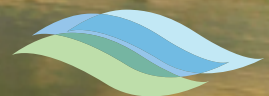


Rivers for Recovery

Protecting Rivers and
Rights as Essential for a
Just and Green Recovery



INTERNATIONAL
RIVERS
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RIVERS WITHOUT
BOUNDARIES

This report is a November 2020 co-publication of:



International Rivers is a global organization with regional offices in Asia, Africa and Latin America that works with river-dependent and dam-affected communities to ensure their voices are heard and their rights honored. The organization helps build well-resourced, active networks of civil society groups to protect rivers and defend the rights of communities that depend on them. It also undertakes independent, investigative research, generating robust data and evidence to inform policies and campaigns. International Rivers is independent and fearless in campaigning to expose and resist destructive projects, while also engaging with relevant stakeholders to realize a world where water and energy needs are met without degrading nature or increasing poverty, and where people have the right to participate in decisions that affect their lives.



RIVERS WITHOUT
BOUNDARIES

The Rivers without Boundaries Coalition is a collaborative international network of organizations and experts dedicated to preserving the health of transboundary river basins in Eurasia through joint advocacy and promoting best practices in river management.

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Cover: *Sunrays over river.* Photo by Johannes Plenio (Pexels).

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EXECUTIVE SUMMARY

Water wave. Photo by Adam Lukac (Pexels).

The COVID-19 pandemic and the resulting public health and economic crises are devastating populations around the globe, affecting marginalized and vulnerable groups most acutely. The massive, transformational shocks these crises have produced for our current economic, energy, and food systems require an equally transformational response, to address widespread economic collapse, hunger, unemployment, and environmental damage, centered in concerns for social justice and ecological integrity.

Rivers and freshwater ecosystems are vital to post-COVID global economic recovery. They underpin our natural systems, provide critical ecosystem services, and work as an economic safety net for the poor and vulnerable in many low- and middle-income countries. Yet, for generations, these arteries of the planet have been dammed, diverted, and polluted at a catastrophic cost to people and Earth's living systems. One in three freshwater species is now threatened with extinction.

Today's tragic pandemic sheds new light on the fundamental inequities and challenges of our time, providing an opportunity to change course on the historic degradation of our rivers and freshwater systems. Our natural systems are integral to life on earth; for too long we have taken them for granted, and

exploited them to drive profit and "development" for the primary benefit of a privileged minority. Globally this trajectory has been unsustainable.

A new paradigm in river stewardship is critical, not only to safeguard the water sources that are indispensable to life and public health, but to help prevent countries bankrupted by COVID-19 from taking on calamitous new debt, as well as to speed a just energy transition and effectively confront the climate crisis. The current push to escalate dam-building in many low- and middle-income countries threatens such progress – a false energy solution that the hydropower industry is promoting under the guise of a "green" economic recovery.

This report explores these issues and calls for a recovery that is rooted in climate justice and protects our rivers as critical lifelines – supporting biodiversity, water supply, food production, Indigenous peoples, and diverse populations around the world – rather than damming and polluting them in pursuit of profit and short-sighted economic growth.

The report's findings reaffirm the conclusions of a wealth of scientific research and technical studies: that hydropower dams typically carry extremely high

environmental and social impacts – they are a false solution and cannot deliver a green recovery. By comparison, investments in decentralized solar and wind technologies, as well as energy efficiency, are affordable and quickly deployable, and can deliver jobs cost-effectively in the economic recovery. In order to rebuild towards a better future, economic stimulus packages should invest in low-impact technologies and those that benefit vulnerable populations and ecosystems, prioritizing community rights and participation, rather than bail out destructive industries that are rapidly losing relevance and financing.

Part 1 of this report explores the multiple crises we are now facing – the COVID-19 pandemic and the looming crises to our climate, water resources, and economic systems – and the ways in which these crises are interconnected.

Part 2 provides insight into the state of our rivers and freshwater resources. This section outlines a case for why we need to rethink, and revalue, these precious resources – both to mitigate the impacts of climate change and water stress and, within the new context of economic recovery and stimulus, to rebuild healthy communities and a healthy planet. We examine the current threats facing rivers and the very recent

destructive impacts of dams brought online globally in 2019. Drawing on these lessons, we propose a ten-point plan outlining what can and should be happening to revalue and protect rivers and freshwater resources during the economic recovery.

Part 3, through a series of case studies, further explores the different pathways to COVID-19 response and economic recovery around the globe. This section provides insights into both the opportunities and the challenges ahead. We use a simple traffic light system to explore the different scenarios, with red representing a pre-pandemic "business as usual" approach, orange highlighting risks alongside an opportunity to change course, and green where we see the possibility of a more hopeful path pointing towards a new future for valuing rivers.

Part 4, the final section of the report, provides detailed recommendations for government, financiers, and international institutions to take critical action towards a recovery that is just and sustainable for rivers and water sources, people, and our planet.

We call for a **green economic recovery** that includes:

- ✓ **A moratorium on new hydropower dams as an essential step towards a sustainable and just economic recovery.*** This should be accompanied by a comprehensive review of energy systems and pipeline projects to prioritize protecting freshwater ecosystems and the community livelihoods and economies that depend on them.
- ✓ **A rapid upscale of investment into non-hydropower renewables and storage, together with policies to facilitate socially and environmentally responsible investment.** Investment should kickstart renewable energy projects, roll out centralized and distributed connectivity, build jobs, and deliver low-cost and low-impact electrification to those experiencing energy poverty. Governments can use incentives to foster upstream value chain investment in local renewable energy manufacturing and assembly.
- ✓ **Upgrades to existing hydropower projects to increase efficiency instead of building new dams.** This can include retrofitting turbines, improved pumped storage, and grid-integration with wind, solar, and other energy innovations. Upgrades should be accompanied by concrete steps to reduce damage to freshwater ecosystems and local livelihoods through robust mitigation and compensation. Dam removal and river restoration should be undertaken when the adverse social and environmental impacts of existing dams cannot be effectively mitigated.
- ✓ **Investment in green infrastructure that protects and restores freshwater ecosystems and biodiversity, alongside laws governing freshwater protection.** This includes ensuring priority to ecosystem services and job opportunities for local communities, and facilitating dialogues between government, private sector, and Indigenous and community water users. Green infrastructure and renewable energy investments must be in line with international human rights standards and environmental safeguards and respect the right of Indigenous peoples and other traditional communities to Free, Prior, and Informed Consultation and Consent.
- ✓ **New energy development plans** that emphasize investment in energy conservation and efficiency, participatory demand-side modelling, and options for smart, distributed energy and mini-grids located close to energy sources and end users, with a focus on community grids and expanded energy access. Governments should halt expensive and long-timeline hydropower projects and then review and update energy plans and reassess options for electrification, ensuring transparency and public participation at all stages of planning and implementation.

- ✓ **Safeguards for protected areas in stimulus and recovery plans.** This includes adopting policies supporting “no go” zones for environmentally destructive investments in protected areas, endangered and vulnerable species habitat, free-flowing rivers, and the territories of Indigenous people and other traditional communities. Identify and halt destructive uses and development pressures on protected areas. Instead of backtracking on existing legislation, governments should strengthen policies to protect rivers, biodiversity and people’s rights.

Conversely, we argue that a **false path to economic recovery** includes:

- ✗ **Expanding crippling debt** for countries already facing economic crises due to COVID-19 and massive debt burdens resulting from shortsighted decisions, such as investing in costly, unprofitable large hydropower projects rather than exploring cost-effective, sustainable, and socially-just pathways for economic recovery.
- ✗ **“Green financing” that prioritizes “green-washed” solutions** including environmentally-destructive hydropower projects that divert scarce funds away from more sustainable solutions, such as decentralized community energy projects and household rooftop solar.
- ✗ **Large centralized grids designed around destructive projects**, such as megadams and fossil fuels. This would lock out transformative capacity and job opportunities for more nimble and distributed energy systems, running counter to the Sustainable Development Goal of sustainable energy access for all (SDG 7).
- ✗ **Ongoing abuse of our freshwater resources** through policies and practices that treat freshwater ecosystems as inexhaustible resources to be exploited for short-term economic growth, and repositories for wasteful patterns of production and consumption.
- ✗ **Weakening of environmental and social safeguards and regulations** to allow the accelerated implementation of infrastructure in the absence of proper environmental review or comprehensive public participation and without respecting the rights of Indigenous peoples and other traditional communities with regard to their territories, self-determination and free, prior and informed consent (FPIC).

*This excludes mini (typically less than 500 Kv) and micro-hydro (less than 100Kv) supported by local communities, projects equipping existing canals, reservoirs and dams with generators, and closed-loop pumped hydro, which does not use natural water bodies as reservoirs.



ARGUN RIVER, SINO-RUSSIAN BORDER | River ecosystems naturally recover their productivity and connectivity by regular floods. Photo by Oleg Goroshko/Daursky Biosphere Reserve.

PART 1: COVID-19 AND RIVERS – WHAT'S THE CONNECTION?



BHUBANESWAR, INDIA | *Fisherman on boat on river.*
Photo by Chinmay Singh (Pexels).

The Great Disruption

COVID-19 is disrupting our world. The pandemic and the emerging global responses are exposing major vulnerabilities and pressures facing people and ecosystems and creating new ones for those already under threat. The causes of the pandemic – while yet to be fully understood – lay bare a flawed relationship with nature and a risk of further crises if we do not arrest the drivers of biodiversity loss and ecosystem collapse.¹

People are dying. Many among the global population face real and urgent vulnerabilities, including the aged and those with existing health issues or who lack access to health care; unemployed, furloughed, and migrant workers; and carers and health care professionals. From the Brazilian Amazon to the United States, many Indigenous peoples, tribal communities, and minorities are falling sick and dying of COVID at rates that exceed those within the general population.² Economies have been hit hard, both domestically and globally.

Marginalized and vulnerable populations are experiencing the impacts of COVID-19 acutely. Women and children all over the world are facing pressures on their food systems and livelihoods, as well as increased gender-based violence.³ Indigenous peoples have suffered the dual threats of the pandemic and the rampant land-grabbing and ecosystem destruction prompted by the opportunistic slashing of environmental and social protections under the banner of COVID “recovery.” Indigenous leaders and environmental and human rights defenders face heightened crackdowns and security threats, rationalized in terms of emergency responses to the pandemic.

The UN Special Rapporteur for Indigenous Peoples recently published a report identifying the ways in which COVID-19 has both exposed and exacerbated the human rights threats and vulnerabilities already faced by many Indigenous communities. These include, for example, a lack of access to health services, discrimination and marginalization, and threats to territories and rights that undermine community resilience and self-subsistence.⁴

Communities around the world face existing water access challenges and energy poverty. In the wake of the pandemic, these are rendered even more visible and urgent. Basic sanitation measures to avoid contagion and transmission of COVID-19 are contingent on access to clean water. Communication and access to information under lockdown require electricity to charge mobile phones and connect to the Internet.

