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USAID PAANI PROGRAM: **FINAL SUMMARY**

TABLE OF CONTENTS

STATEMENT FROM THE GOVERNMENT OF NEPAL	02
KEY MILESTONES	03
PAANI APPROACH	05
RESULTS	06
ENGAGING STAKEHOLDERS	07
CO-MANAGEMENT OF RIVERS	09
RESILIENCE AND LIVELIHOODS	11
HYDROPOWER AND INFRASTRUCTURE	13
PAANI CHAMPIONS	15
PAANI'S LEGACY	19

ABOUT PAANI

USAID's Paani Program, known as Paani (Nepali for water) is a five-year (2016-2021) project, led by DAI and partners, that enhanced Nepal's ability to manage water resources for multiple uses and users through an integrated approach to conserve freshwater biodiversity in 12 priority watersheds of Nepal.

DISCLAIMER

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Cover Photo Caption: Women using traditional Helka fishing nets, in Middle Rapti watershed.

Photo Credit: Nabin Baral for USAID

STATEMENT FROM THE GOVERNMENT OF NEPAL



Photo Credit: Pushkar Kharel for USAID

Nepal is a country rich in water resources and biodiversity, yet we have not seen much success achieving substantial benefits from those resources. Rather than being well maintained, Nepal's water resources are being degraded and destroyed every day due to over-extraction and over-exploitation by people, and because of a lack of adequate knowledge and awareness about the values and importance of those resources, both in communities and by the government. Many also lack sufficient ideas, skills, and scientific techniques to properly manage the resources. Nevertheless, our valuable and important resources are at risk and the consequences in the near future will be dire without programs to control, conserve, and sustainably utilize them. This issue matters to the government of Nepal, as seen in Nepal's National Water Resource Policy, which mandates the protection, promotion, and environmentally friendly and sustainable use of natural resources, as does the present Constitution of Nepal.

The USAID Paani program has been working with the Water and Energy Commission Secretariat (WECS) for five years to help conserve water resources, manage watersheds, and protect aquatic biodiversity in the Karnali, Mahakali, and Rapti river basins. During this time, Paani has achieved a lot: from conducting studies on fish species and habitats and forming conservation communities; to preparing environmental and aquatic animal protection laws and support to promote fish and agriculture farming. Paani has balanced its conservation efforts with environmentally friendly development support, including the preparation of environmentally friendly rural road guidelines and financial and technical support for designing environmentally friendly infrastructure.

Thanks to Paani's efforts, local communities and governments now have a better understanding of their shared values and the importance of water resources and aquatic biodiversity. They also learned skills and techniques to better conserve those resources. Paani helped to create employment and research opportunities for local communities, NGOs, high-level experts, and institutions. New laws prepared by Paani can help protect and conserve water resources, watersheds, and aquatic biodiversity. Especially in far west Nepal, the program has been successful, and I have personally observed that stakeholders are quite happy and satisfied with Paani.

I see more opportunities to replicate this type of program in other areas of Nepal, such as the Gandaki and Koshi river basins, and for local and provincial governments to successfully take on ownership of the programs Paani has already started.

Many government and private sector institutions utilize water resources, but an urgent next step is to designate an institution—perhaps WECS—with the responsibility and authority to monitor, control, regulate, and conserve those resources (i.e. to ensure adherence to clause VII of article No. 51 of the Constitution.) The fundamental building blocks of such an institution would be the local community river conservation groups that Paani helped form through an inclusive process. The work Paani started shows the good that can come when government and development partners at all levels cooperate. I believe the seeds of this strong partnership will bring more positive changes to come, both in conservation and livelihoods, especially in western Nepal. Another important action in continuing Paani's work is the formation of community

river conservation groups through an inclusive process, as Paani demonstrated.

I am impressed with Paani and I can conclusively say that Paani has made a remarkable contribution to Nepal. I strongly recommend the extension and scaling of the program in the remaining parts of Karnali, and replication in the middle and eastern parts of Nepal, to continue raising awareness about the importance of conserving water resources and aquatic biodiversity. The knowledge, experiences, and findings Paani leaves behind are valuable assets for us in the government of Nepal, and we will try to incorporate and implement those results and that knowledge in our planning, policymaking, and implementation.

On behalf of WECS, the government counterpart for Paani, I would like to offer a special thanks to members of the Paani program team and to USAID Nepal, all of whom made great efforts and contributions to the success of the program. Similarly, I am very thankful to all the individuals, experts, communities, institutions, and local and provincial governments who have fully cooperated with and supported Paani and WECS. Lastly, I am very grateful to USAID for their continuous guidance and financial support.

Sincerely,

Mr. Sagar Kumar Rai

Secretary of Water and Energy
Commission Secretariat (WECS)

KEY MILESTONES

January 2018

Reducing impacts of poor roads on river systems:

US Forest Service completes three trainings on the design, construction, and maintenance of low-volume roads and supports curriculum development at Mid-Western University.

June 2018

Policy success:

Paani helps develop and enact the first of 37 enacted Aquatic Animals and Biodiversity Conservation Acts in Dailekh District, Middle Karnali watershed—paving the way for successful river stretch co-management.

April 2016

Paani program starts

September 2016

Hydropower dialogue kicks off:

Paani and International Finance Corporation kick-off joint Sustainable Hydropower Development dialogue series in collaboration with the International Water Management Institute's Digo Jal Bikas project.

September 2016

Watershed profiling begins:

Paani selects 12 priority watersheds in three river basins and begins mapping the current status and most urgent threats in each.

June 2017

Addressing threats through grants program:

Paani launches USD 4.8 million grants program, funding 54 partners to lead interventions that address priority watershed issues.

October 2018

River stretch handover for co-management:

Kamalbazaar local government hands over the first river stretch (6.5 kilometers), for co-management to “Belkhet-Saikhola” Community Aquatic Animal Conservation Groups, Accham District, Middle Karnali watershed.

September 2018

Mobilizing conservation groups:

Paani forms the first of 101 Community Aquatic Animal Conservation Groups—in Dailekh District, Middle Karnali watershed—to lead river stretch co-management with local government (i.e. municipalities/rural municipalities).

March 2019

Third National River Summit, Rakam:

Paani supports the Third National River Summit, partnering with Nepal River Conservation Trust and Karnali Provincial Government. 200 river stakeholders met on the Karnali River for a dialogue on healthy rivers and formed the “Friends of Karnali” coalition.

August 2020

Nepal’s first river conservation financing mechanisms established:

Paani establishes twin entities, the Karnali River Basin Conservation Fund (an impact investment fund) and Karnali Basin Conservation Foundation (a non-profit distribution entity).

