watersheds	1		1		
STRATEGIC APPROACH 2a: Improved Basin Level Resource Management					
# of platforms established	3		120	127	The definition of this indicator was broadened to capture various groups/platforms at different levels. This now includes: CAACG, apex bodies, lake management committees, integrated watershed management platforms, aquatic biodiversity coordination council, management committee, local disaster climate resilience committee and eco clubs, etc. Q3: This includes, CAACGs, WUGs, CBAPUs, and Apex bodies.
# of platforms engaged in advocacy activities	15		25	5	Q3 updates: These are the groups (user groups) in Airawati RM – 4, and Athabis Municipality – 6, These groups have begun to do advocacy activities for EFRC roads.
# of platforms that have developed plans of action and demonstrate ongoing activities against those plans	30	-	55		
STRATEGIC APPROACH 2b: Improve Local Capacity For Disaster Risk Reduction					

# of communities that are warned in sufficient time to respond to flooding and other climate hazard			5	NA	A. DHM radar water level EWS system in Rangun installed in January 2020, so we will watch during 2020 monsoon. Paani estimated that 17 villages (918 HHs/5254 pop) would benefit from this system from flood risk warning. B. i) Low cost FEWS in Thuligad installed in Aug 2019. Paani estimated that 13 villages (300 HHs/1250 pop) would benefit from this system from flood risk warning.

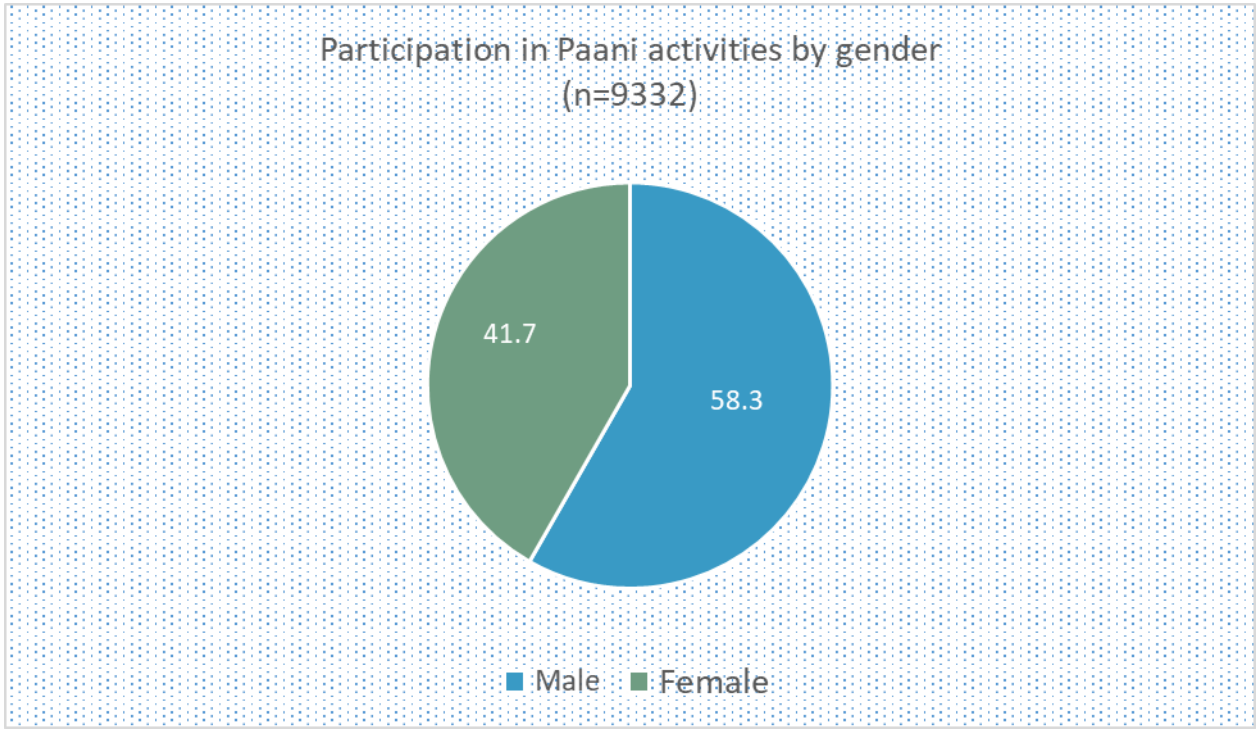
Indicators	Targets / Actuals				Notes
	Year 4/ Quarter 4 (Apr - Jun 2020)		Year 4 (July 2019 – June 2020)		
# of IWRMP, LAPAs, CAPAs with disaster response sections that use flood maps developed from hydromet data			1	-	Flood hazard maps prepared for 10 watersheds (MR, Jhimruk, LK, MK, Tila, Thuligad, BKL, Rangun, LM, and West Seti) and final report and maps are on being finalized. These Maps will be shared to local government and other stakeholders for using in such local plans.
STRATEGIC APPROACH 2c:Support Sustainable Hydropower					
# of smaller hydropower projects that have hydro-met data and tools (DHM has hydro-met database)			5	11	Paani through IPPAN organized training on Hydro-met data and River Basin Planning during Q1. Of the 25 participants, 11 hydropower companies participated with Hydro-met Data and leaned the techniques and methods of using data in their respective project design and operations.
# of hydropower developers and operators that have e-flow information			2	-	Paani declined the IWMI e-flow proposal which led to cancellation of all tasks and activities related with IWMI results on E-flow.
STRATEGIC APPROACH 3a: Improve Policy And Planning For IWRM					
Presence or Absence of 'white paper' containing recommendations with champion's inputs.					This indicator was dropped as the institutional arrangements required by the federal governance system is lagging behind. Moreover, the PEA study carried out in 12 watersheds has provided similar information that is likely to come from white paper.
Number of IRBMPs established					To capture various groups/platforms at different levels, this indicator is changed to 'Number of platforms established' and broadened the definition. Please see SA 2a: River Basin Management above.
P/A of effective National Water Resources policy			1	Inputs / comments shared.	
STRATEGIC APPROACH 3b : Support CSOs to Advocate for Transparent and Accountable Hydropower Decision Making					
Number of Civil Society Organizations (CSOs) receiving USG assistance engaged in advocacy interventions (EG 2.4.1-9)		-	4	-	