Triple Crises: COVID-19, Inadequate Safe Water, and Declining Natural Freshwater Systems

Despite progress, achievement of the Sustainable Development Goals (SDGs) remains remote.⁵ Globally, 789 million people, 85% of whom reside in rural areas, lacked access to electricity in 2018.⁶ A recent report by UNICEF and the World Health Organization (WHO) found that 2.2 billion people – one in three around the world – still lack access to safely-managed drinking water, and over four billion lack safe sanitation services.⁷ And the challenges are mounting. A predicted 40% shortfall in freshwater resources by 2030,⁸ together with a rising world population and increasing droughts and floods due to climate change, has the world careening towards a global water crisis.⁹

We must urgently rethink the ways we exploit our finite natural systems and the ways we value and protect them. Water – essential to life on earth – is fundamental. Fully 70% of the world’s surface is covered in water, yet only 2.5% constitutes freshwater, and only 1% is available for our use, with the remainder captured in ice or underground aquifers.¹⁰ As of 2019, 17 countries and nearly 25% of the world’s population faced severe water scarcity. By 2050, researchers predict that up to half the world’s population will live in water-stressed areas.¹¹

Rivers and freshwater are crucial in addressing the current global challenges of climate change and accelerated biodiversity loss. Rivers act as arbiters of the world’s carbon cycle, transporting CO₂ from the atmosphere to the ocean – a vast carbon sink that contributes to mitigating climate change. The maintenance of fluvial ecosystems sustains the water cycle and helps reduce climate change-related vulnerabilities. Rivers are vital for conserving and sustaining wetlands, which house or provide breeding grounds for around 40% of earth’s species.¹² Wetland ecosystems, especially peatlands and mangroves, store vast amounts of carbon.¹³ Wetlands also provide protection against floods and storms and help delay the onset of drought, supporting community resilience to climate change and natural disasters.¹⁴

Rivers transport sediment and sustain deltas – global hotspots for food production that are home to over 5% of the world’s population.¹⁵ Freshwater ecosystems provide billions of people globally with water, food, and livelihoods security. In the Lower Mekong Basin, for example, the world’s richest freshwater fishery constitutes the primary protein source for 65 million basin inhabitants.¹⁶

Yet freshwater ecosystems are among the world's most degraded and are currently under threat as never before. Over 70% of the world's large river systems have been dammed and diverted, and no longer flow freely.¹⁷ Water pollution is on the rise. Some 80% of the world's wastewater is discharged – largely untreated – back into the environment, polluting rivers, lakes, and coastal areas.¹⁸ The last 50 years have seen an 83% decline in freshwater species¹⁹ and the loss of 30% of all freshwater ecosystems.²⁰ An estimated 64–71% of natural wetlands have disappeared over the last century due to human activity.²¹

A New Paradigm is Needed for Recovery and Rivers

“We must rethink the future of our environment and tackle climate change and environmental degradation with ambition and urgency. Only then can we protect the health, livelihoods, food security and nutrition of all people, and ensure that our ‘new normal’ is a better one.”

- Joint statement by ILO, FAO, IFAD, and WHO²⁷

Governments are developing post-pandemic recovery plans, building back economies, investing in infrastructure, and delivering social support programs. In doing so, the global recovery represents a critical opportunity to shift course. COVID-19 has already had a major impact in accelerating the clean energy transition, with countries around the world “keeping the lights on” with cheaper and greener energy.²² Along with a sharp drop in global energy demand, the share of renewable energy (primarily wind and solar power) has increased at record levels in many countries.²³ Such progress can be hastened by further stimulating investment and conditioning COVID-19 relief on a green recovery, including the use of sustainable and low-carbon infrastructure and technologies.

False solutions to the current crisis abound. The hydropower industry has seized on the COVID-19 pandemic to position the industry (and the construction of big dams) as central to economic recovery plans and the response to the looming threat of climate change.²⁴

Recent publicity by the industry and its lobbyists builds on past efforts to present hydropower as a clean and green source of energy, ignoring a long legacy of social and environmental catastrophes, economic waste and corruption,²⁵ contributions to global greenhouse gas emissions,²⁶ and the existential threat posed by further dam construction to already vulnerable ecosystems and biodiversity.

The current crises have prompted change in economic policies and energy planning, and they present a critical opportunity to reduce stressors on our river and freshwater systems. It's time to rethink sectors and activities that are destroying the freshwater systems essential to our collective future. Among these is the hydropower industry, the primary focus of this report. The hydropower sector is no longer necessary or economical in meeting energy or other development needs.

With the burden of the climate crisis, massive job losses, and livelihoods under pressure, our natural and life-giving systems are more precious than ever. We must re-envision the future. In the context of the pandemic and the resulting global crises and response, it is time to build a new vision for people, our rivers, and our planet.

This vision must:

- **Respect and protect vulnerable populations around the globe, now and through the COVID-19 recovery;**
- **Expand protections and restoration for rivers and other critical ecosystems on which we all depend; and**
- **Grow investments in renewable energy to radically shift emissions and keep climate change to the 1.5°C target – through divestment from large hydropower, fossil fuels, and other destructive energy sources.**



BRAZIL | Children playing on the Tapajós River - Community of Pimental.
Photo by Brent Millikan, International Rivers.

The World Commission on Dams – Twenty Years On

Twenty years ago, in November 2000, the final report of the World Commission on Dams (WCD) was released after an unprecedented, extensive, and participatory global process of engagement with a wide range of stakeholders on the role of large dams in sustainable development. The WCD was born out of the massive protests against large dams. Their enormous costs on rivers and dam-affected communities had become clear, amid hotly-contested research about dams' benefits – akin in many ways to more recent debates around fossil fuels and climate change. The WCD commissioners, appointed by the World Bank and the International Union for the Conservation of Nature (IUCN), were tasked as an independent body to review the “development effectiveness” of large dams and reflect on the legacy, impacts, and benefits of the “unprecedented expansion in large dam-building” that occurred in the 20th century.

After developing a knowledge base and reviewing the evidence from more than 150 large dams, eight case studies, 17 thematic studies, and more than a thousand public submissions and testimony, the WCD found that dams had delivered development outcomes, but that the benefits had come at unsustainably high environmental and social costs that were unacceptable in today's world.

“...an unacceptable and often unnecessary price has been paid to secure those benefits, especially in social and environmental terms, by people displaced, by communities downstream, by taxpayers and by the natural environment.”

- World Commission on Dams (WCD), Dams and Development, p. xxviii

The WCD's Dams and Development report²⁸ set out a new framework for decision-making around infrastructure. It drew on experiences from around the world to inform a more equitable approach to human development. This approach aimed to

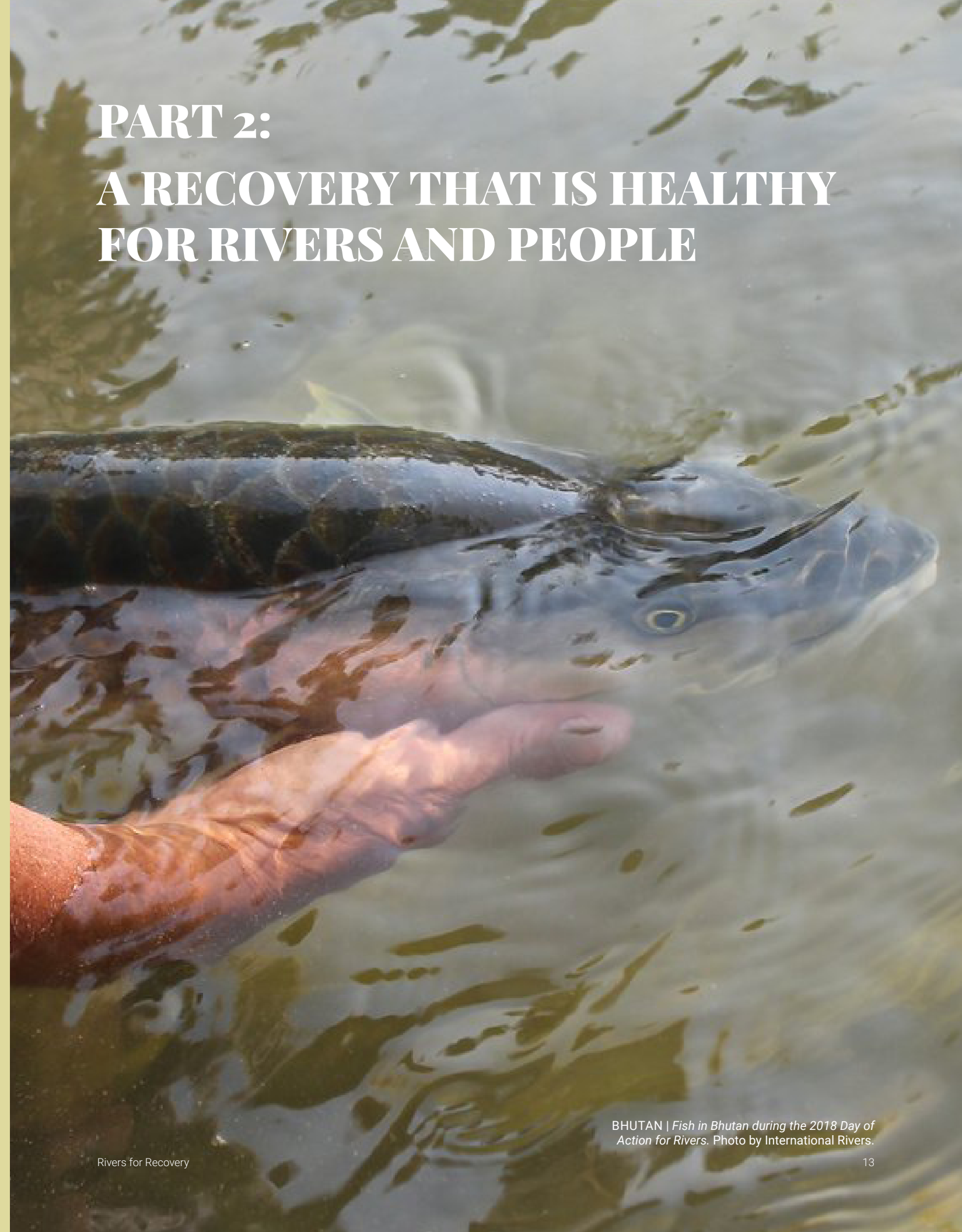
produce environmental and social outcomes that could underpin ecosystem conservation and a more sustainable use of our freshwater resources, with decision-makers accountable to present and future generations.

The WCD provided a policy framework and practical guidelines for recognizing the rights of dam-affected communities and assessing risks when making decisions on water resources and infrastructure development. The report prioritized addressing social and environmental impacts and optimizing benefits from existing dams; it recommended that no new large dams should be developed on the mainstems of rivers. The guidance required that all decisions obtain the Free, Prior, and Informed Consent of Indigenous peoples and that rivers and freshwater resources should be shared for peace, development, and security.