November 2020

Three studies inform energy and hydropower planning:

Paani and WWF consortium release three groundbreaking assessments—the first country wide map of High Conservation Value Rivers; the Energy Options Assessment of least-cost pathways for Nepal’s power system; and the System Scale Planning study on tradeoffs between hydropower production and biodiversity conservation.

June 2021

Data-sharing platform launched:

Paani establishes the Freshwater Center of Excellence at Tribhuvan University Central Department of Environmental Science.

February 2021

Conservation area plan launched:

The Department of National Parks and Wildlife Conservation launches the Rara Lake Ramsar Site Management Plan to conserve and maintain the ecological integrity of Rara Lake Ramsar Site and to promote wise use of wetland resources.

Paani program concludes.

October 2020

National policy support:

The Government of Nepal enacts the Paani-supported National Water Resources Policy which provides a vision for social transformation and economic prosperity with sustainable and equitable development of water resources.

September 2019

Supporting federal policy:

The Government of Nepal enacts the Federal Environment Protection Act, which includes five sections drafted by Paani.

November 2019

First of its kind study informs hydropower advocacy:

Paani grantee, Center for Molecular Dynamics Nepal and US Forest Service employ groundbreaking e-DNA study for the first time in Nepal to assess fish biodiversity. Results guide sustainable hydropower development advocacy.

THE PAANI APPROACH

Goal

The Paani program worked through an integrated approach at the watershed, river basin, and national scales—with an emphasis on 12 priority watersheds in the Karnali, Mahakali and Rapti, River Basins covering more than 876,000 hectares—to fill knowledge gaps, develop watershed management and conservation plans, and to enable legislation that helped communities sustainably support the development goals of multiple water users.

Paani's interventions covered four main components



Engaging stakeholders: Participatory knowledge gathering on aquatic values, threats, and needs, and development of conservation policy instruments.



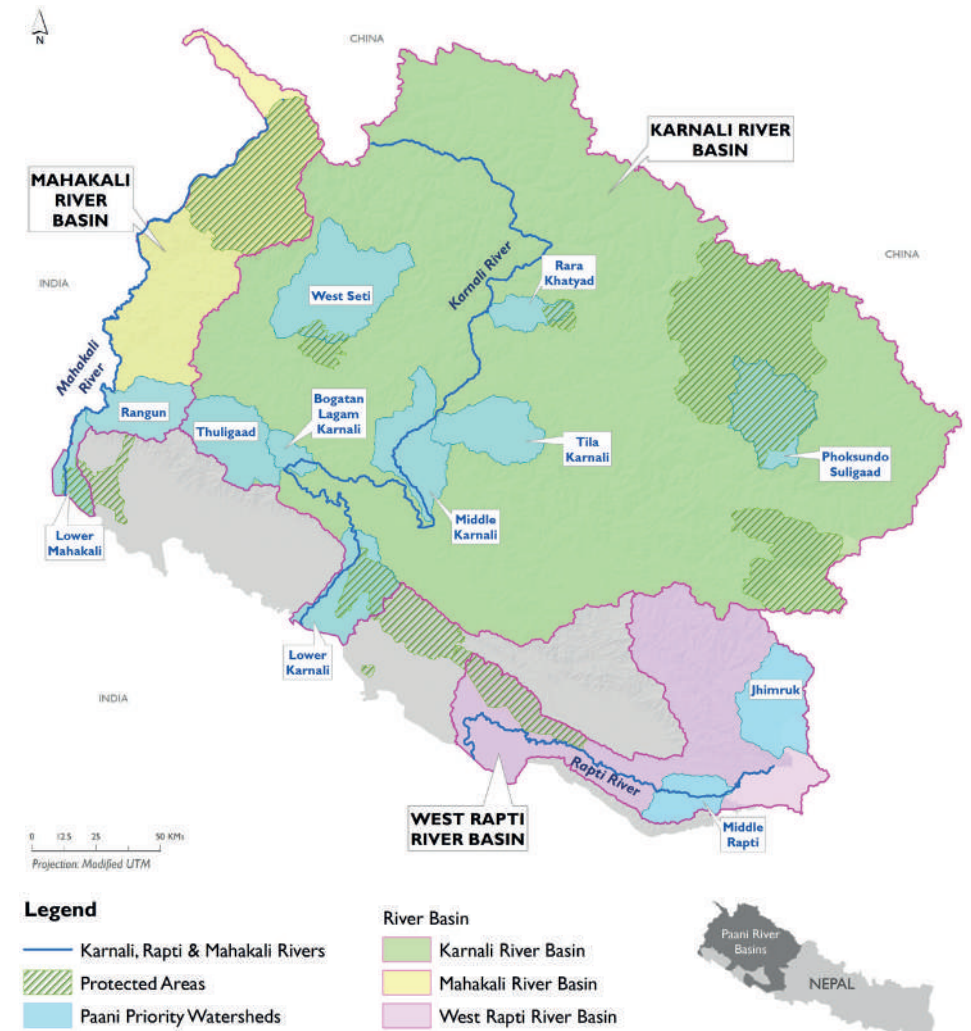
Co-management of rivers: River stretch delineation and hand over to conservation groups to co-manage with their local governments.



Resilience and livelihoods: Ensuring sustainability and strengthening resilience through capacity building and by identifying aquatic livelihood opportunities.



Hydropower and infrastructure: Managing healthy watersheds by promoting the sustainable use of hydropower and environmentally friendly infrastructure development.



Lessons Learned

- Champions at multiple levels contributed to the holistic management and conservation of aquatic resources, from hands-on practices along the river, to policy development.
- Nepal's new Constitution through federalization created opportunities for newly elected leaders to include local voices in decision-making for freshwater biodiversity conservation and to demonstrate positive changes. Local and provincial-level policy engagement resulted in more buy-in as local governments gained more autonomy.
- Hands-on experimentation with low-cost technologies, such as sonar sensor-based flood early warning systems, solar lift pumps, and water mowers for invasive plant removal, often yielded immediate, practical lessons.
- Raising awareness within the Paani Program team on GESI values and benefits led to more inclusive programming.

DEVELOPMENT HYPOTHESIS

If

- There is improved scientific information to inform decision making,
- Better capacity to manage freshwater resources,
- Effective governance,
- Local solutions that enhance resilient livelihoods and promote freshwater conservation, and
- A stronger policy and institutional enabling environment to coordinate the multiple uses of water.