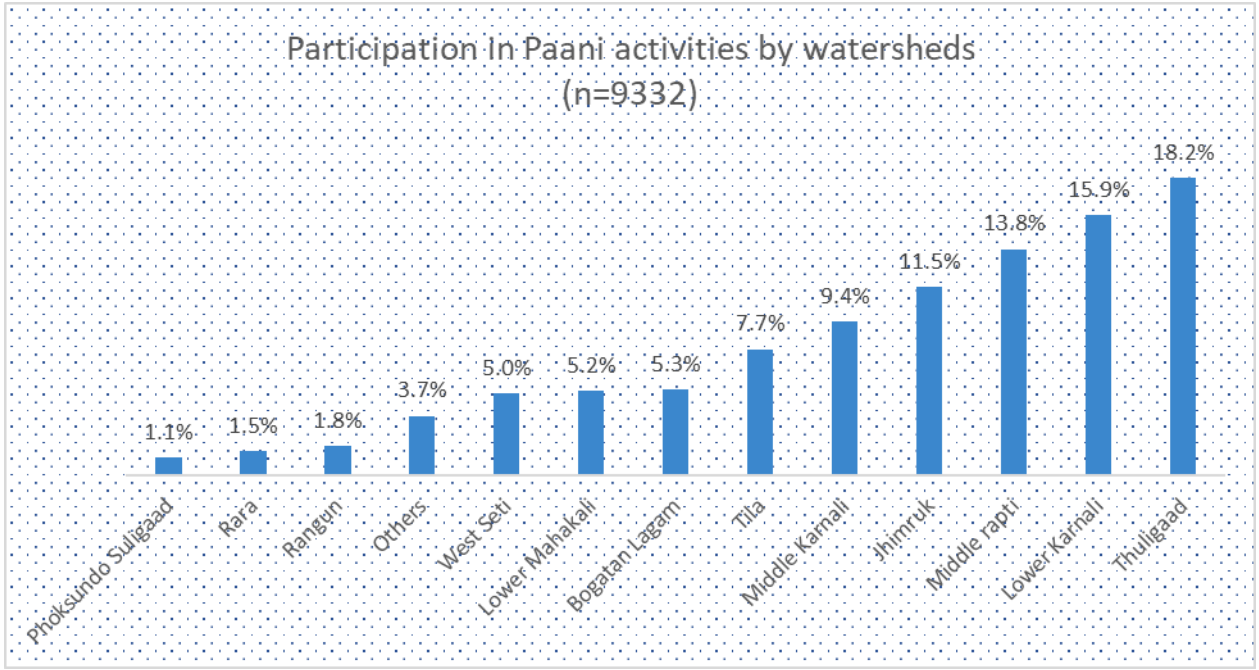
# of CSOs that understand sustainable hydropower and have improved capacity for constructive engagement			25	-	CSO Guidelines prepared in the process of finalization and dissemination and its uses and further follow up of engagement.
STRATEGIC APPROACH 4a: Knowledge					
# of research initiatives to address the issues of freshwater biodiversity, climate change and water resource management.	4		6	2	