Twenty years on, governments and institutions have taken a variety of steps to adopt, implement, and operationalize the WCD's recommendations, some more effective than others. For example, the United Nations (and subsequently key dam-building actors such as the World Bank and International Finance Corporation) have recognized the right of Indigenous peoples to Free, Prior, and Informed Consent. The importance of considering cumulative impacts in planning at basin and system scale, rather than simply at the level of individual projects, is no longer contested. In some – but still too few – free-flowing river basins, governments have abandoned proposals for mainstem dams. Just recently in the U.S., environmental organizations, researchers, and the National Hydropower Association issued a joint statement agreeing to collaborate to improve the use and effectiveness of existing dams and to remove harmful dams.²⁹

Globally, however, rivers and the communities that depend on them remain threatened. And the fight against destructive, expensive, unprofitable dams continues. The WCD's recommendations remain an important foundation for further innovations as we seek to rebuild economies from the pandemic.

PART 2: A RECOVERY THAT IS HEALTHY FOR RIVERS AND PEOPLE



BHUTAN | Fish in Bhutan during the 2018 Day of Action for Rivers. Photo by International Rivers.

Rivers in Crisis

Rivers and freshwater ecosystems, including mountain glacial headwaters, verdant floodplains, groundwater systems, lakes and deltas, sustain global biodiversity and food security, support agricultural systems, and feed extensive irrigation and inland fisheries. Yet these systems are in crisis. Rivers and freshwater around the world suffer from extraordinary over-exploitation through extraction, pollution, damming, alteration of natural flow regimes, loss of water quality, and changes to river habitats and watersheds.

Due to these pressures, global aquatic biodiversity has declined by 83% in less than 50 years.³⁰ Freshwater vertebrate species are declining more than twice as fast as land-based and marine vertebrates.³¹ One of the main drivers of this loss of freshwater habitat and biodiversity is river fragmentation due to dam-building. Dams and other developments have already fragmented more than 70% of the world's large rivers (>1000km), resulting in critically degraded freshwater ecosystems.³² Large dams cause profound impacts on freshwater ecosystems, disrupting the natural flow of water and sediments, degrading water quality, impeding fish migrations and destroying critical habitat and biodiversity.

The loss and destruction of rivers and vital freshwater systems jeopardizes the resilience and survival of the populations that depend on them. Over recent decades, an estimated 80 million people worldwide have been displaced by dam projects, losing homes, land, and livelihoods.³³ A 2010 study found that due to their impacts on rivers, hydropower projects had compromised the livelihoods of a further 472 million people living downstream from dams.³⁴

With the COVID-19 pandemic, this is more evident than ever. As decreased consumption, tourism, and investment have weakened economies and spurred unemployment, access to river resources has provided a critical safety net for many local communities as a source of food, livelihoods, income, and well-being, and as a central pillar of recovery. Communities with access to natural resources, healthy ecosystems, and sustainable food production have demonstrated greater resilience in the context of the crisis.³⁵ Functioning rivers that support productive fisheries and agriculture will play a critical role in the global economic recovery, delivering food to national and global supply chains and income to local farmers and businesses.

Don't Subsidize the Declining Dam Industry

While healthy rivers are essential to the post-COVID recovery and the resilience of riverine populations, megadam developers and the hydropower industry are not just pushing business as usual, but actively exploiting the pandemic as an opportunity to position big dams as central to the global response. In May 2020, a statement from the International Hydropower Association (IHA) and fifteen national organizations representing the industry called for "a sustainable change of our entire energy system" that centers the ascent of big hydropower.³⁶ Towards this vision, the dam industry has promoted its capacity to be "shovel-ready" as lockdowns ease and economies reopen.³⁷

“Stimulus packages coming out of COVID ought to be considered to go towards projects like hydro. [...] The challenge is that if we are to ramp up and reach the targets... we need to put in around \$100bn a year.”
- Roger Gill, President IHA.³⁸

Despite publicity efforts, there is clear evidence that the hydropower industry is in fact struggling to maintain relevance and garner financing. According to REN21's Renewables Global Status Report 2020, "the global hydropower market, as measured in annual capacity installations, contracted in 2019, continuing a multi-year trend of deceleration."³⁹ Global installation of new hydropower was under 13,000 MW in 2019, 40% less than 2018.⁴⁰ At the same time, 98,000 MW of solar and 48,000 MW of wind came online, and the share of hydropower in newly-installed renewable capacity shrank to just 7%, from 29% in 2014.⁴¹ International Renewable Energy Agency (IRENA) figures show that over the past five years, the increase in renewables installations associated with the clean energy transition corresponded with a 55% decrease in annual hydropower installations.

Looking forward, IRENA's estimates for meeting global climate change targets⁴² sees new hydropower and pumped storage making up less than 7% of newly-installed generation by 2050 (850 GW of hydro, alongside 5,400 GW of wind and 8,200 GW of solar power).⁴³ In this scenario, hydropower will not play any significant – let alone transformative – role in new energy systems.

Yet even this proposed increase, amounting to 60% of current global installed capacity of 1,300 GW, is nonetheless extremely fraught, given the threats large hydropower poses to ecosystems, biodiversity, freshwater resources, and human rights, and the urgent need to protect the world's remaining free-flowing rivers from fragmentation and destruction.

“For the first time, there are viable renewable alternatives to the high-impact hydropower dams that are currently proposed on many of the world's remaining free-flowing rivers – a development path that could trigger a range of negative impacts, including displacement of communities, and the loss of productive freshwater fisheries and much of the sediment needed to keep economically crucial deltas above the rising seas.”

- WWF & TNC, *Connected and Flowing*, p. 2

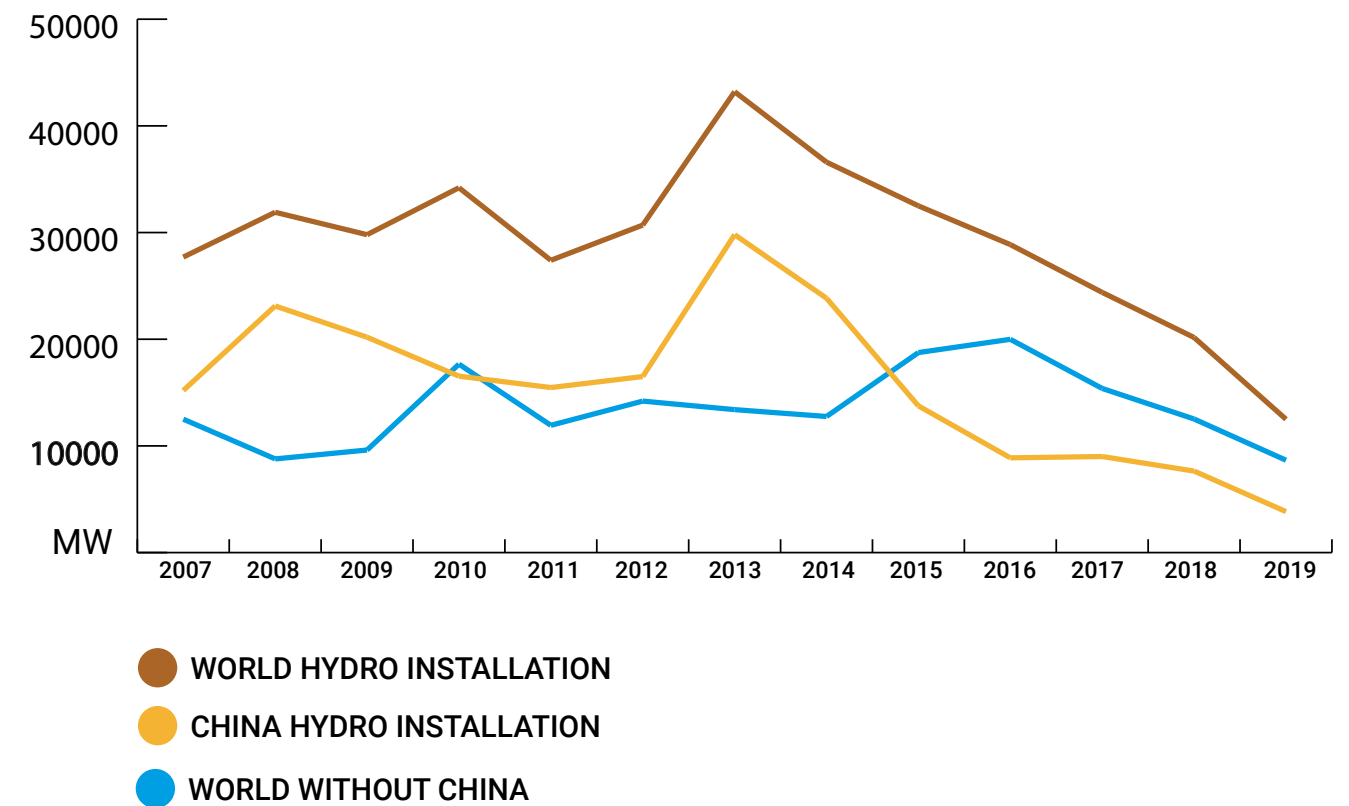


Figure 1: Newly installed hydropower capacity in 2019 was approximately one-third of the capacity brought online in 2013. China is responsible for the largest share of global hydropower development. Source: IRENA.

Hydropower in 2019 – A Parade of Destructive Projects

For years, in an attempt to respond to the WCD findings, the hydropower industry has repeated the mantra of “sustainable hydropower,” promising a departure from the destructive practices of the past. Despite this, much of the new hydropower capacity that came online during 2019 – outlined in the IHA’s latest Hydropower Status Report⁴⁴ – is sourced from controversial projects with extensive and well-known adverse impacts.



TURKEY (+219 MW)

Construction of the Ilisu Dam in Turkish Kurdistan was completed and the project reservoir commenced filling in July 2019. The project blocks the Tigris River, destroying important biodiversity and displacing 50,000 people, the majority of whom are ethnic Kurds. Despite local and international outcry, the Ilisu Dam submerged the ancient town of Hasankeyf, one of the world’s oldest continuously inhabited settlements and a prospective cultural World Heritage site,⁶¹ together with its important archeological areas. The dam also threatens the Mesopotamia Marshes World Heritage site downstream in Iraq.⁶²

TAJIKISTAN (+600 MW)

Tajikistan installed the second 120 MW turbine at the construction site of the 3,600 MW Rogun hydropower project in the headwaters of the Aral Sea Basin. The project will exacerbate already acute water shortages and impact agriculture in downstream areas – an important source of livelihoods for millions of people.⁵⁷ The Rogun Dam represents the single largest contribution to Tajikistan’s critically high foreign debt and is among a list of projects civil society groups urged China to exclude from COVID relief funding under the Belt and Road Initiative.⁵⁸

CHINA (+4,170 MW)

The newly-operational 990 MW Wunonglong and 920 MW Dahuqiao dams brought the total number of dams on the Lancang River (Upper Mekong) in China to 11. This hydropower cascade has contributed to an unfolding ecological disaster downstream in the Lower Mekong Basin,⁵⁰ exacerbating drought conditions and producing historically low water levels that have wrought havoc on ecosystems, biodiversity, and livelihoods.⁵¹ Experts predict that the combined impacts of dam construction on the Lancang and in the Lower Mekong Basin will reduce sediment flows to the Mekong Delta in Vietnam by up to 96% by 2040,⁵² threatening the collapse of the region’s “food bowl.” Other new hydropower capacity in China added further pressure on the Yangtze Basin ecosystem.