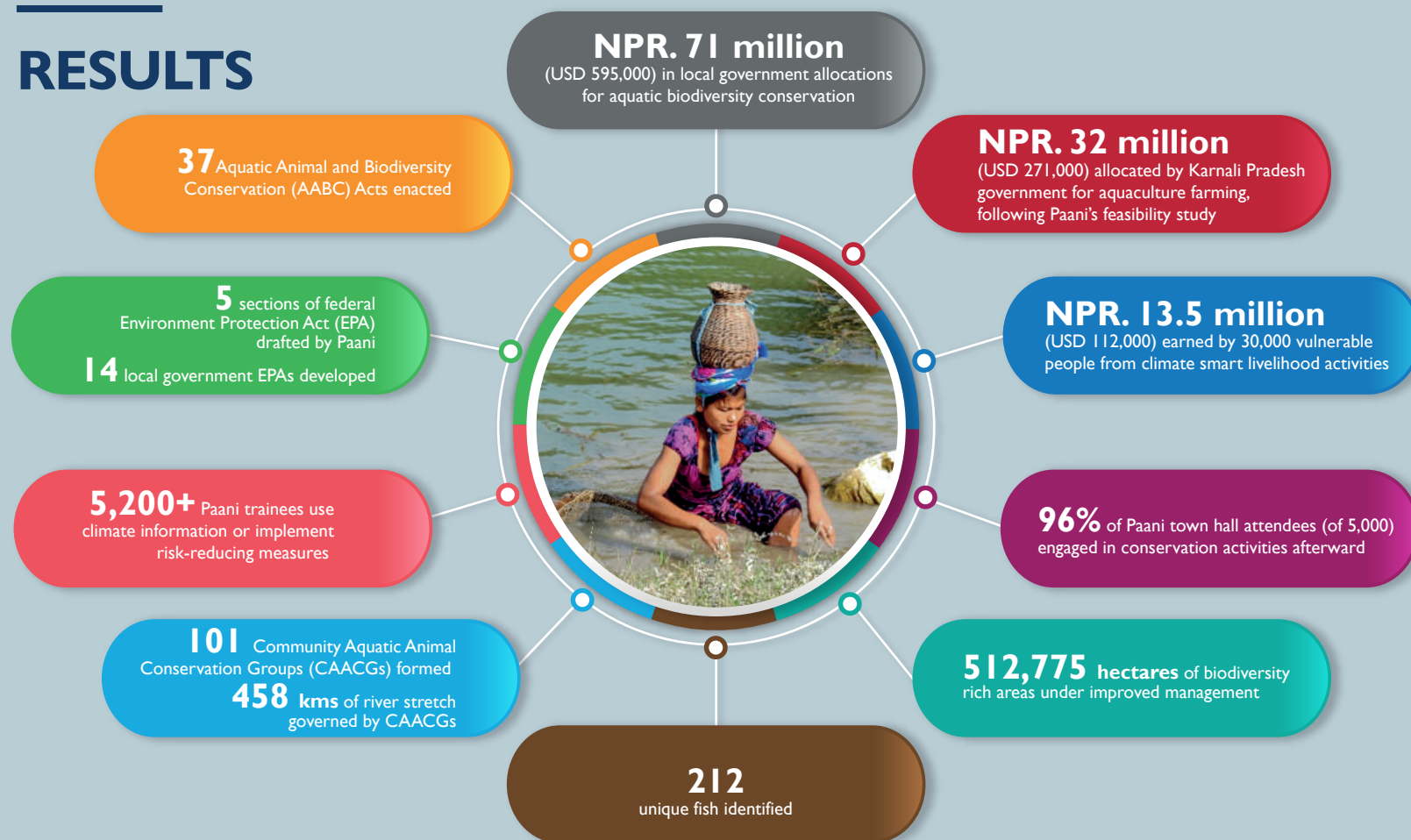


Then

The government and people of Nepal will:

- Conserve freshwater biodiversity,
- Adapt to climate change, and
- Maintain the natural resource base needed for sustainable economic growth.

RESULTS



Lessons Learned

- Paani's USD 4.8 million, flexible, pilot grants program enabled innovation, collaboration, and stewardship to a critical mass of partners and stakeholders.
- Linking river stretch conservation with income generating activities and tangible benefits significantly improved local stakeholders' uptake of new practices and market-led approaches.
- Actively engaging multi-stakeholders was fundamental to promoting a respectful exchange of ideas across disciplines that led to tailored and sustainable solutions.
- Effective advocacy for sustainable hydropower required a strong coalition of like-minded organizations, development partners, and academia at all levels as well as effective coordination.



ENGAGING STAKEHOLDERS

Paani first engaged with communities, local governments, and citizen scientists (public citizens who collaborate in scientific data collection and monitoring), among others, to identify the most pressing threats and needs for watersheds and river system health. This was done through extensive participatory stakeholder engagement and scientific research, including bio-assessments, fish sampling, watershed profiling and river health assessments. The profiles built a common understanding of the current reality of different stakeholders in each watershed and built consensus among them on a shared vision for the future. They guided Paani in prioritizing and tailoring support for each watershed. The research studies identified biodiversity hotspots and potential fish sanctuary sites.

Key finding

From these studies, Paani confirmed that the biggest risks and threats to aquatic biodiversity were over-fishing and destructive fishing practices as well as human-induced threats, such as dams, gravel mining in river beds, rural road construction, the introduction of invasive aquatic species, and pollution.



Citizen scientists assess benthic macroinvertebrates collected along the riverbed.

Citizen scientists use a device for measuring water discharge levels in Thuligaad Watershed.