Number of peer-reviewed scientific publications resulting from USG support to research and implementation programs (STR-12)	-	-	7	1	Lockdown and travel restrictions have affected data collection activities and field verifications of the data. Below is the status updates of different peer reviewed publications planned for the year. • Landuse scenario and springs distribution in the Mid Hills of Nepal (YAE) planned. The mapping on land use and springs distribution is currently under review. Will be in place in year 5. YAE will publish articles based on research carried out from 5 watersheds (Rangun, Thuligaad, Bogatan Lagam, Middle Karnali and Jhimruk) across 3 river basins • Assessment of river health and freshwater biodiversity for informing Karnali River basin planning (KU): Achieved. • Response of migratory birds in relation to habitat characteristics (BCN). This grant has been cancelled. However, there is one draft manuscript under review to make see if the data and other information adequate for publishing. • Assessment of Conservation Status of Aquatic Biodiversity in Lower Karnali and Mahakali River Basin (FAN). FAN is drafting. • FAN, KU and TU scholars have drafted a manuscript focusing on wetland biodiversity, Ramaroshan of Achham District is ready. Will be in place in year 5. • Comparison of aquatic biodiversity of two Nepali river basins- with and without hydropower development (CMDN). Paani provided feedback and inputs in the draft. They are bringing in other database and reports to come up with the comprehensive. Mapping of spring sources in western mountain
STRATEGIC APPROACH 4b: Learning Spaces : COMPLETED					

% of scholarship recipients who are women or from disadvantaged groups					
# of courses developed in the areas of freshwater biodiversity and sustainable water management					

EXHIBIT A2: GESI ANALYTICS FOR PAANI ACTIVITIES





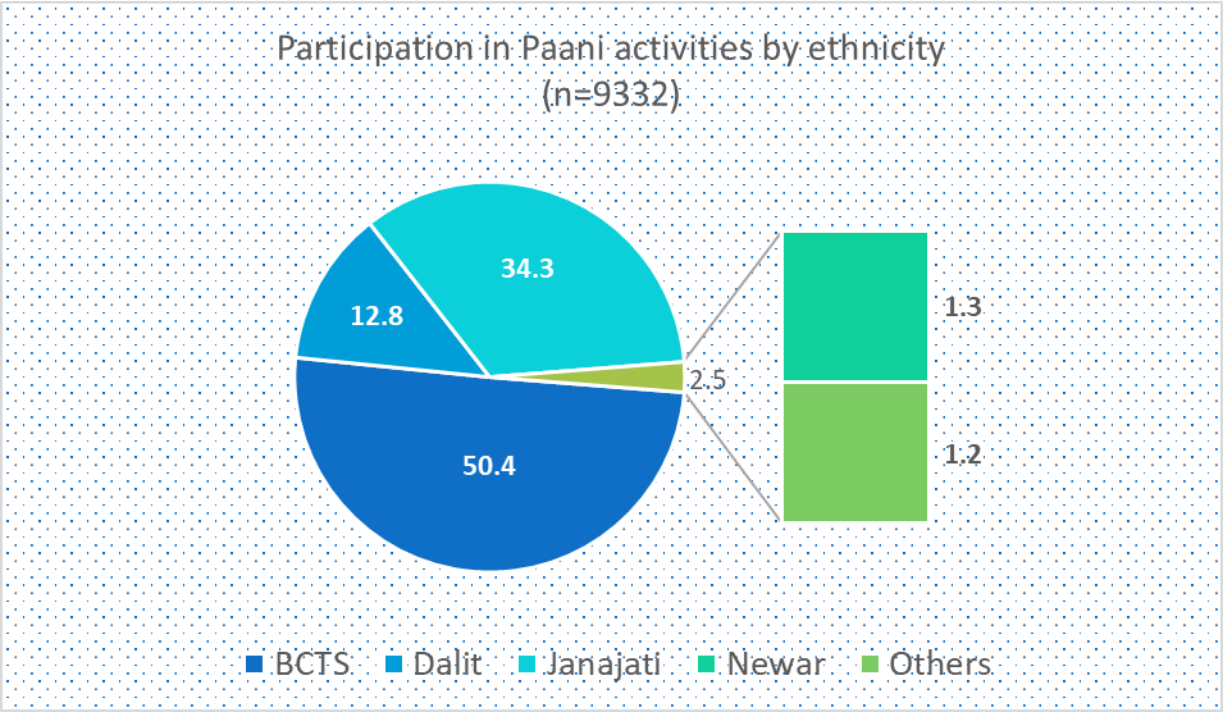

Participation in Paani activities by ethnicity
(n=9332)
34.3
12.8
2.5
50.4
1.3
1.2
BCTS
Dalit
Janajati
Newar
Others