BRAZIL (+4,919 MW)

The final turbine of the Belo Monte Dam – the world’s fourth-largest hydropower project – was inaugurated. The project, highlighted in the IHA Status Report as a major success, is sited on the Xingu River, one of the Amazon’s major tributaries, and has gained worldwide notoriety as emblematic of a wasteful and destructive mega-project. With a price tag of over \$10 billion and fraught with massive corruption scandals,⁴⁵ Belo Monte will produce only a fraction of its 11 GW capacity due to the seasonality of the Xingu River, which is being intensified by climate change and upstream deforestation. These issues were downplayed during project planning. The project has displaced thousands of families from the project reservoir and devastated freshwater ecosystems, flooded forests, and harmed fish biodiversity downstream along the 100km “Big Bend of the Xingu,” a lifeline for Indigenous peoples and traditional communities.

The 480 MW Sinop Dam came online, the first in a cascade of four large dams on the Teles Pires River, a major tributary of the Tapajós and one of the Amazon basin’s most important rivers. The project, controlled by a consortium led by Electricité de France (EDF), has been the subject of lawsuits due to issues that include a deficient environmental impact assessment, non-compliance with environmental licensing conditions, and unjust compensation.⁴⁶ Sinop is among the highest emitters of greenhouse gases among Amazonian dams, due in part to non-clearance of tropical vegetation its vast reservoir. Dam operations have resulted in massive fish kills, halting the project on two occasions.⁴⁷ The Munduruku indigenous people have denounced the impacts of Sinop on their rights and livelihoods.⁴⁸ The 350 MW Baixo Iguaçu Dam also commenced operations, affecting two contiguous World Heritage sites at the spectacular Iguaçu Falls in Brazil and Argentina.⁴⁹ The project has not undertaken a joint impact assessment or implemented mechanisms to cooperate on water management, despite requests from the World Heritage Committee.

BHUTAN (+720 MW)

Bhutan completed the 720 MW Mangdechhu Dam on a major tributary of the Manas River. Along with existing dams in the Manas Basin, the project is predicted to contribute to the degradation of wetlands and forests downstream in the Manas World Heritage site across the border in India⁵⁵ and cause extensive suffering for local people in India’s Assam state.⁵⁶ The Kingdom of Bhutan has failed to respond to multiple requests from the World Heritage Committee for a proper impact assessment addressing downstream impacts.

UGANDA (+260 MW)

Uganda completed construction of the Isimba Dam on the White Nile River, despite the fact that it is flooding a World Bank-supported biodiversity offset established to protect critical freshwater species and an important cultural site. An investigation conducted by the World Bank Inspection Panel⁵⁹ found that the dam’s EIA was flawed and failed to properly identify impacts on the offset area. The Isimba Dam has crippled the whitewater tourism industry, which served as the largest source of direct and indirect employment in an underserved part of the country. Thousands of people displaced by Isimba were either undercompensated or not compensated at all, with the majority left landless and deeply impoverished.

ETHIOPIA (+254 MW)

The multipurpose Genale Dawa III (GD3) project in Ethiopia was commissioned in 2019 after nine years of construction. GD3 is designed to generate 254 MW of power while also storing water in its reservoir for an ambitious irrigation scheme for commercial agricultural investments in southeastern Ethiopia. The dam will entail significant impacts on Somalia, severely restricting flows into Somalia’s Juba River. The Juba is one of only two perennial rivers in Somalia, and it accounts for most of the country’s agricultural production. GD3 is expected to reduce the Juba’s flows by between a quarter and a third, with major consequences for Somalia’s food security.⁶⁰

LAOS (+1,892 MW)

The 1,285 MW Xayaburi hydropower project came online in October 2019, the first dam to obstruct the lower Mekong mainstream. From its inception, the dam has been highly controversial due to its impacts on the river system, including transboundary impacts in neighboring countries.⁵³ The dam is predicted to block fish migration and alter seasonal flow regimes, causing a catastrophic decline in the river system’s rich fisheries, which underpin food security in the Mekong Basin, and threatening the livelihoods and sociocultural systems of millions of people. The 260 MW Don Sahong Dam, the second on the lower Mekong mainstream, also commenced operations. The project blocks a critical fish migration route, disrupting life cycles and breeding grounds for hundreds of species, as well as destroying the habitat of endangered populations of the Irrawaddy dolphin.⁵⁴

Challenging the “False Promises of Hydropower” at the 2019 World Hydropower Congress

The hydropower industry’s 2019 biennial World Hydropower Congress in Paris focused on promoting the role of hydropower in delivering on the Paris Climate Agreement and the Sustainable Development Goals.⁶³ The Congress’s theme was an effort to garner climate and development financing as governments transition to a low-carbon energy future. The deceptive messaging proffered by the industry was countered in an alternative conference and a high-profile protest that drew a rich and diverse crowd of participants, including scientists, activists, and leaders of the indigenous Mundurucu people from the Brazilian Amazon.

Participants launched a joint declaration, “False Promises of Hydropower: Why Hydroelectric Dams Will Not Deliver the Paris Climate Agreement and the UN Sustainable Development Goals,”⁶⁴ signed by 250 civil society organizations from over 70 countries. The declaration points to hydropower’s long and well-studied track record of destroying biodiversity and ecosystems, causing the mass displacement of Indigenous and local people, contributing to greenhouse gas emissions (especially in tropical regions), and increasing climate-related vulnerabilities and risks.

The declaration also points to hydropower’s cost overruns and construction delays, its complicity in massive corruption schemes, and its declining economic competitiveness in the face of technological innovations in solar and wind generation. It calls on governments and institutions to steer priorities, investments, and financial incentives away from new hydropower projects and towards energy efficiency and truly sustainable renewable energy options. It calls for the permanent protection of the world’s last free-flowing rivers. This includes elimination of financial incentives for new hydropower projects within climate finance mechanisms, such as the Green Climate Fund and Climate Bonds Initiative.



PARIS, FRANCE | 2019 IHA Protest. Photo by Todd Southgate.

THE DECLARATION IS AVAILABLE IN ENGLISH, CHINESE, PORTUGUESE, RUSSIAN, AND SPANISH AND CAN BE DOWNLOADED HERE:

www.internationalrivers.org/news/a-joint-statement-by-civil-society-organizations-on-occasion-of-the-2019-world-hydropower-congress-in-paris/

Getting the Economic Recovery Right for Rivers

Rather than repeating past mistakes, the COVID-19 recovery offers an opportunity to re-envision the future. Economic recovery stimulus plans should focus on flexible measures to revive the economy and do away with inefficient policies and projects. Large hydropower dams, often characterized by long implementation periods, high investment, a lack of adherence to social and environmental safeguards,⁶⁵ and the likelihood of corruption and mismanagement,⁶⁶ are prime candidates for cancellation. Doing so is not only possible, but backed by evidence that cuts across social, environmental, and economic concerns. Better alternatives are available – and essential – in ensuring a truly green and transformative recovery.⁶⁷

1. THERE ARE BETTER WAYS TO BOOST EMPLOYMENT

The hydropower industry estimates⁶⁸ it will add 600,000 skilled jobs over the coming decade – with \$1.7 trillion of investment required, based on a cost of \$2m/MW.⁶⁹ But because hydropower has a smaller number of personnel per unit capacity, developing equivalent capacity in other renewable energy would yield as much or a higher number of workplaces and jobs, with a lower price tag.⁷⁰

“Solar photovoltaics (PV) – a segment that looked almost avant-garde just a decade ago – accounts today for some 3.8 million jobs, or nearly a third of the sector total. Growing shares of those jobs are off-grid, supporting productive use in farming, food processing and healthcare in previously remote, isolated, energy-poor communities.”

– IRENA⁷¹

2. THE COST OF NON-HYDRO RENEWABLES IS PLUMMETING

Hydropower is neither an affordable nor an efficient source of low-carbon energy. Hydropower is the only widespread non-fossil fuel energy source for which both the cost of construction and the levelized cost of electricity (LCOE) have increased over the past decade. According to IRENA estimates, solar photovoltaic (PV) shows the sharpest cost decline at 82% over 2010-

2019, followed by concentrated solar power (CSP) at 47%, onshore wind at 40% and offshore wind at 29% over the same period. Conversely, hydropower has shown a 27% cost increase since 2010, with the cost in 2019 reaching 0,047 USD/kWh – approaching the cost of onshore wind at 0,053 USD/kWh. In 2019, the construction costs of hydropower increased by 20% from 2018 to 1,704 USD/kW, while construction costs for onshore wind decreased to 1,450 USD/kW in 2019, and costs for solar PV fell sharply to 995 USD/kW.⁷² What’s more, these figures do not factor in the large cost overruns, vast capital costs, and “externalized” social and environmental impacts that typify large dams.⁷³

3. ADDRESSING THE DEBT BURDEN

Countries that rely heavily on hydropower are, on average, poorer, more corrupt, and less resilient than countries with more diversified energy systems.⁷⁴ Many of the countries leading in new hydropower installation in 2019 also experienced economic problems, including crises in governance and high levels of public debt.⁷⁵ Some are now seeking debt relief in the economic downturn. This includes Laos, which ranks amongst the countries with the largest difference between the proportion of government revenue spent on healthcare versus external debt payments.⁷⁶ In mid-2020, Laos’s credit rating was downgraded, indicating the potential risk of default.⁷⁷ Analysts have pointed to financing for the country’s extensive hydropower development as contributing to ballooning public debt.⁷⁸ Laos and other countries face a debt burden that has contributed to the stripping of social safety nets and reduced investment in public health, leaving populations vulnerable to both health and economic crises.



LAOS | Nam Ou River. Photo by Andrey Ralev, Perangua.



Kalagala Falls on the Nile River. Photo by International Rivers.

4. THE NEED FOR CLIMATE-RESILIENT INFRASTRUCTURE

Governments should give priority to investment in flexible infrastructure and energy systems that can withstand changing weather patterns and help societies remain resilient in the face of shocks and crises. Hydropower is highly vulnerable to climatic fluctuations, which are predicted to increase due to climate change. Over the last few years, extended drought and low water levels have brought crippling energy shortages to many countries that rely excessively on hydropower, including Brazil, Ethiopia, Cambodia, Tanzania, Georgia, Tajikistan, and Zambia, among others. Extreme rainfall increases the risk of dam failure and massive flooding due to sudden water releases. In 2018, floods caused major devastation in parts of Laos and the Lower Mekong Basin, exacerbated by sudden water releases by dams to cope with the heavy rainfall.⁷⁹

5. PRIORITIZING NATURE-BASED SOLUTIONS

Nature-based solutions (NbS) are activities that address societal needs and challenges, such as climate change and development, by working with nature and drawing on the diverse services provided by healthy ecosystems.⁸⁰ For example, NbS can help address social needs such as flood control and climate change by restoring wetlands, peatlands, and mangroves and protecting primary forests. Free-flowing rivers provide a wide range of services and benefits that are often undervalued. For example, they recharge groundwater, provide for the health and survival of fish populations, support freshwater and terrestrial habitats and biodiversity, and transfer sediments to deltas and floodplains, bolstering agricultural productivity and reducing the impacts of floods and droughts.⁸¹

“Nature based solutions are [defined] as actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.”