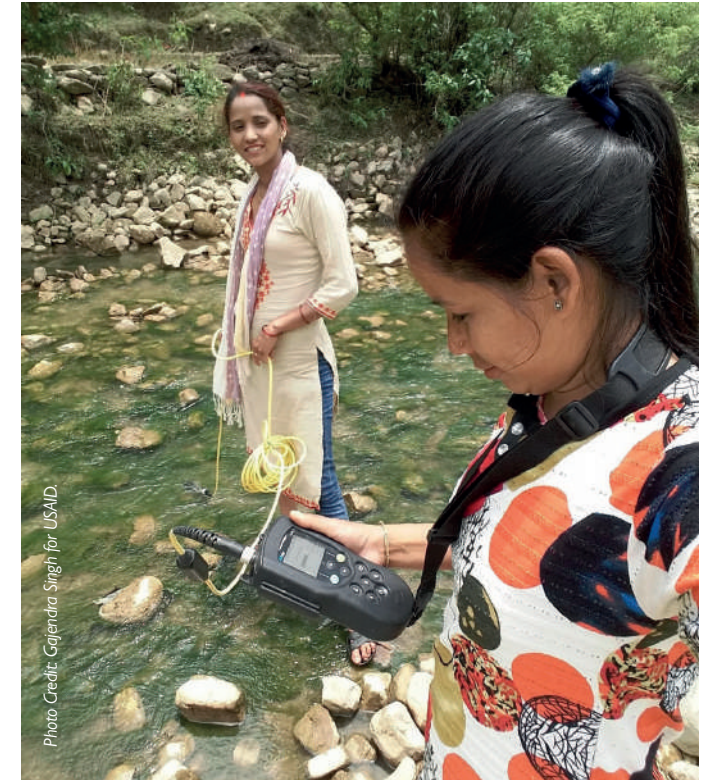
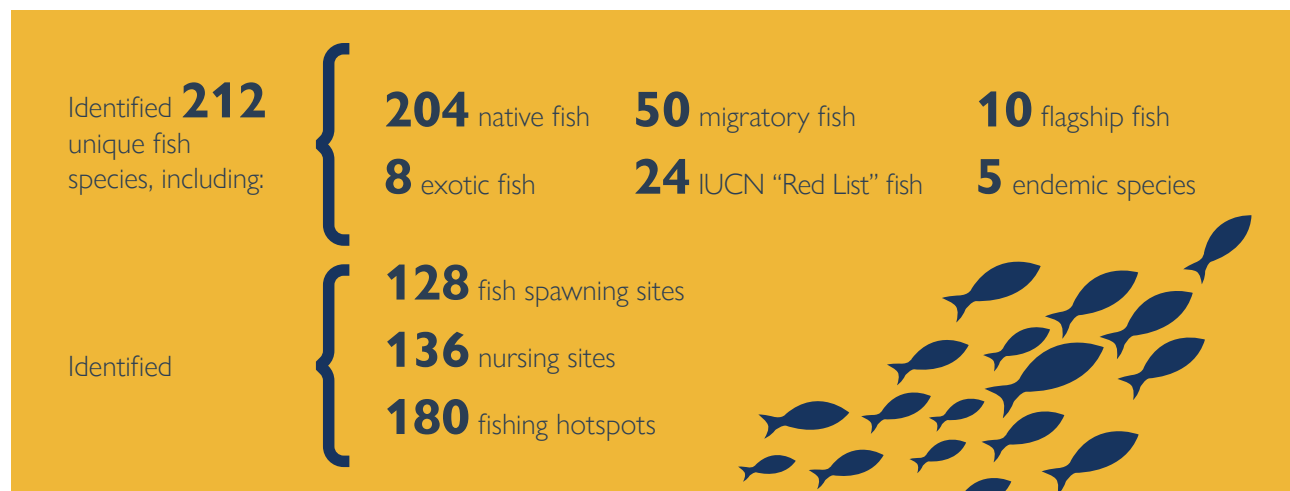


Photo Credit: Gajendra Singh for USAID.



Lessons learned

- > Engaging local stakeholders to create watershed profiles built their trust. Early findings helped Paani credibly engage with government, civil society, and academic institutions, and informed grantee interventions to mitigate identified threats.
- > Paani's large-scale approach to participatory multistakeholder engagement proved to be feasible and successful. Through local stakeholders, Paani identified social capital and potential champions, engaged stakeholders' interests, and involved them in decisions at all levels.



“We are facing serious degradation in biodiversity resulting in natural disasters as well as water source pollution and deforestation. To avoid and control such catastrophes, we are formulating suitable laws and policies with support from usaid paani and WECS.”

— Lal Bahadur Bista, Chairperson of Talkot Rural Municipality.
(Expressed during consultation on Environment Protection Act, West Seti Watershed.)

Paani facilitated a legal framework to drive sustainable river health and engaged advisory committees at the national level around energy options, high conservation value rivers, and systems-scale planning. At the local level, Paani helped local governments draft and pass tailored conservation laws, including Aquatic Animal and Biodiversity Conservation Acts (AABCAs), to protect rivers, ponds, lakes, wetlands, and aquatic species; promote the sustainable use of freshwater biodiversity; enhance livelihoods of river-dependent communities; and provide local governments with the power to declare conservation areas or fish sanctuaries. Paani supported conservation groups and their local governments to implement and enforce the laws.



Members of the Rakam-Karnali CAACG read the AABCA, endorsed by their local government in 2018 with technical support from Paani.

Lessons learned

- The AABC Acts provided an enabling environment for new co-management structures and roles. Inputs and contributions from local stakeholders improved the scope of the bill over time and across watersheds.

Policy support

National level

- National Fisheries Policy incorporated collaborative aquatic resources conservation & management provisions
- 2020 National Water Resources Policy incorporated aquatic resources conservation provisions
- 2019 Federal Environment Protection Act incorporated environmental safeguards provisions

Local level

- Aquatic Animal & Biodiversity Conservation enacted by **37** local governments
- Environment Protection enacted by **9** local governments



CO-MANAGEMENT OF RIVERS

Paani pioneered a collaborative river stretch governance model through which community groups, called Community Aquatic Animal Conservation Groups (CAACGs) are given rights and

responsibilities to sustainably manage, develop, and conserve local river stretches by their local governments, under the Aquatic Animals Biodiversity Conservation Act (AABCA).