EXHIBIT A3: ANNEXES TO SUPPORT SA 1A

Trainings provided to CAACGs and farmers groups to support alternative livelihoods in Y4:

- Developed river guide training module aligning with river guide training manual developed by National Academy of Tourism and Hotel Management (NATHM).
- Provided 14-day long river guide training to the river dependent community including most marginalized Raji and Sonaha community of Lower Karnali Watershed.
- Provided two-day training on climate friendly agriculture technologies/practices on environment friendly vegetable farming to the members of 9 CAACGs in Lower Mahakali and Middle Rapti watersheds.
- Conducted capacity building training on fish farming and supply chain to CAACG in Lower Mahakali Watershed.
- Conducted a two-day training on basic hospitality and homestay management to 12 participants from CAACGs and homestay entrepreneurs in Middle Rapti watershed. Similarly, provided technical support to organize homestay management training, formation of ad hoc homestay management committee, develop code of conduct, prepare and display information boards, and form a homestay management committee in Rigmo village, Phoksundo-Suligad Watershed.
    - Provided two different vocational trainings for 16 days on gabion box weaving training, and junior technician level training on aquaculture and fisheries for 20 CAACGs members (10 for each training). With the outbreak of COVID-19, Paani stopped the 40-day long training program and pivoted the remaining funds to provide material for gabion box weaving for income generation.
- Conducted a one-day orientation for 68 farmers on irrigation management for sustainable agriculture in Bogatan Lagam Watershed.

In addition, Paani supported material and production input for off-season vegetable and fish farming, and advocated for resource leverage from local government to support CAACGs and marginalized communities for additional livelihood:

- Provided 25 plastic tunnels with drip irrigation facility, solar technology, and insect traps to two CAACGs and seven farmers' groups in Middle Rapti and Lower Mahakali watershed.
- Paani coordinated with local government to allocate budget worth NRs. 82,800 for the construction of a permanent nursery shed and NRs. 76,000 for green net and plastic tunnel to the CAACG in lower Mahakali watershed.
- Supported to lease a fishpond for CAACG in Lower Mahakali watershed to begin aquaculture for additional livelihood.
- Supported the formation and registration of a community homestay in Shey Phoksundo Rural Municipality with the financial support worth NRs. 400,000 from local government.

Table 15: Unique fish species recorded in three wetlands of Mahakali and Karnali River Basin, and Rapti River

S. No.	Family	Species	Local names	River Basin			Research and assessment	
				Mahakali	Karnali	Rapti	FAN	Mini Assessment

1	Bagridae	*Aorichthys aor (Hamiton-Buchana)*	Kanti		x		x	
2	Balitoridae	*Acanthobotis botia (Hamiton-Buchana)*	Botia		x		x	
3		*Lepidocephalichthys sp*	Gaicho Maachha			x		x
4		*Crossoheilus* sp	Keki Fish, Yeki Fish			x		x
5		*Labeo fibriatus (Hamilton-Buchana)*	Boi	x	x		x	
6		*Puntius chola* (Ham)	Sidhara, Sidre, Pothi	x		x	x	x
7		*Puntius jerdoni*	Jerdon's carp		x		x	
8		*Schizothorax nepalensis (Tarashima)$*	Tikhe Asala		x		x	
9	Mastacembelidae	*Macrognathus aral*	Baam			x		x
10	Percoidae	*Pseudambasis baculis (Hamilton-Buchana)*	Chanari		x		x	
11		*Rita rita (Bloch)*	Rita		x		x	
12	Sisoridae	*Gagata cenia* (Ham)	Tikthi, Gogta			x		x
13		*Nangra viridescens (Hamilton-Buchana)*	Katenga		x		x	
14		Mastacembelus armatus (Lecepede)	Gaichi	x	x		x	

Table 16: List of aquatic mollusks species identified in Sati-Karnali Ox-bow Lake (Lower Karnali Watershed)

S. No.	Family	Group	Scientific name	Status
1	Viviparidae	Gastropod	*Bellamya bengalensis*	Common
2		Gastropod	*Idiopoa disimilis*	Rare
3	Ampullariidae	Gastropod	*Pila globose*	Common
4	Bithyniidae	Gastropod	*Gabbia* cf. *stenothyroides*	Common
5	Thiaridae	Gastropod	*Thiara scabra*	Common
6		Gastropod	*Melanoides tuberculatus*	Common
7		Gastropod	*Tarebia lineate*	Rare
8	Lymnaeidae	Gastropod	*Lymanea acuminate*	Common
9		Gastropod	*Radix* sp.	Common

10	Planorbidae	Gastropod	*Gyraulus convexiusculus*	Common
11		Gastropod	*Segmentina calatha*	Rare
12	Bulinidae	Gastropod	*Indoplanorbis exustus*	Common
13	Unionidae	Bivalve	*Lamellidens* cf. *jenkinsianus*	Rare
14		Bivalve	*Radiatula* sp.	Rare