- International Union for the Conservation of Nature (IUCN)

Conversely, large hydropower projects tend to compete with the environmental values and ecosystem services within a river basin. Examples of this include destroying the productivity of native fisheries or stopping seasonal high flows from naturally overflowing their banks, recharging floodplains and wetlands, and connecting habitat for fish and other aquatic species.

Dam proponents often cite flood control as a rationale for building dams, however, hydropower dams often fail to fully prevent flooding risks, and can even exacerbate risks due to the inherent contradiction between storing water for energy and keeping reservoirs at low levels in anticipation of flood. This has been vividly demonstrated by the limited utility of the China Three Gorges Dam in flood control during 2020's heavy monsoon season and extreme flooding in the Yangtze Basin.⁸² Re-envisioning how we manage river basins and prioritizing green over "grey" infrastructure provides a more sustainable pathway, and one that can generate jobs and enhance a community's climate resilience.

6. SAFEGUARDING BIODIVERSITY IN AN ERA OF MASS EXTINCTION

The COVID-19 pandemic has spotlighted an urgent need to protect threatened biodiversity and safeguard protected areas and other environmentally sensitive areas that house critical ecosystems and species.⁸³ This includes free-flowing rivers. Economic recovery plans should strengthen and prioritize these protections, rather than weakening and eroding them. The downstream impacts of large dams, including the loss of river basin connectivity, threaten the survival of many fish and aquatic species globally.⁸⁴ For example, experts predict that planned hydropower in the Mekong Basin will wipe out over 100 fish species in a system that houses the world's largest freshwater fishery and is the third most biodiverse river basin on the planet.⁸⁵ These extinctions are already happening: The Gezhouba Dam on the Yangtze River caused the recent extinction of the Chinese paddlefish, recognized by scientists in late 2019,⁸⁶ when the dam cut the species off from its native spawning grounds upstream.

7. PRESERVING AND EXPANDING PROTECTED AREAS

Although hydropower installation has slowed in recent years, proposed projects are increasingly encroaching on the world's last protected – and often most biodiverse – areas. There are already 1,249 large dams in protected areas, and a recent study found that governments have proposed constructing an additional 509 dams in these areas (this represents 14% of the global total currently planned or under construction in the next two decades).⁸⁷ These projects are poised to wipe out critically endangered species. In Sumatra, the planned Batang Toru Dam threatens the critically endangered Tapanuli orangutan,⁸⁸ while in Guinea, the Koukoutamba Dam would imperil the



SUMATRA, INDONESIA | Tapanuli Orangutan. Photo by Tim Laman (Wikimedia Commons).

endangered western chimpanzees.⁸⁹ World Heritage sites are not immune, either: the proportion of natural World Heritage sites threatened by dams has increased by almost 20% since 2013. A recent civil society assessment found that more than 40 World Heritage properties are either affected or seriously threatened by hydropower dams.⁹⁰

8. MITIGATING VULNERABILITY TO PANDEMICS AND OTHER CRISES

COVID-19 has further exposed the vulnerabilities of hydropower projects to the impacts of a global pandemic. While many industries and their global supply chains have been affected, hydropower construction is highly labor intensive (often relying on outside or foreign labor forces) and is already subject to extensive cost-overruns and delays.

During the pandemic, hundreds of projects have stalled due to bans on migrant labor and a halt to flows of people and goods. In some places where construction has continued, it has induced social tensions and protests. In Lamjung, Nepal, local communities blocked the access road and prevented trucks from passing through the village to protest the violation of quarantine restrictions by the Zhejiang Hydropower Construction and Installation Company.⁹¹ In Russia, ongoing construction of the Beloporozhskaya Dam, sponsored by the BRICS New Development Bank, led to an outbreak of coronavirus infection in remote districts of the Republic of Karelia.⁹² In Pakistan, 3,000 construction workers at the Karot hydropower station filed a complaint over failures to ensure worker health and safety in the context of COVID-19.⁹³ In this context, smaller, localized and community-run energy projects can be brought online much faster, and are less vulnerable to the risk of extended delays or foreign workforces.



RUSSIA | The BRICS-financed Beloporozhskaya dam in Russia. Following a major COVID outbreak among construction workers in mid-2020, the project experienced a major dam failure on October 24 - the second in a year. Photo by Russian Ministry of Emergencies.

9. RE-INVESTING IN SOCIAL NEED

Instead of investing in measures that will assist vulnerable communities during the crisis, governments and financiers are being lobbied to bail out destructive infrastructure projects, including large dams.⁹⁴ Both fossil fuel companies and the hydropower industry are angling for big-money bailouts, claiming they have shovel-ready projects that will lift economies out of the pandemic-driven recession. And while it's critically important to avert a recession if possible, governments must not prop up destructive industries. Instead, they must invest in sectors that will both stimulate the economy and bring broader social benefits – and on a reasonable timeline.⁹⁵ For example, the World Bank recently recommended that Lebanon repurpose funds from the planned Bisri Dam to support Lebanon's people through the national lockdowns and an economic crisis compounded by the pandemic.⁹⁶

Due to the long timelines for construction, large dams can take years or even decades to deliver energy and water supply benefits to local populations. Other projects – such as solar and wind plants and community-based water and green infrastructure projects – can be implemented and deliver benefits much more rapidly. Among these, projects that deliver access to clean water and sanitation are more critical than ever, especially in countries and population groups that lack basic services.

“Now, more than ever, public policies and investment decisions must align with the vision of a sustainable and just future. Making this happen requires a broad policy package – one that tackles energy and climate goals hand in hand with socio-economic challenges at every level. A just transition should leave no one behind.”

- Francesco La Camera, Director-General, IRENA⁹⁷

10. UPGRADE EXISTING PROJECTS FIRST

There's one much less expensive and time-consuming way to boost hydropower production: retrofit existing dams. Instead of building new hydropower, governments should focus on upgrading and modernizing the world's existing hydropower fleet and retrofitting non-hydro dams for dual purposes.⁹⁸ The Asian Infrastructure Investment Bank (AIIB) and the

IHA recently commissioned a study which identified 66 hydropower stations across 19 countries in Asia⁹⁹ in high or medium need of modernization, at an estimated investment value of up to \$13.7 billion.¹⁰⁰ Upgrading existing facilities can help enable a greater share of solar and wind generation, and may boost system resilience. The International Energy Agency's (IEA) COVID-19 recovery plan supports this conclusion, recommending refurbishment of old hydro over investment in new greenfield projects.¹⁰¹

While upgrading existing hydro is better than building new dams, governments must perform a basin-wide analysis and make an optimization plan to reduce environmental impacts on freshwater ecosystems and legacy impacts on local communities. Upgrades also present governments with an important opportunity to renegotiate licenses and change operational regimes to include benefit-sharing agreements for affected communities. Flow targets must meet environmental, social, and cultural needs alongside energy production. Where environmental and social impacts can't be effectively mitigated, governments should consider dam removal and river restoration.

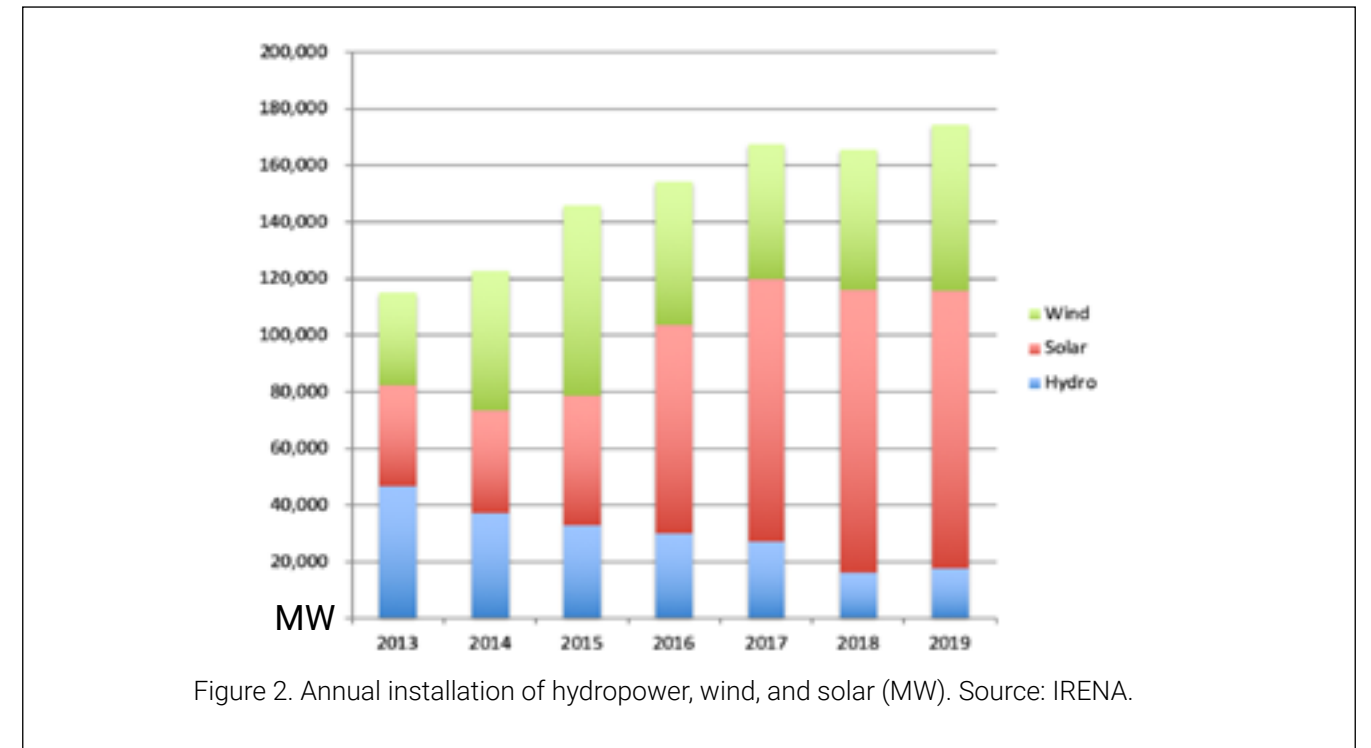


Figure 2. Annual installation of hydropower, wind, and solar (MW). Source: IRENA.



The Kariba Dam on the Zambezi River, which is at risk of collapse and would cause catastrophic impact. Photo by International Rivers.

PART 3: FROM CRISIS TO OPPORTUNITY: PATHWAYS TO RECOVERY



CHINA | Dujiangyan community members celebrating the demolition of the Shengxing power station. The banner reads "We will protect you forever, Dujiangyan World Heritage Site!" Photo by Peng Wei.

Given the legacy of hydropower around the world, the COVID-19 pandemic and its aftermath offer a stark choice: to continue, or even escalate, a business-as-usual approach that destroys critical freshwater ecosystems and biodiversity, or to change course and protect our rivers to hasten a just energy transition and implement a truly green and sustainable economic recovery.