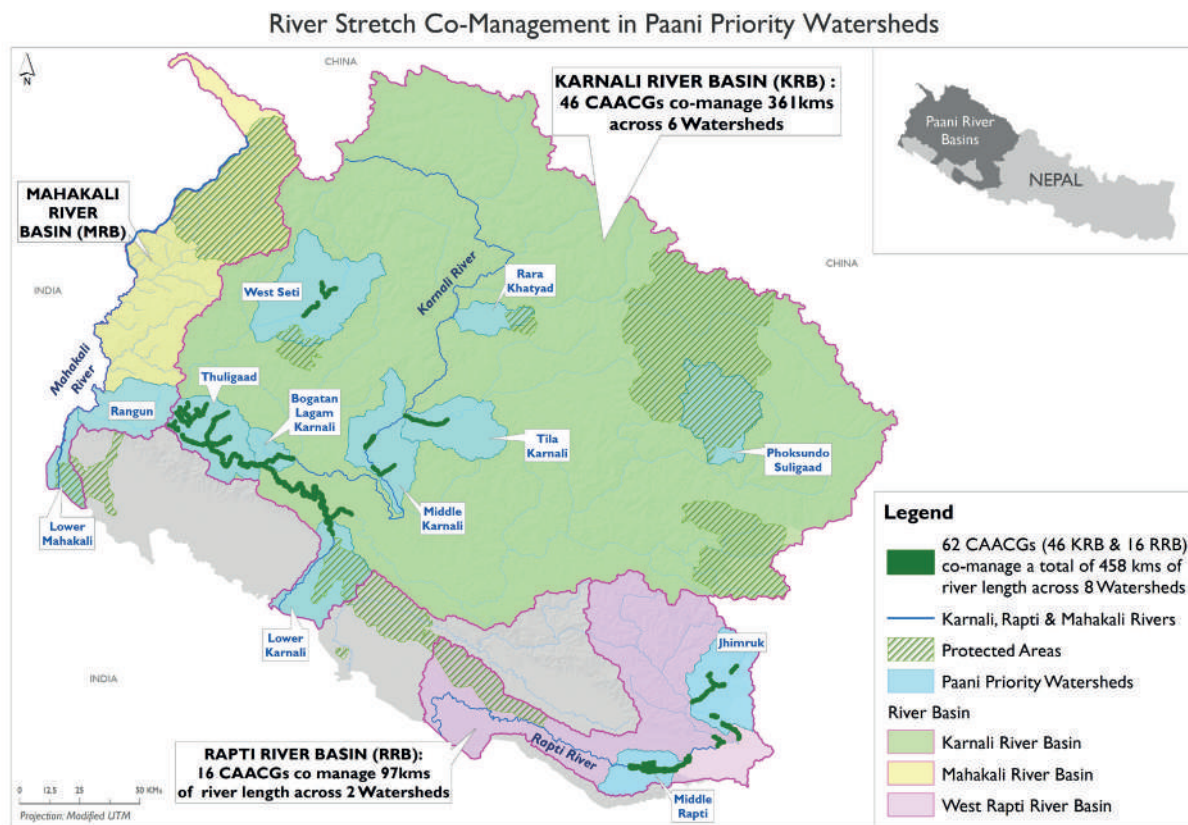
In this model, local stakeholders and local governments jointly manage aquatic resources; use the river stretch in an ecologically sustainable manner; and ensure equitable benefit-sharing to multiple users.



“For generations, fish were an integral part of our culture, in celebrations and in mourning. Without fish, we lose a part of our culture. Yet, before I met experts from the Paani project, I did not know about the importance of the Rapti River and its aquatic biodiversity. To be honest, long ago, I used electrical currents to catch fish. I did not know the damage I was causing.

Now things are different. With help from Paani, we formed the Rawa Fish Aquatic Conservation Group to ensure sustainable livelihoods through fish conservation. We started patrolling the Rapti, with help from the municipality. Now there are laws in place to protect the river and our group has been successful in curtailing illegal fishing practices, with help from the police. Our efforts are paying off and I feel proud. I am making a difference the way I can, the way I know how.”

- Dhan Kumari Chaudhary, Member of Rawa CAACG, Middle Rapti Watershed



A picturesque view of Phoksundo lake from Ringmo Village in Phoksundo Suligaad Watershed.

Tharu woman catching mollusks, in Lower Karnali Watershed.



Photo Credit: Suresh Wagle for USAID

Lessons learned

- > The handover of river stretches helped groups develop a sense of responsibility and commitment to their accompanying rights, which proved to be as important as any other factor of capacity-building. Co-management skills were most effectively developed through active participation in decision-making.
- > CAACG members who live close to the riverside carried out co-management and conservation better than those who reside farther from the river.



Photo Credit: Nabin Boral for USAID

Local fishers selling fish on Karnali River, in Middle Karnali Watershed.

101 Community Aquatic Animal Conservation Groups (CAACGs) formed, governing over **458** kms of river stretch in Nepal.

118 Paani trainings targeted CAACGs and other groups on watershed management, resource monitoring, advocacy, etc. reaching **1,009** group members.



RESILIENCE AND LIVELIHOODS

Paani strengthened community resilience by diversifying livelihood opportunities in the aquatic environment. Paani developed a business case for aquatic resource conservation to reduce aquatic threats, promote sustainable fisheries, and increase incomes of river dependent communities through aquaculture and ecotourism value chains. Alternative livelihood trainings included capacity building on Integrated Fish Farms (IFF) and climate smart vegetable farming, and ecotourism training to local communities on homestay operations and rafting guide training for members of the indigenous Raji river community. This included

Dhansari Raji, the first Raji woman to become a licensed rafting guide in Nepal.

Paani's business case identified supporting roles for government in policy development, the regulatory framework, and infrastructure facilities; and for chambers of commerce and industry in training, extension, and cooperative development for CAACGs who are new actors in fishery value chains. Paani analyzed the fisheries value chain, covering fish harvesting, processing, and marketing.

The Karnali Province Ministry of Land Management, Agriculture and Cooperative (MoLMAC) requested Paani to conduct a feasibility study of aquaculture and culture-based fisheries to reduce pressure on wild fisheries. Paani identified over 2,300 hectares of suitable land area for aquaculture development and, as a result, MoLMAC invested NRs. 32 million (USD 271,000) to establish and expand aquaculture, including fish farms, hatcheries and nurseries.



In 2020, COVID-19 added pressure to Nepal's capture fisheries as river-based communities also experienced increased unemployment, loss of income-generating activities, and an influx of returning migrant laborers. To help these vulnerable river communities cope with the unexpected shock of COVID-19, Paani pivoted USD 1.5 million of its resources to meet their immediate livelihood and food security needs. Paani trained CAACGs and other river dependent communities from nine watersheds in Integrated Fish Farming (IFF). IFF merges fish farming, livestock rearing, climate smart vegetable farming, and irrigation management all in one system. Paani facilitated local government linkages to further support these activities.



“Due to the impact of COVID-19, unemployment increased in my community and pressure on the river for fishing also escalated. Paani supported us with integrated fish farming and climate smart vegetable farming, which began to pave a pathway for our alternative livelihood, food security, and employment—especially us women.”

— Seema Gharti, Secretary of Rakasa Raha CAACG

123 tunnel and climate smart vegetable farms, **71** irrigation ponds, **68** integrated fish farms, and **57** livestock sheds constructed to support local livelihoods (45% women-owned).

30,000 people (mostly vulnerable and/or minority) earned **NRs. 13.5 million** (USD 112,000) in income from Paani-supported livelihood activities.



Paani built the resilience and livelihoods of river-dependent communities through construction of integrated fish farms that merged fish farming with livestock rearing, climate smart vegetable farming, and irrigation management in one system.



HYDROPOWER AND INFRASTRUCTURE

To minimize harm to living river systems, Paani promoted the sustainable use of hydropower and built local capacity to design and advocate for environmentally friendly road construction and infrastructure development.