Table 17: An updated list of Community Aquatic Animal and Aquatic Biodiversity Conservation Groups (CAACG)

Watershed	CAACG formed in Y4	Total number of CAACG	Status of CAACG	Grantee
Rangun	-	6	Registered in Agriculture Section of Parasuram R (3) and AAlital RM (3)	NNSWA
Lower Mahakali	-	2	Registered in Agriculture Section of Bhimdutta R (1) and Mahakali (1)	NEEDS Nepal, CIS
Middle Karnali	5	10	Five CAACG Registered under the provision of AABCA in municipality	RHF, SAEWCC
Thuligad	26	26	11 registered in Chure and Mohanyal RM, 15 informal group in the process of registration	ECC, IDES
Bogatan Lagam	3	3	Three CAACG Registered under the provision of AABCA in municipality	RDC
Tila	9	9	In the process of registration	RSN
Lower Karnali	14	14	In the process of registration	SBS
Mid West Seti	4	4	In the process of registration	Sahara Nepal
Jhimruk	12	16	Four registered Registered in Agriculture Section of municipality, 12 in the process of statute formation and registration	MRDCC, KDCN
Middle Rapti	4	8	4 registered Registered in Agriculture Section of municipality, one	HWEPC

			in the process of statute formation and registration
Total	76	98	37 registered and 61 in the process of registration

Table 18: Status of CAACG monthly saving amounts in Jhimruk and Middle Rapti Watershed

SN	WATERSHED	NAME OF CAACG	CUMULATIVE MONTHLY SAVING (NRS.)
1	Middle Rapti	Baikha CAACG	22800
2	Middle Rapti	Baam CAACG	14800
3	Middle Rapti	Rawa CAACG	26600
4	Middle Rapti	Raini CAACG	10750
5	Middle Rapti	Sahar CAACG	9000
6	Middle Rapti	Rohu CAACG	16000
7	Middle Rapti	Mangra CAACG	14000
8	Middle Rapti	Kalmuda CAACG	5000
		Sub-total	***118950***
1	Jhimruk	Amilya Raha CAACG	10905
2	Jhimruk	Damti Dovan CAACG	35714
3	Jhimruk	Raksha Raha CAACG	18685
4	Jhimruk	Bange Raha CAACG	16535
5	Jhimruk	Tribeni CAACG	7811
6	Jhimruk	Nayaraha CAACG	8120
7	Jhimruk	Airwati Dovan CAACG	1880
8	Jhimruk	Makre CAACG	3800
9	Jhimruk	Bankala CAACG	7660
10	Jhimruk	Gudgude CAACG	12080
		Sub-total	**123190**
		Grand Total	**242140**

EXHIBIT A4: ANNEXES TO SA 1D

Table 19: Exotic and invasive fish species in Lower Mahakali, Lower Karnali & Middle Rapti Watersheds

SCIENTIFIC NAME	COMMON NAME	COUNTRY OF ORIGIN	YEAR OF INTRODUCTION	STATUS IN LM, LK & MR WATERSHEDS	PURPOSE OF INTRODUCTION
Ctenopharyngodon idella	Grass Carp	China	1965/66	Distributed in all watershed, evidences of escape from fish farm	Aquaculture
Hypophthalmichthys molitrix	Silver Carp	China	1967/68	Distributed in all watershed,	Aquaculture
Aristichthys nobilis	Bighead Carp	China	1971	Distributed in all watershed	Aquaculture
Cyprinus carpio	Common carp	Hungary	1979	Distributed in all watershed, evidences of escape from fish farm	Aquaculture
Oreochromis mossambicus	Mozambique Tilapia	Unknown	1985 (unofficial)	Distributed in MR watershed, dispersal mechanism not known	Unknown
Oreochromis niloticus	Nile Tilapia	Thailand	1985	Distributed in all watershed, evidences of escape from fish farm	Aquaculture
Clarias gariepinus	African Catfish	India	1996-97 (unofficial)	Distributed in all watershed, evidences of escape from fish farm	Aquaculture
Pongasinodon hypophthalmus	Pangas	India, Thailand	2004, 2016	Distributed in all watershed, evidences of escape from fish farm in MR & LM watersheds.	Aquaculture
Pygocentrus nattereri	Red belly piranha	India	2008	Distributed in MR watershed, evidences of escape from fish farm	Aquaculture

Table 20: Exotic invasice aquatic plant species (AIAPS) in in Lower Mahakali, Lower Karnali & Middle Rapti Watersheds