The case studies in this section illustrate different recovery pathways in response to the pandemic. We use a simple traffic light system to explore different scenarios, with red representing a pre-pandemic “business as usual” approach, orange indicating an opportunity to change course, and green where we see a more hopeful path emerging.

In the red pathway examples, case studies highlight the risk for those proceeding with a “business as usual” economic recovery that prioritizes large dams and other river-destructive infrastructure. In many cases, the impacts of large dams extend far beyond specific sites or river basins to encompass issues such as national security; economic viability; and development, energy and water planning. These concerns are more pressing than ever in the wake of COVID-19 and the other looming crises facing our climate, economies, and systems of governance.

The orange and green pathways highlight case studies where policy opportunities are available (or are being implemented) that protect rivers and invest in alternatives to meet energy, infrastructure, and development needs. These examples spotlight how the current crisis presents an opportunity to re-envision plans and make crucial investments to safeguard freshwater systems and the future.

Nepal has lost all but one of its free-flowing rivers to hydropower and now faces industry bail-outs due to COVID-19. Nepal has close to 100 operational hydropower plants with hundreds more planned, under construction, or under study. Nepal’s operational hydropower plants barely exceed 1 GW in total capacity, yet due to poor planning and haphazard development, the country has been left with only one remaining free-flowing river. This river – the sacred Karnali – is also slated for damming by an Indian company to deliver energy to Bangladesh. The planned project forms part of Nepal’s plans to develop an additional 15 GW of hydropower over the next decade.

The COVID-19 pandemic has exposed risks in this policy. Most projects currently under construction have stalled due to disrupted supply chains and flows of migrant workers.¹⁰² Domestic power demand has fallen 40% during the pandemic. India, which also

faces decreased power demand, has delayed granting Nepalese exporters full access to its power market. As a result, the National Energy Authority (NEA) has experienced severe losses because it is locked into power purchase contracts with independent producers and is paying for power it does not need. The NEA has therefore moved to reduce incentives for new hydropower. In response, the Independent Power Producers’ Association of Nepal (IPPAN) warned that it will stop generating electricity if the government does not fund rescue measures for dozens of projects.¹⁰³

The situation highlights the risks of overreliance on hydropower to meet energy and development objectives, given the large upfront costs and lengthy timeline relative to more nimble and cost-effective alternatives. Unfortunately, support for alternative energy options has not been forthcoming,¹⁰⁴ with key development actors, including multilateral development banks, continuing to prop up Nepal’s hydropower sector.¹⁰⁵

In Pakistan, a hydropower-heavy recovery drives big debt along the China-Pakistan Economic Corridor. Few countries have thus far incorporated new hydropower into their post-COVID recovery programs,¹⁰⁶ but several have approved new hydro investments, with Pakistan leading the charge. Before the pandemic, Pakistan had already implemented several flagship hydropower projects along the China-Pakistan Economic Corridor (CPEC), a key component of China’s global infrastructure push through the Belt and Road Initiative (BRI). Recent years have seen the CPEC rocked by scandals and setbacks, and in April 2020 an audit investigation revealed the massive misuse of public funds, exposing a corrupt power sector fueled by external lending. The Neelum-Jhelum Dam was among the controversial deals, with the project cost skyrocketing from Rs 84 billion to over Rs 500 billion.¹⁰⁷

During May-July 2020, Chinese and Pakistani leaders inked deals on a suite of new hydropower projects, exceeding a total value of \$15 billion.¹⁰⁸ These projects were framed as COVID-19 recovery investments and signaled a mutual commitment to revitalize the CPEC.¹⁰⁹ The new projects significantly increase Pakistan’s external debt, in particular to China, and are igniting tensions and conflict,¹¹⁰ including with India.¹¹¹ This has sparked concern over the country’s ability to service its debts under the initiative.¹¹² Pakistan’s debt-servicing payments to China alone are estimated at approximately \$3.59 billion this year, and will exceed \$8.96 billion (Rs 1.5 trillion) in a few years’ time.¹¹³ According to the IMF, Pakistan could experience a negative GDP growth rate of 1.5% in 2020.¹¹⁴ Pakistan has reportedly requested a reduction in the mark-up on its debt and wants to extend debt repayments from ten to 20 years.¹¹⁵

Rethinking Global Grid Expansion and Giant Hydropower Cascades

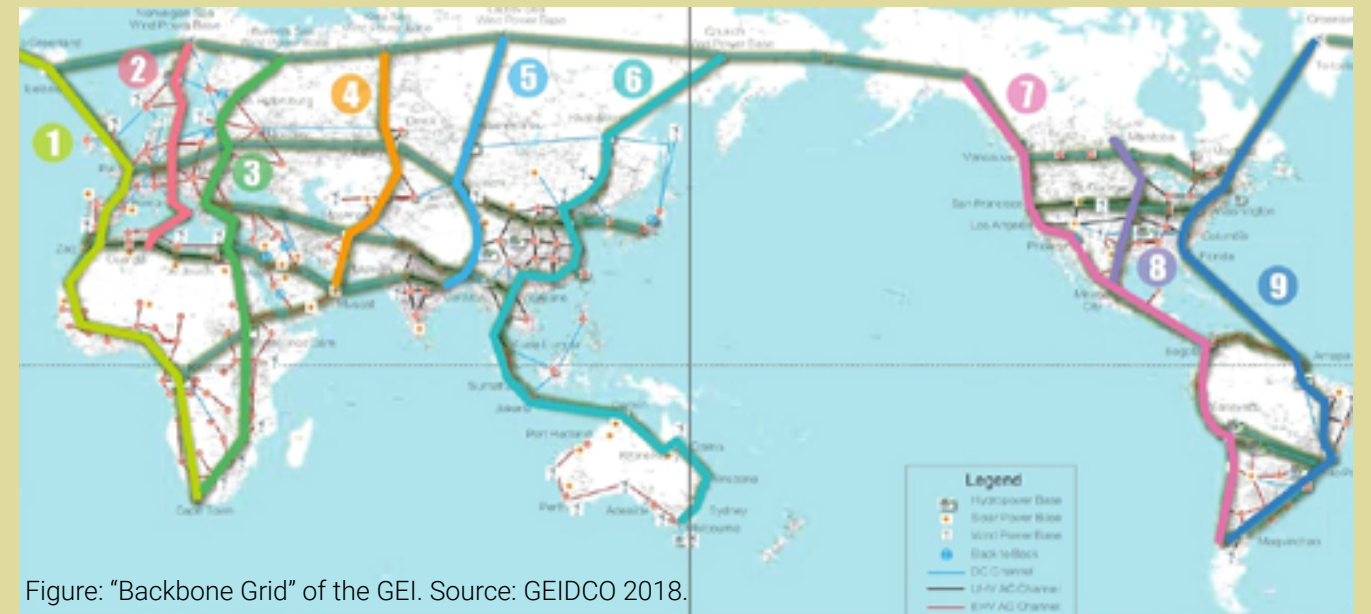


Figure: “Backbone Grid” of the GEI. Source: GEIDCO 2018.

The Global Energy Interconnection (GEI) is an initiative to connect all electricity generation centers globally with major load centers by ultra-high voltage transmission lines.¹²⁶ The GEI is one of the key “connectivity” elements of China’s Belt and Road Initiative (BRI), and it has gained support from UNESCO, UNDESA, and other international organizations.¹²⁷ China’s State Grid Corporation has proposed a global “Backbone Supergrid” to implement the plan, estimated in 2018 at a cost of \$660 billion. The proposal involves partner companies investing in specific clusters of power plants, known as “clean energy bases,” in which ultra-high voltage (UHV) transmission lines connect these energy bases along pre-planned routes.

Regional plans in Africa, Northeast Asia, and Southeast Asia involve constructing UHV grids that will enable or incentivize the development of massive hydropower and coal energy bases in remote wilderness areas.¹²⁸ These energy mega-projects target some of the last remaining free-flowing rivers in the world and bring with them potentially immense adverse impacts on biodiversity, ecosystem services, and the health and well-being of local communities.

The UHV grid itself leads to ecosystem fragmentation and requires vast amounts of steel, cement, and other materials, which would not be required for alternative and local energy sources.

The development of power grids has been heavily affected by the COVID-19 pandemic and the economic downturn, but some countries’ proposed recovery plans include the development of transmission infrastructure.¹²⁹ The crisis represents an important opportunity to revisit these plans and prioritize protecting vulnerable ecosystems and biodiversity. The crisis has also demonstrated that a degree of autonomy and domestic capacity is critical to withstanding future crises and shocks.

To advance the global renewable energy transition, governments and international banks should refrain from priority financing for large-scale transmission and grid infrastructure, which incentivizes the development of projects such as coal plants and megadams, and instead explore alternatives in local electrification by utilizing new renewable energy, developing smart grids, minimizing carbon emissions, and avoiding the destruction of free-flowing rivers.

In Georgia, the government could upgrade an aging hydropower fleet to support the development of other renewables, diversifying the country's energy sources.

For decades, Georgia has been heavily reliant on hydropower (total 3,220 MW installed capacity) which provides at least 85% of the country's electricity. However, the sector has failed to deliver energy security, with severe seasonal power deficits during winter months and shrinking opportunities for export. Local community resistance, coupled with technical difficulties and cost overruns, has led to delays in all major planned projects, which have not been realized according to planned timelines, while existing projects have failed to meet generation targets. Aging hydropower plants constructed during the Soviet era are likely to remain the backbone of the country's power sector in the coming decades. Research shows that some projects have turbines and powerhouse equipment that have not been replaced or repaired in over 50 years. The country currently has no legal means of requiring refurbishment to improve efficiency and technical safety. However, a recent study commissioned by the AIIB and IHA identified it as one of the countries whose hydropower plants are in need of modernization.¹¹⁶

Georgia urgently needs to change direction. In the absence of a long-term energy development strategy and action plan, the government is pushing forward with its existing plans for new hydropower projects, neglecting any consideration of non-hydro renewables and energy efficiency measures. An alternative pathway to economic recovery could include a thorough assessment of existing hydropower plants' safety and generation efficiency, while developing policy mechanisms for refurbishing existing facilities. Facility upgrades should take place alongside the development of other renewables, in order to address seasonal deficits and build a diverse, more sustainable and less expensive power system that prioritizes the interests of local communities and the state's energy security needs.



GEORGIA | Enguri Dam. Photo by Wikimedia Commons.

In Mongolia, a shift to renewable energy alternatives could safeguard water resources and protected areas.

Mongolia's Nationally Determined Contributions (NDCs) under the Paris Climate Change Agreement prioritize hydropower development as the primary means to reduce carbon emissions, and large multi-purpose reservoirs as a climate adaptation measure to supply water to the mining industry, coal plants, and urban settlements. The large hydropower and water infrastructure projects promoted under Mongolia's "Blue Horse" Program¹¹⁷ collectively threaten two World Heritage and three Ramsar sites as well as important biodiversity. The projects will block fish migration and dewater critical river systems, causing transboundary impacts in both Russia and China.