Paani partnered with US Forest Service (USFS) to build Nepal's capacity to construct and manage sustainable roads by training Nepali engineers on the design, construction, and maintenance of low-volume rural roads. It helped create a "Green Engineering" curriculum for Nepal's Mid-Western University (MWU); and provided a "learning lab" for students to gain hands-on experience through direct work with municipalities.

Paani collaborated with USFS and Paani grantee, Center for Molecular Dynamics Nepal (CDMN) on a groundbreaking environmental DNA (eDNA) study, which compared fish abundance in two different river systems – the Karnali, with no hydropower projects, and the Trishuli, with seven active hydropower projects. The study found tenfold more fish in the Karnali versus Trishuli, confirming that hydropower has a significant impact on aquatic biodiversity.



As part of Paani's groundbreaking eDNA study, citizen scientists (public citizens who collaborate in scientific data collection and monitoring) helped collect and test samples. The vast indigenous knowledge of fish shared by local fisher people fed into the study results.

Paani built Nepal's capacity on sustainable hydropower development through a study tour to the Pacific Northwest, USA for high-level government officials and champions in river conservation, including the Parliamentarian, Secretaries from WECS, Ministry of Energy, Water Resources, and Irrigation, Ministry of Forests and Environment, as well as representatives from Independent Power Producers Association – Nepal (IPPAN) and National Rivers Conservation Trust (NRCT), in collaboration with USFS. Paani also promoted sustainable hydropower development in partnership with the Digo Jal Bikas (DJB) project, led by the International Water Management Institute (IWMI) by supporting research into water resources development in Western Nepal. Paani partnered with International Finance Corporation (IFC) to conduct a sustainable hydropower dialogue series, during which DJB hosted a workshop to promote the use of environmental flows (eFlows) by policymakers.



During a USFS-led study tour to Portland, USA, a team of high-level Nepalese officials and champions visited sites, like this 5km long fish ladder at Bonneville Dam, and shared learnings on sustainable hydropower development and basin planning.

Through USFS, Paani built local capacity to survey and design environmentally friendly rural roads, like this 2 km stretch in Rakam Kamali.



“I have been regularly advocating for an environmentally friendly way of rural road construction with concerned stakeholders and the local government to reduce the high risk of erosion, landslide, and flash floods. Now, local authorities are paying attention to rural road construction.”

— Rabintra Roka, early adopter and champion of environmentally friendly road construction, Airawati Rural Municipality



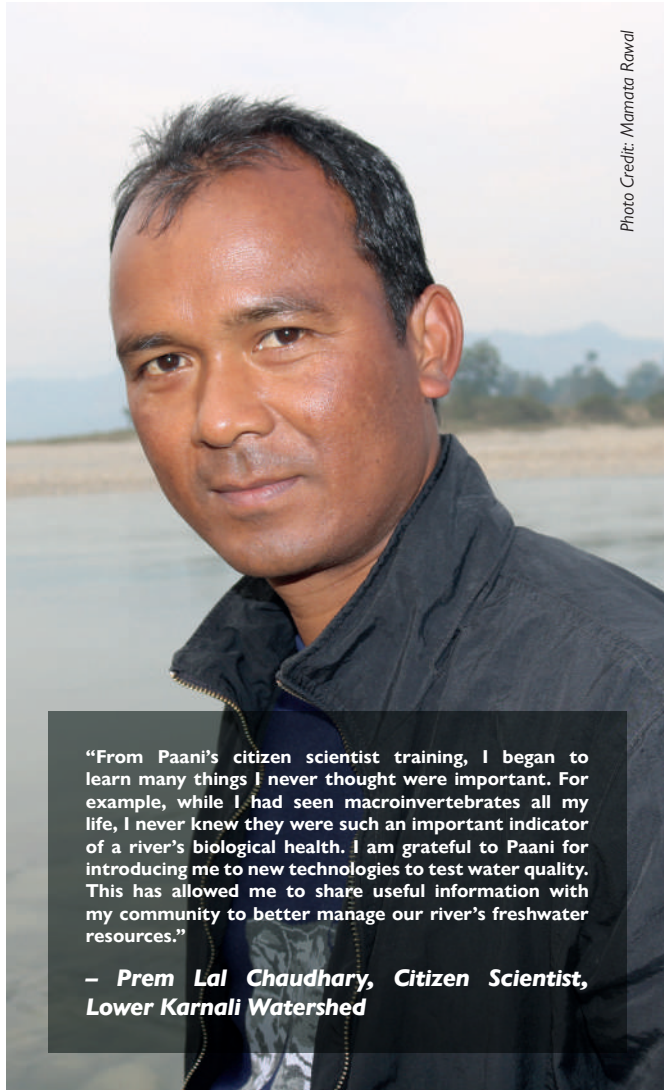
Paani developed this roads poster as part of its advocacy efforts to demonstrate good, environmentally friendly road construction practices.