SCIENTIFIC NAME	COMMON NAME	COUNTRY OF ORIGIN	YEAR OF INTRODUCTION	STATUS IN LM, LK & MR WATERSHEDS	PURPOSE OF INTRODUCTION
Eichhornia crassipes	Water hyacinth	South America	1966	Wetland (lake, marshy land, irrigation canal, rice field), shallow streams	Ornamental
Ipomoea carnea	Bush morning glory	Mexico & South America	1966	Lakes, marshy lands, bank of irrigation canal	Not known
Pistia stratiotes	Water lettuce	South America	1952	Wetland (lake, marshy land, irrigation canal, rice field)	Ornamental

Table 21: Escape of exotic fish from aquaculture farms and recaptured from natural waters in LM, LK and MR watersheds (Source: Paani Scooping Study, 2019)

ESCAPE LOCATION	SPECIES	ESTIMATED NUMBER	RECIPIENT NATURAL WATER	IMPACT PERCEIVED BY COMMUNITY
Ponds, Bhimdatta-16, Kanchanpur	African catfish, Pangas	NA	Mahakali River	Few African fish caught from the adjoining canal to Mahakali River
Aqua farm, Suda and Daiji, Kanchanpur	Common carp, Grass carp	NA	Raani Taal, Shuklaphant National Park	Observed carps by SNP people
Ponds, Tikapur, Kailali	African catfish	NA	Sati Taal Karnali (Karnali Ox Bow Lake), Tikapur, Kailali	African catfish are regularly caught from the lake.
Catfish Ponds, Geruwa-5, Bardiya	African catfish	NA	Budhi Kulo, Geruwa River	Discussions revealed that people lured African catfish in natural water during rainy days. Informed that African catfish weighing 7-9 kg caught from Geruwa River.
Catfish ponds, Khairahani, Madhuban-2, Bardiya	African catfish	NA	Bhagraiya Lake, Madhuban, Bardiya	Estimated that African catfish contributes 25% in total catch from the lake.
Pangas Farm, Geruwa Integrated Fish Farm, Madhuban, Bardiya	Pangas	50000 fingerling	Rice field, natural canal and Geruwa River	Pangas recaptured from rice field, natural canal and Geruwa River even after a year of escape.
Pangas Farm, Lamahi-3, Dang	Pangas, Tilapia, Rupchanda	Responded occasional release during draining of the ponds	Natural canal which joins Rapti River	Community responded that Tilapia is frequently harvested from the canal and wetlands.

EXHIBIT A5: ANNEXES TO SA 4A

Initial results of a survey on the uses of knowledge products

Over 95% of the total 25 surveyed said that Paani-supported research will influence policies and plans in the following sectors:

- Water resources policy
- River basin level Aquatic biodiversity conservation plans
- Hot spots for fish-based livelihood activities
- Tourism development master plan
- River conservation master plan (provincial level)
- Rara National Park and Buffer Zone management plan
- Ramsar site management plan
- NAP planning process
- Restoration of the largest and most important wetland (Rani Tal) inside Shukla Phanta National Park.
- Strengthening the capacity of local government for proper implementation of risk sensitive development activities by sharing and utilizing the flood hazard maps.
- National Biodiversity Strategy and Action Plan (2014-2020)
- Aquatic Animal Protection Act (1960)
- Hydropower Master Plan

- 90% of respondents are using Paani research in the following ways:
  - Publication, sharing and presentation
  - In the training and teaching activities
  - As a knowledge base to develop new programs / projects. For example, flood disaster response plan
  - To refine policy, advocacy strategy
  - To inform fund raising strategy
  - To inform other researchers

- 35% of the respondents said they knew other organizations were using Paani research in these fields, among others:
  - Department of Hydrology and Meteorology
  - Local governments
  - Department of Water Resources and Irrigation
  - Wetlands International

- Key dissemination strategies of their organizations include:
  - Sharing platforms (e.g., seminars, conferences, consultation events)
  - Publications
  - Presentations in different platforms
  - Web availability
  - Shared in meetings and workshops
  - Media, IEC materials
  - Reports

Table 22: Status of Paani knowledge products and plan for year 5.