Following Mongolian and Russian civil society's sustained efforts to engage with financial institutions over impacts,¹¹⁸ the Export-Import Bank of China shifted financing away from the Egiin Gol Dam to less harmful projects in 2016.¹¹⁹ Bolstered by a recent report from the New Climate Institute expressing doubt that 800 MW of hydropower can be installed rapidly enough to support emission reductions,¹²⁰ civil society groups are now calling on the country to redirect post-COVID financing to renewable alternatives such as wind and solar. The government should develop them alongside governance systems for the efficient and equitable use of water resources that give priority to local users. The call appears achievable, given that Mongolia has already met its commitment to install a 20% share of renewables in electricity generation capacity by 2020, exclusively through the development of wind and solar farms.

In Laos and Cambodia, dam suspensions and delays could open the door to new power pathways for the Mekong.

Over the past decade, sustained opposition has surrounded dam construction within the Lower Mekong Basin. Eleven projects are planned or completed on the lower Mekong mainstream in Laos and Cambodia, and over 120 on Mekong tributaries. If built, those projects will extensively impact the biodiversity and ecological systems of the Mekong River Basin. Major concerns include the destruction of fisheries and aquatic species diversity, alterations in water flows, and the loss of sediment transport downstream to the Mekong Delta, threatening the food security and livelihoods of over 65 million people.

There are signals that the tide may be turning on the Mekong, linked to growing threats to hydropower viability and a shifting energy landscape. Extended drought and upstream dams in China have severely reduced water levels in parts of the lower Mekong during the monsoon season. In Cambodia, low rainfall and water levels resulted in major power cuts in 2019, with hydropower projects unable to generate sufficient

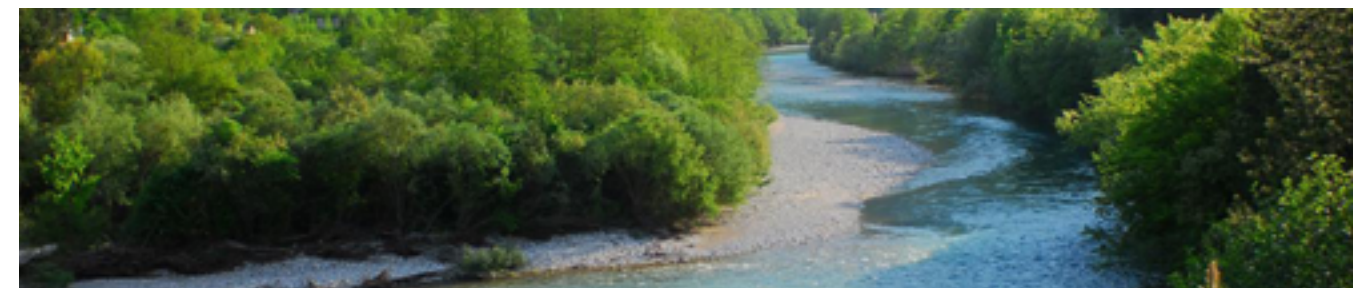
power.¹²¹ In February 2020, Cambodia announced a ten-year moratorium on dams on the Mekong mainstream,¹²² including the massive Sambor Dam, which would have disastrous impacts on the Tonle Sap Lake and the Mekong Delta.¹²³ In August 2020, Thailand delayed confirmation of power purchases from four lower Mekong mainstream dams in Laos, casting uncertainty over the future of these projects. Thailand, the intended market for many projects in the Lower Mekong Basin, is revising its energy plans in light of the COVID-induced economic downturn and an extremely high reserve margin.¹²⁴ Civil society groups in Thailand are advocating for massive investments in solar rooftop and other decentralized options to boost energy security and obviate the need for energy imports from environmentally destructive cross-border projects. For its part, Laos is also mobilizing finance to develop non-hydro renewable energy sources.¹²⁵

In the Western Balkans, a dam moratorium in Bosnia-Herzegovina provides a chance to save the last stronghold of Europe's rivers.

The Balkans, Europe's most biodiverse region, are threatened by close to 3,000 planned dams. More than 470 projects have commenced operations since 2005,¹³⁰ bolstered by questionable climate incentives that have produced a multitude of inefficient, river-destroying small and mid-sized dam projects.¹³¹ While small hydropower plants (SHPP) generate less than 4% of the region's electricity,¹³² they constitute 70-95% of all energy projects, supported by measures including higher feed-in tariffs, simplified EIAs, and limited oversight and public participation.

Around 37% of planned hydropower projects are located in protected areas,¹³³ resulting in the rapid destruction of river ecosystems and growing public opposition. Incentive schemes for hydro have lost credibility with the public because the benefits have flowed to a small circle of business elites.¹³⁴

In November 2019, civil society organizations across the region launched the "Declaration on the Protection of Western Balkan Rivers"¹³⁵ in Sarajevo, calling on the Balkan states to impose a moratorium on the construction of hydropower plants, discontinue public subsidies to energy production from SHPPs, and suspend all projects on rivers pending a complete review of hydropower policies. In April and May 2020, activists in Bosnia and Herzegovina blocked construction of SHPPs on the Bjelava and Neretvica rivers,¹³⁶ which had proceeded during the COVID-19 pandemic without environmental permits.¹³⁷ On June 25, 2020, the parliament of the Federation of Bosnia-Herzegovina announced a moratorium on all new small hydropower projects and stated that approved projects will be audited to see whether they were legally admissible.¹³⁸ It remains to be seen if the government will take steps to implement this historic decision. Doing so would signal the possibility of a new era for river protection and a shift away from destructive projects in favor of better alternatives.



No More New Hydropower in Europe: A Manifesto

In October 2020 over 150 environmental groups across Europe launched a manifesto calling for an end to new hydropower construction in Europe.¹³⁹ The groups urge EU institutions to stop supporting hydropower development, including small dams, stating that public finance should instead be used for the upgrade and removal of existing and obsolete projects, alongside investment in wind and solar. The manifesto notes that hydropower across Europe, including small and run-of-the-river plants, has negative consequences on rivers' flow, fish migration, habitat loss, sediment transport and erosion, and that hydropower is losing its comparative advantage comparative to other renewables. These demands are in line with provisions of the proposed European "Taxonomy for Sustainable Finance", which is expected to be adopted in 2020.¹⁴⁰

Image: BOSNIA & HERZEGOVINA | Neretva River. Photo by Anton Vorauer (Save the Blue Heart).

In Latin America, a growing movement is working to secure permanent legal protections for the region's river systems. Latin America is home of the largest watershed in the world, the Amazon River Basin, and two of the globe's largest aquifers, the Guarani and the Amazonas. Protecting the region's rivers and watersheds is essential to maintaining biodiversity, as well as clean and potable water for its inhabitants. Rivers also provide essential spaces for ecotourism and freshwater fishing for food and livelihoods, and they are integral to the cosmologies of Indigenous and other traditional communities, which recognize their intrinsic value. Latin American countries and populations have been hit hard by the COVID-19 pandemic, with some Indigenous communities and remote Amazonian tribes facing particular vulnerabilities. For many communities, natural resources and freshwater have provided a critical lifeline, enabling subsistence and resilience in the face of the pandemic.

Rivers are threatened across the region – degraded by dams, pollutants from agriculture, illegal mining, deforestation, and untreated sewage. Current regulatory regimes are insufficient to address or halt these threats, but a growing movement is building to

change this. In Chile, after a grassroots community campaign successfully halted plans for the destructive HidroAysén Dam in Chilean Patagonia in 2014 through street protests¹⁴¹ and a lawsuit,¹⁴² several Chilean organizations developed “Ley Ríos Salvajes,” a campaign to create a “wild rivers” law. The campaign draws on aspects of the United States’ Wild and Scenic Rivers Act of 1968, which protects 13,413 free-flowing miles of 226 rivers in 41 states and Puerto Rico.

Chile is not alone; other Latin American countries are seeing growing campaigns to permanently protect rivers and other critical ecosystems in legislation and through court action and judicial decisions. In Colombia in 2017, the Constitutional Court recognized the Atrato River as a legal entity and bearer of “Rights of Nature” in a landmark case.¹⁴³ In doing so, the court drew on emerging jurisprudence from Aotearoa/New Zealand and around the world that recognizes ecosystems and nature as legal persons and bearers of rights and mandates their protection. Subsequent decisions from within the region and beyond have continued to affirm and develop these rights and their implementation.¹⁴⁴



PATAGONIA | Free flowing river. Photo by Jorge Uzon.

PART 4: A ROADMAP FOR RECOVERY



SENEGAL | Bargny Coast Water Keepers celebrate the 2016 Day of Action for Rivers. Photo by International Rivers.



TEMACA, MEXICO | Resistance against dam construction in Temaca. Photo by International Rivers.

If governments, policymakers and financiers do not heed the lessons of the past, the world's rivers will be further ravaged in the years to come. The global pipeline holds dozens of environmentally destructive dam projects that are in the early stages or have yet to reach financial closure [see Appendix A]. There is still time to reconsider these projects, given the mounting evidence of the damage wrought by large dams and the diminishing economic rationale for building them.

The COVID-19 recovery provides a critical opportunity to review and revise energy and development plans. Governments should invest the limited financing available for economic recovery in other renewable energy sources to stimulate their economies, boosting employment and delivering social benefits that will not incur massive debt – and that won't jeopardize the critical ecosystems and freshwater sources. These investments can catalyze a different pathway to the future. Governments, financiers, multilateral bodies, and international institutions can all play a role in making the global recovery equitable, sustainable, and positive for people, rivers, and the planet.

Governments and Energy Companies

- **Support a moratorium on new dams in the economic recovery*** as a key step in reassessing energy options and plans, including all pipeline projects, and reducing the probability of increasing debt burdens from high-cost, high-risk/low-reward projects. Facilitate opportunities to protect threatened biodiversity and freshwater ecosystems (and the communities and economies that rely on them) by moving energy production away from rivers.

- **Rapidly upscale investment in non-hydropower renewables and storage (solar, wind, hydrogen) and develop policy to facilitate private investment.**

This includes investments to kick-start renewable energy projects and roll out centralized and distributed connectivity, build jobs, and deliver low-cost and low-impact electrification to those experiencing energy poverty. Use subsidies and grants to foster up-stream value chain investment in local manufacturing and assembly.

- **Prioritize upgrades to existing hydropower projects to increase efficiency instead of building new dams.** This can include retrofitting turbines, improved pumped storage, and grid-integration with wind, solar, and other energy innovations. Upgrades should be accompanied by concrete steps to reduce damage to freshwater ecosystems and local livelihoods through robust mitigation and compensation. Dam removal and river restoration should be undertaken when the adverse social and environmental impacts of existing dams cannot be effectively mitigated.

- **Develop new energy development plans** that emphasize investment in energy conservation and efficiency, participatory demand-side modelling, and options for smart, distributed energy and mini-grids located close to energy sources and end users, with a focus on community grids and expanded energy access. Halt expensive and long-timeline hydropower projects to review and update energy plans and reassess options for electrification.

*This excludes mini (typically less than 500 Kv) and micro-hydro (less than 100Kv) supported by local communities, projects equipping existing canals, reservoirs and dams with generators, and closed-loop pumped hydro, which does not use natural water bodies as reservoirs.