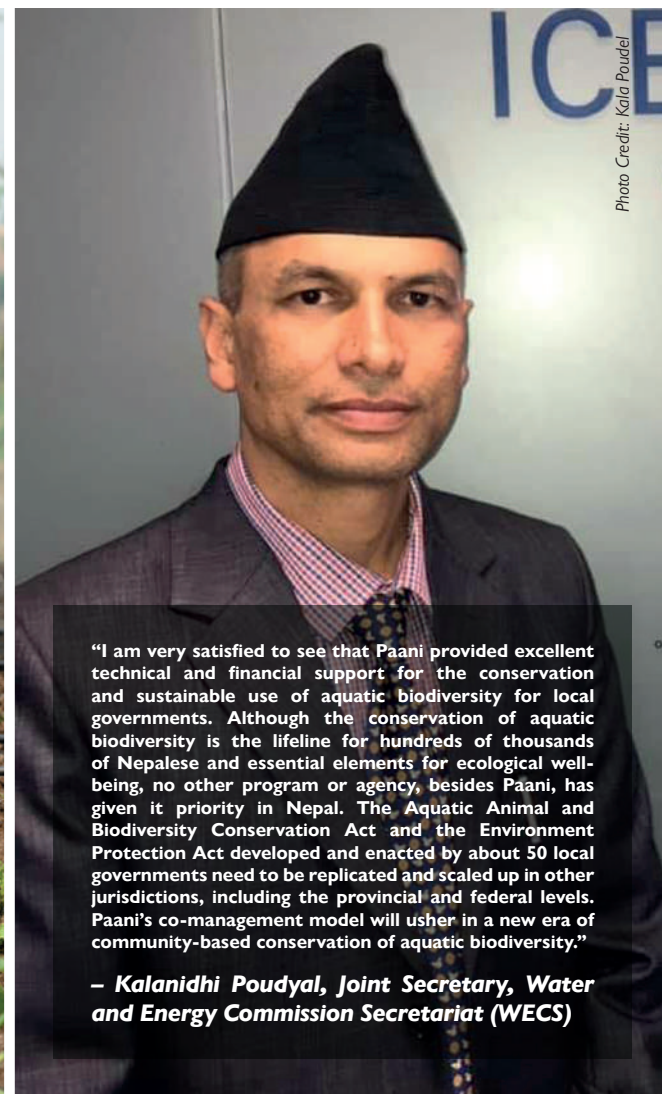


Lessons learned

- Road construction and development standards on sound engineering practices do exist (Nepal Rural Road Standards 2055), but compliance is weak. Nepal would benefit from governance committees' monitoring road constructions, in addition to raising citizen awareness on acceptable road standards.
- Preventing the next bad road and shifting the mindset and practice to environmentally friendly road construction is even more important.
- The most success from USFS's trainings on low-volume roads engineering and watershed management came when participants included younger professionals and non-engineers, rather than only senior district engineers in managerial positions.
- River basin planning, including hydropower and irrigation development, requires informed and accountable decision-making with close involvement of key diverse stakeholders across scales and sectors.
- Environmental flows (E-flows) must be incorporated in the development and management of river based infrastructure to sustain river biodiversity, ecosystem services, and livelihoods. The blanket 10% mandated now is not ecologically or hydrologically tenable.
- Gender equality and social inclusion (GESI) must be integrated into water sector policies, plans and practices.
- The e-DNA tool proved to be a powerful and efficient means for assessing aquatic biodiversity. The use of student interns from local universities and local fishers to collect samples and support analyses benefitted both the students, who gained hands-on experience in cutting edge research, and CMDN, who benefitted from indigenous knowledge.

PAANI CHAMPIONS SPEAK





STORIES OF CHANGE

Kaitini Devi Badi, Doti, Thuligaad Watershed- Kaitini is chairperson of the Paani-supported Karnaso CAACG. She actively promotes the rights of her Badi (Hill Dalit) community, which is dependent on the river for fishing to make their livelihoods.

"Maybe because I don't hesitate to speak out, my community made me the chair of our [CAACG]. To protect the river and the fish is my duty and I take it seriously.

Once during my regular river patrolling, I came across men catching fish with a net that was banned according to the Paani-supported AABCA guideline we created. I was not going to be silent. We confiscated their nets and released their catch back into the river and I went to the authorities for a proper investigation.

Why do I take protecting the fish so seriously? Because this is what we have been doing for our livelihood—for salt, oil, rice, and school for our children. If fishing is not regulated and if people who do not rely on fishing and only do it to reap benefits continue like this, we will have no food on our plates.

It is not only about me. It is also about our [Badi, Hill Dalit] community who has been oppressed, stigmatized, and neglected for decades. The depletion of fish in these rivers affects us more than those who can go to the cities and find work, and those who have land and resources. The effects of these fishing practices are clear. When I ask my husband to go catch fish and manage some salt and oil, he says, 'There are no fish. It is useless going to the river.'

However, I am a strong woman and I do whatever I can to protect the river and fishes. I will chase away those who poison our rivers and I will keep shouting to protect the livelihood of our community, no matter what it takes and no matter how many enemies I make."



Pratiman Gharti Magar, Dadeldhura, Rangun Watershed- Pratiman is the Secretary of the Paani-supported Sim Khola Resource Conservation Group. His water source protection work resulted in restored water for the village.

"My grandmother was a visionary woman. She would tell me about the importance of water. She did not go to school. She did not read about conservation or nature. However, she knew. And somehow, her words became ingrained in my mind.

As I grew up, new roads started to be built in and around these hills. More people came, markets started to become denser and the population increased. There used to be 100 trees for every man. Now there are 100 men for every tree because of deforestation. The whole Chure region became deserted and water became scarce.

I needed to do something about it, so I joined a Paani-supported conservation group that was mapping water sources. We started working to restore water sources, starting with trainings, surveys and discussions with experts and community leaders. We planted trees around the water sources. We built recharge ponds where rainwater would accumulate. We fenced areas to block debris from flowing downhill and blocking the water source.

Eventually, we started seeing changes in the water source. Today, we have enough drinking water and enough water for the animals. It was only possible through collective effort. Thanks to Paani for delivering technical knowledge to help protect our valuable spring sheds that emphasized continuation our own indigenous practice. If my grandmother were alive today, I would take her to these water sources and show her with pride what we have achieved."



***Rajeshwori Devi Khatri, Kailali, Lower Karnali Watershed-
Rajeshwori is a member of the
Paani-supported Community
Based Anti-Poaching Unit in Lower
Karnali Watershed. She leads
the unit that stops destructive
fishing practices and monitors
unsustainable riverbed mining
activities in Karnali.***

"Although I had a difficult life, I have always found peace in nature. Every time there was difficulty in life, I would come to the forest to listen to the birds, or to the bank of the Karnali and listen to the gushing of the rapids. I knew about life—not only human life but also animal and plant life. This love made me start advocating for conservation in Karnali.

The river is being destroyed. Just five years ago, we could cross the river by foot. Now, there is a lot of excavation going on. When they remove the sand, stone, and gravel from the riverbed, the shallow waters become deep. They change course and the whole community must live in fear of the river.

I could sit by the banks of the river and shout at the trucks and the tractors all day, but they are not going to stop excavating. So, my community formed a group to stop this rampant excavation and all the unregulated fishing. Today, we patrol the area in groups of 10 and the group supports me.

I have received a lot of threats, but I am not afraid. I know these rivers and this forest are our gods, which gives us life. We must respect them and preserve them. That is our duty."



***Jamuna Bohora, Thuligad Watershed,
is the Deputy Mayor of Jorayal Rural
Municipality and a key advocate for
conservation in her area. She collaborated
with Paani to formulate and implement
an aquatic biodiversity conservation
law to regulate unsustainable rural road
construction and riverbed mining.***

"I realized that often, conservation and development do not go together. With the start of federalization and local government structure, people want things fast. The building of roads is the promise that every politician uses to lure votes. We need roads and transportation to bring local products from the villages to the markets, but the demand to dig up roads is so high.

Even though there are laws, policies, and guidelines in place to build roads, we find that many times they are ignored. I, as a local representative, have actively spoken with my colleagues about these concerns. I have submitted it in writing and raised my voice because I understand that we have to find a middle path where we can increase convenience for communities while conserving nature and the habitat of other beings who live around us.