SN	KNOWLEDGE PRODUCT	TYPE	AUDIENCE	STATUS
1	Watershed Briefers	Watershed Study	Local government, CSOs and line agencies, USAID and INGOs	Ready for distribution, Center of Excellence
2	Watershed Posters	Watershed Study	NGO, CSO, govt line agencies, users group, local govt	Ready for distribution, Center of Excellence
3	Poster on mapping of Spring Sources	Primary Research		Ready for distribution, Center of Excellence
4	Poster: Bio assessment using Macro-invertebrates (foldable pocket map format)	Primary Research	Local government, CSOs and line agencies	Ready for distribution, Center of Excellence
5	Field guide on bio-assessment and micro invertebrates for Citizen Scientists	Primary Research	Citizen Scientist in training	Ready for distribution, Center of Excellence
6	Poster: Recommendation for basin level plan based on Karnali basin expedition and Paani learning discussions at basin level	Primary Research	River basin offices, watershed management offices, WECS, MOEWRI, Planning commission at province level	Ready for distribution, Center of Excellence
7	Poster and Briefer/ Presentation/ video: Framework for river stretch co-management (Paani study)	Primary Research	Local and Provincial government, Planning commission at province level, CSOs	Ready for distribution, Center of Excellence
8	Briefer: Fisheries market and conservation governance model	Primary Research	MOFE, MoALD, Planning commission at province level	Priority Plan for Year 5
9	Poster: Assessment of wetland biodiversity and their relationship with habitat quality	Primary Research	National park, local government, MOFE	Priority Plan for Year 5
10	Briefer: Protocol/ Requirement for declaration of fish sanctuary	Primary Research	MOFE, MoALD, Planning commission at province level	Priority Plan for Year 5
11	Paani Success Stories	Paani Internal Product	Paani team, government counterparts, sub-partners, USAID, DAI home office	On track
12	Paani Impact Video	Paani Internal Product	Paani team, government counterparts, sub-partners, USAID, DAI home office	Ready for distribution, Center of Excellence
13	Paani Learning video	Paani Internal Product	AACG members, local government, communities, grantees	Ready for distribution, Center of Excellence
14	Poster monograph: Karnali Iconic Fish Species	Paani Fishery Product	Local government, provincial gov, AACG, CSOs and line agencies, USAID and INGO	Ready for distribution, Center of Excellence
15	Poster monograph: Karnali Endemic and Threatened fish species	Paani Fishery Product	Local government, provincial gov, AACG, CSOs and line agencies, USAID and INGO	Ready for distribution, Center of Excellence
16	Inventory of fish species from three different river basins	Paani Fishery Product	CAACG, local government, provincial government, grantees	Ready for distribution, Center of Excellence
17	Stock taking report on the impacts of non-native fish species on native fish species	Paani Fishery Product	CAACG, local government, provincial and federal government	On track
18	Wild and Scenic River Legislation	Research Briefer	Local government, provincial Gov, CAACG, CSOs and line agencies, USAID and INGO	Ready for distribution, Center of Excellence
19	Preparation of sub-watershed management plans engaging key stakeholders (CREEEW)	Research Briefer	Local government, provincial Gov, CAACG, CSOs and line agencies, USAID and INGO	Ready for distribution, Center of Excellence
20	River Health and Biodiversity Profiling in the Karnali and West Rapti Watersheds: (KU)	Research Briefer	Local government, provincial Gov, CAACG, CSOs and line agencies, USAID and INGO	Ready for distribution, Center of Excellence
21	Increasing Adaptive Capacity of Communities in Upper Rangun-Khola Sub-watershed through Improved Water Resources Management (RDC)	Research Briefer	Local government, provincial Gov, CAACG, CSOs and line agencies, USAID and INGO	Ready for distribution, Center of Excellence
22	A Multi-Disciplinary Assessment of Biodiversity and Socio- Economic Status of the Karnali River of Nepal (CMDN)	Research Briefer	Local government, provincial Gov, CAACG, CSOs and line agencies, USAID and INGO	Ready for distribution, Center of Excellence
23	Political Economy Analysis to Identify Champions for Freshwater Policy Change and Conservation of Aquatic Biodiversity	Research Briefer	Local government, provincial Gov, CAACG, CSOs and line agencies, USAID and INGO	Ready for distribution, Center of Excellence
24	Mapping and Assessing Pollution Stresses on Spring Sources in Five Watersheds of Mid and Far-Western Nepal	Research Briefer	Local government, provincial Gov, CAACG, CSOs and line agencies, USAID and INGO	On track