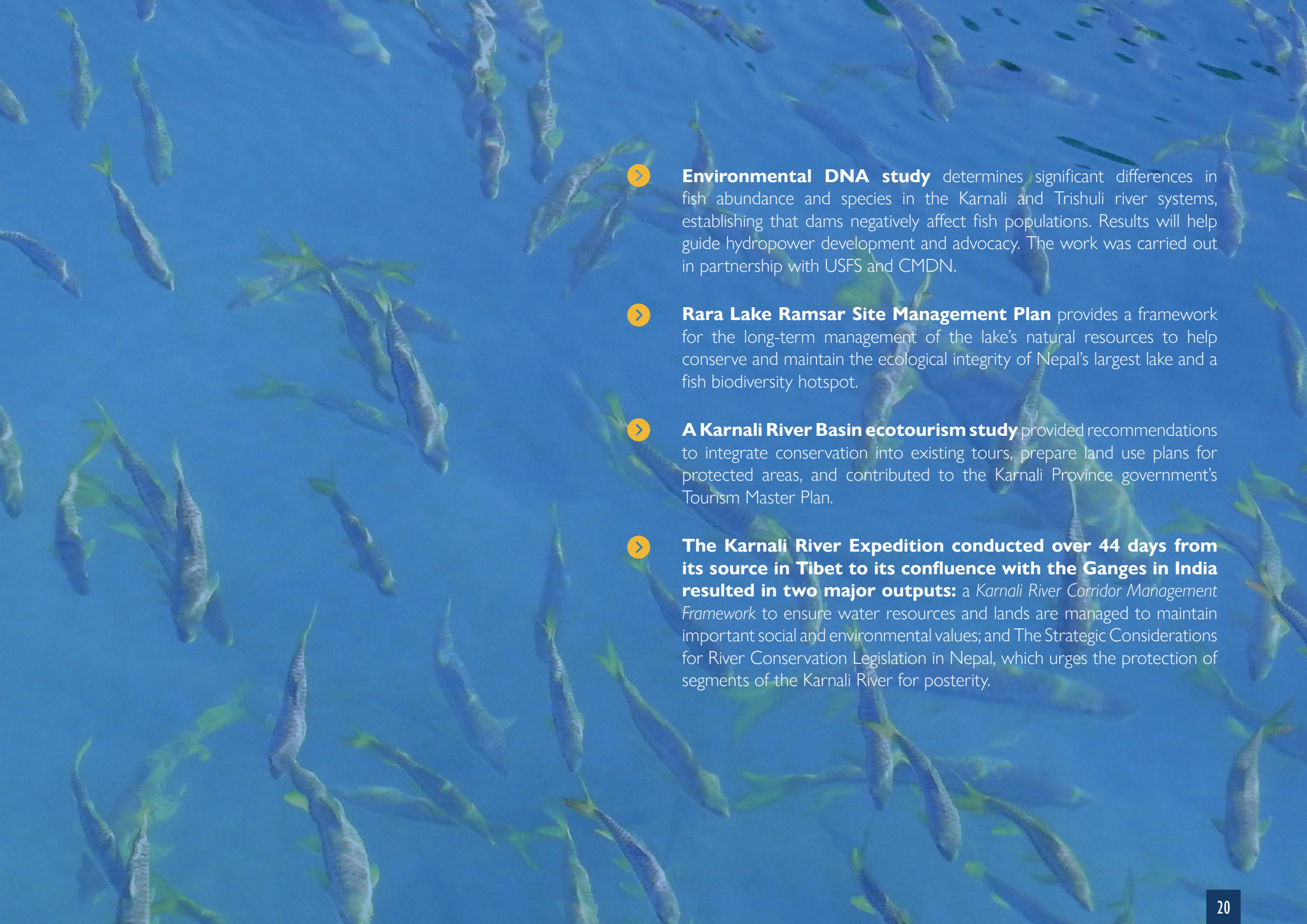
When I was a young girl, we would all go to the local pond to swim. Now, the pond is gone. The water has dried up and people have settled there. It is not only the ponds and water sources that are depleting, but the forests are also being set on fire by villagers due to ignorance. The loss of trees means loss of water. And loss of water means loss of fish. It is all interrelated.

We created an Aquatic Animal and Biodiversity Conservation Act to protect the fish and the aquatic biodiversity. But our conservation will only work if the general public takes it as their social responsibility. Representatives like us can only do so much. We also need public support to save our environment."



PAANI'S LEGACY

- **Freshwater Center of Excellence** at Tribhuvan University's Central Department of Environmental Science will serve as a digital repository for freshwater biodiversity data which can inform river basin planning and decision-making.
- **Karnali River Basin Conservation Fund (KRBCF)** will offer long-term financing for conservation enterprise development, while its twin entity, the Karnali Basin Conservation Foundation (KBCF) will enhance livelihoods and help build entrepreneurial ecosystems.
- **Fisheries value chain assessments inform Nepal's Fisheries Policy:** Paani, through partner, SNV, assessed the value and market nexus of capture fisheries of Nepal. This led to the development of a Fisheries Conservation Governance Framework and Market Development Strategy that informed Nepal's Fisheries Policy and guided investment.
- **Three technical assessments inform river basin planning:** Paani sub-contractor, WWF-US, led a research consortium to conduct (a) a System Scale Planning (SSP) assessment that highlighted how hydropower planning and development can be balanced with other energy options and conservation goals; (b) an Energy Options Assessment (EOA) that produced least-cost pathways for Nepal's power system over the next 20 years; and (c) a mapping of High Conservation Value Rivers (HCVR) of Nepal.

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- **Environmental DNA study** determines significant differences in fish abundance and species in the Karnali and Trishuli river systems, establishing that dams negatively affect fish populations. Results will help guide hydropower development and advocacy. The work was carried out in partnership with USFS and CMDN.
 - **Rara Lake Ramsar Site Management Plan** provides a framework for the long-term management of the lake's natural resources to help conserve and maintain the ecological integrity of Nepal's largest lake and a fish biodiversity hotspot.
 - **A Karnali River Basin ecotourism study** provided recommendations to integrate conservation into existing tours, prepare land use plans for protected areas, and contributed to the Karnali Province government's Tourism Master Plan.
 - **The Karnali River Expedition conducted over 44 days from its source in Tibet to its confluence with the Ganges in India resulted in two major outputs:** a *Karnali River Corridor Management Framework* to ensure water resources and lands are managed to maintain important social and environmental values; and *The Strategic Considerations for River Conservation Legislation in Nepal*, which urges the protection of segments of the Karnali River for posterity.



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