SN	KNOWLEDGE PRODUCT	TYPE	AUDIENCE	STATUS
25	Gravel Mining Briefer	Research Briefer	Local government, advocacy and champions	Priority Plan for Year 5
26	Invasive Management Briefer	Research Briefer	Local government, advocacy and champions	Priority Plan for Year 5
27	Flood Hazard maps Palika level briefer and poster	Research Briefer	Local government, civic society organization	Priority Plan for Year 5
28	Energy Option Assessment Report for Nepal	Priority Study Report		Priority Plan for Year 5
	An assessment report on high conservation value rivers of Nepal	Priority Study Report		Priority Plan for Year 5
28	System scale planning for Karnali River	Priority Study Report	Government, Academia, planning commission, private sectors, biodiversity conservation	Priority Plan for Year 5
29	Karnali River Corridor Management Framework (Briefer)	Priority Study Report	Agencies engaged with river basin planning, water resources, freshwater biodiversity, academia and researchers	Priority Plan for Year 5
30	Political Economy Analysis to Identify Champions for Freshwater Policy Change and Conservation of Aquatic Biodiversity Report	Priority Study Report	Local government and provincial government agencies, CSOs	Ready for distribution, Center of Excellence
31	EFRC IEC materials (posters, brochure and flip chart and tutorial video	Priority Study Report	local government, local road users, maintenance committee, technical person, contractors	Ready for distribution, Center of Excellence
32	Environment Friendly Road Construction Guidelines	Priority Study Report	local government, technical person, contractors, champions	Ready for distribution, Center of Excellence
33	Fish Value chain study report	Priority Study Report	GON, Private Sectors, Planning	Ready for distribution, Center of Excellence
34	Fishery conservation Framework and market development strategy	Priority Study Report	Government and donor agencies, Civic Society Organizations	Ready for distribution, Center of Excellence
35	Herpetofauna [Poster]	Priority Study Report	Local government, CSO and research institutions	Ready for distribution, Center of Excellence
36	Flood Hazard mapping	Priority Study Report	Local and provincial Governments, CSO, Government line agencies, donor and International agencies	On track
37	Bilingual Civil Society Guide	Priority Study Report	Champions, local NGOs, grantees, Federations	On track
38	Aquatic Animal Conservation Bill of Jorayal Rural Municipality (ENG)	Priority Study Report	Donor, international agencies and experts	On track
39	Impacts of Gravel Mining on Aquatic Species in Lower Karnali and Lower Mahakali Watersheds	Priority Study Report	Local government, planning, environment and biodiversity	Ready for distribution, Center of Excellence
42	Policy brief for conservation of wetland biodiversity	Priority Study Report	Government, private sectors and community	On track
43	Aqua Culture Feasibility Study (First Phase)	Priority Study Report	Local and provincial government, private sector, entrepreneurs.	On track
44	Ecotourism study Report & Briefer	Priority Study Report	Government, private sectors and community	Priority Plan for Year 5
45	Report: Fish vulnerability assessment of western river basin	Priority Study Report		Priority Plan for Year 5
46	Report: Catch assessment survey	Priority Study Report	Local and provincial government, private sector, entrepreneurs.	Priority Plan for Year 5
47	Report: Business case for capture fisheries, aquaculture and fisheries-based ecotourism	Priority Study Report	Local and provincial government, private sector, entrepreneurs.	Priority Plan for Year 5
48	Poster on the birds of Rara Lake	Poster		Priority Plan for Year 5
49	Training Manual on Ornithology	Manual		Ready for distribution, Center of Excellence
50	An introduction of unique biodiversity Ramsar site of Rara Lake	Research Briefer		Priority Plan for Year 5
51	Migratory Behavior of Wetland Birds in Rara Lake, Nepal	Research Briefer	Government, academia, research and biodiversity community,	Priority Plan for Year 5
52	Structure of Benthic Macro Invertebrate communities in the rivers of western Himalaya	Scientific Journal Publication	Academia, researcher scholars, planning and conservation biology	Ready for distribution, Center of Excellence
53	Assessment of Spring Water Quality in the Rural Watersheds of Western Nepal	Scientific Journal Publication	Academia, researcher scholars, planning, environment and conservation biology	Ready for distribution, Center of Excellence

SN	KNOWLEDGE PRODUCT	TYPE	AUDIENCE	STATUS
54	Water crises in a water-rich country: case studies from rural watersheds of Nepal's mid-hills	Scientific Journal Publication	Local government, academia, policy and planning	Ready for distribution, Center of Excellence
55	Extent and distribution wetland biodiversity in protected and non-protected lakes in far-western Nepal	Scientific Journal Publication	Academia, researcher scholars, government, planning	Priority Plan for Year 5
56	Status of Mahseer (*Tor* spp.) in the Karnali River Basin, Nepal: Diversity, Habitats, and Aspects of Bionomics	Scientific Journal Publication	Government, private sectors, academia, researchers, biodiversity	Priority Plan for Year 5
57	Status of freshwater biodiversity and habitat condition in Ramaroshan wetland complex of Achham District, Nepal	Scientific Journal Publication	Government, biodiversity and environment, environment, ecotourism	Priority Plan for Year 5
58	Mapping and measurement of water discharge from spring sources of western Nepal	Scientific Journal Publication	Government, academia, research and biodiversity community,	Priority Plan for Year 5

Status Summary:

Ready for distribution, Center of Excellence	29
Priority Plan for Year 5	21
Priority Plan for Year 5	8

EXHIBIT A6: MAP OF PAANI WATERSHEDS