- **Exclude new hydropower from the “low-carbon” energy sources supported by tax breaks and other incentives in recovery plans.** Policies and incentives should encourage energy companies to use existing hydropower to enable development of wind and solar, instead of new hydropower projects.

- **Invest in green infrastructure that protects and restores freshwater ecosystems and biodiversity and develop laws and regulations to guide ongoing protection.** Facilitate dialogues with government, private sector, Indigenous peoples, and community water users to prioritize ecosystem services in recovery, protect and enhance freshwater ecosystems and biodiversity, and provide job opportunities for local communities. Ensure green infrastructure and renewable energy investments comply with human rights standards and environmental safeguards and respect the right of Indigenous peoples and other traditional communities to Free, Prior, and Informed Consultation and Consent.

- **Safeguard protected areas in stimulus and recovery plans.** This includes adopting policies supporting “no go” zones for environmentally destructive investments in protected areas, endangered and vulnerable species habitat, free-flowing rivers, and the territories of Indigenous people and other traditional communities. Identify and halt destructive uses and development pressures on protected areas.

- **Invest in community-oriented food, water, and energy supply as a core strategy to address COVID-induced vulnerability and ongoing public health threats.** Such investments provide a basis for resilience where economic and social disruption has led to widespread job losses and economic collapse in vulnerable population groups.

- **Renegotiate power purchase agreements for delayed and unreliable projects.** Many hydropower projects that stalled during the pandemic will continue experiencing difficulties, increased costs, and delays. Energy authorities should consider every option to pursue renewable alternatives that will deliver energy more rapidly within the constraints of the global economic recovery to get power and services to vulnerable populations and industries quickly.

- **Conduct strategic environmental assessments for any proposed water infrastructure project that would potentially affect transboundary waters.** This process should involve all riparian countries and ensure that freshwater systems are governed and managed to foster sustainable use, peace, and stability. Strategic environmental assessments should include comprehensive options assessments for energy delivery, and governments should favor nature-based solutions to solve water challenges.

Financiers

- **Incorporate screening for biodiversity and freshwater ecosystem impacts into investment decision-making and risk assessment processes, including climate impact screening.** Free-flowing rivers provide extraordinary climate and livelihood benefits, from fisheries and agriculture to ecosystem services and climate adaptation. Assess the multiple values rivers and other freshwater ecosystems provide, and prioritize them in financing and lending policy frameworks and decisions.
- **Adopt a “no go” policy which categorically prohibits any direct or indirect financing related to unsustainable, environmentally, and socially harmful activities in or nearby protected areas and other environmentally sensitive areas,** including endangered and vulnerable species habitat, free-flowing rivers, iconic ecosystems, and the territories of Indigenous people and other traditional communities. Such a policy is critical to better address and reflect the current crises of climate change and biodiversity loss, as well as the emergence of zoonotic diseases.
- **Require cumulative impact assessments with basin planning** for any projects affecting freshwater resources, in order to facilitate a more comprehensive valuation of rivers and healthy watersheds. Incorporate robust risk assessments to inform how river basins and water resources are managed to deliver multiple values for diverse stakeholder groups, within and between nations on transboundary systems.
- **Identify and fund catalytic investments in new renewables,** particularly investments that emphasize and enable electricity access for the rural poor who lack access to the grid or affordable power.

Climate Finance Mechanisms

- It's vital to sustain freshwater resources in an era of climate change. **Climate financing mechanisms should be deployed to help ensure positive outcomes for rivers and the climate,** for example, by financing projects, institutions, and policies that protect threatened freshwater resources, restore flows to reconnect fragmented ecosystems, maintain cultural and environmental flows (determined in consultation with affected peoples), and promote river restoration efforts such as the decommissioning of existing redundant dams.

- **Climate finance mechanisms such as the Green Climate Fund and the Climate Bonds Initiative should exclude greenfield hydropower from eligibility.** Channeling scarce climate dollars toward hydropower would be counterproductive in preventing a 1.5°C scenario and would render communities who rely on rivers for their livelihoods even more vulnerable to climate change, serving to discredit climate finance as a whole.

Biological Diversity

- **Revise the Convention on Biological Diversity (CBD) targets and indicators to prioritize the urgent need to protect freshwater ecosystems and biodiversity.** In particular, targets related to the protection and health of inland waters and water catchments and the maintenance or restoration of freshwater species and natural ecosystem functions. This includes safeguarding the cultural rights and traditional practices of Indigenous and local communities over freshwater resources and territories.
- **Develop a global strategy to protect the world's remaining free-flowing rivers, their ecosystems, and global freshwater biodiversity.** Such a strategy requires high-level coordination between the Convention on Biological Diversity, World Heritage Convention and other biodiversity conventions and the Secretariat of the UN Framework Convention on Climate Change.

UN Sustainable Development Goals (SDGs)

- As a consequence of increased pressure on financing to achieve the SDGs, **commitments on water and sanitation (SDG 6) and sustainable and resilient infrastructure (SDG 9) should emphasize safeguarding natural flow regimes, restoring environmental flows, and elevating the importance of nature-based solutions in developing sustainable infrastructure within freshwater systems.** Develop expanded indicators for these goals on the implementation of environmental flows, use of nature-based solutions, restoration of ecosystem services through “green infrastructure,” and the decommissioning of aging, redundant, and harmful infrastructure that affects rivers and freshwater ecosystems.

- For low and middle-income countries in particular, **energy access for all (SDG 7) should underpin government and financial institutions’ interventions in energy financing.** Investing in local renewables capacity can generate employment opportunities.
- **Governments should apply a gender lens to all pandemic responses,** especially in constructing fiscal stimulus packages and social assistance programs that elevate the importance of SDG 5. Include clear targets for gender equality and women's empowerment in order to advance economic opportunities and social protections, reduce vulnerability, and recognize the critical role women play in protecting and sustainably managing freshwater resources and ecosystems.

World Heritage and Ramsar Conventions

- Represent the Outstanding Universal Values of free-flowing rivers and their ecosystems on the World Heritage List and other protected areas. **Identify river ecosystems and freshwater ecoregions that should be represented and expand existing World Heritage sites to incorporate omitted riverine values.** Ensure co-management of rivers with Indigenous guardians and the protection of traditional riverine livelihoods as central to their recognition and conservation.
- **Safeguard World Heritage and wetlands of international importance from the impacts of water infrastructure.** This could be achieved through a resolution that prohibits the construction of large dams on rivers that form part of World Heritage sites and requires maintenance of the conditions that form the basis of protected status. Prevent potential transboundary impacts on World Heritage properties and Ramsar wetlands through routine basin management and development planning.
- **Work with international climate change institutions to promote conservation and prevent destruction,** paying particular attention to proposed hydropower projects or projects that may be developed under the Paris Agreement's Nationally Determined Contributions (NDCs) that threaten biodiversity and world heritage.



Top: MYANMAR | Gold panning in the Salween River, Karenni state.

Middle: TIBET AUTONOMOUS REGION | Zhaqu River at the upper stem of the Lancang.

Bottom: Fisherman along the Zambezi River.

Top by Wichai Juntavaro. Middle & Bottom by International Rivers.



Fisherwoman on the Mekong.
Photo by Vietnam Rivers Network.

Appendix A: What's in the pipeline?

The global pipeline holds dozens of destructive hydropower projects that are in the early stages or have yet to reach financial closure. In this appendix, we outline some prime examples. If they proceed, these projects threaten critical biodiversity, protected areas and Indigenous territories. Many of the projects carry questionable viability and economic benefits. There is still time to reconsider these projects, given the mounting evidence of the destruction wrought by large dams and the diminishing economic rationale for building them.

Planned dams will destroy or jeopardize vulnerable and endangered species. The **Koukoutamba Dam in Guinea** will kill up to 1,500 critically endangered Western chimpanzees within the newly-created Moyon Bafing National Park – the largest number of chimpanzees in history to be murdered by a development project in what constitutes the species' last stronghold. The **Batang Toru Dam in Indonesia** was recently suspended after a sustained campaign by Indonesian and international groups to protect the world's rarest great ape, the Tapanuli orangutan, from extinction. The **Julius Nyerere Dam in Tanzania** is under construction in the Selous Game Reserve, threatening to irrevocably damage the UNESCO site that serves as critical habitat for a number of endangered species and will impact Ramsar wetlands downstream. The **Sombwe Dam in the Democratic Republic of the Congo** is under construction in one of the country's oldest national parks, famous for its charismatic megafauna. The **Snowy 2 pumped storage facility in Australia** has prompted opposition due to inadequate options assessment and fast-tracked decision-making, riding roughshod over concerns for environmental damage within the Kosciusko National Park.

Proposed dams threaten a number of critical sites in or near UNESCO World Heritage sites, including the **Condor Cliff-Barrancosa complex in Argentinian Patagonia**, the proposed **Luang Prabang Dam on the Mekong mainstream in Laos**, and the **Longpan, Xulong and Benzilan dams on the Jinsha (Upper Yangtze) River in China**, which threaten the Three Parallel Rivers of Yunnan World Heritage site¹⁴⁵ and are moving forward in the face of civil society opposition.¹⁴⁶ Many projects are meeting increased resistance. Campaigners at WALHI Aceh, Yayasan Haka and other allies prompted the suspension of the **Tampur Dam in**

Indonesia through a court decision. The project is sited in the heart of the Leuser Ecosystem, one of the largest and most biodiverse forest ecosystems in Southeast Asia and part of the Tropical Heritage Rainforest of Sumatra World Heritage property. Public outcry has thus far prevented a dam from advancing at the world-famous **Murchison Falls in Uganda**.

The rights of Indigenous peoples are also under severe threat from proposed dams. The **South Pulangi Dam on the Philippine island of Mindanao**, for example, would flood thousands of hectares of Indigenous territory and has been opposed by the Manobo indigenous community. The **Baynes Dam**, planned on the **Kunene River between Namibia and Angola**, has similarly been met by stiff opposition from OvaHimba indigenous communities who have resisted hydropower for decades on a river they deem sacred and essential to maintaining their way of life. The indigenous Svan communities of Georgia have challenged the government's plans to build a series of dams in Upper Svaneti, namely the **Nenskra Dam**, which is financed by a number of development financiers despite the fact that researchers have proven the dam is economically unviable and set to become a significant burden on Georgia's public coffers.

Other planned projects demonstrate the often lopsided benefits and steep financial risks typical of the sector. The **Inga 3 Dam in the Democratic Republic of the Congo**, with a conservative price tag of \$18 billion, would primarily benefit the country's mining industry, which is dominated by some of the world's largest corporations, while the remaining power would be exported thousands of kilometers to South Africa. Congolese civil society oppose the project for the significant financial risks it poses to the public while doing little to address the country's dismal electricity access rates. The **Alto Maipo project in Chile** will similarly sacrifice pristine rivers and jeopardize Santiago's drinking water to benefit a mining tycoon. Proponents have long promoted the **Batoka Gorge Dam** to address persistent energy shortages in **Zambia and Zimbabwe**, but it's at risk of becoming a stranded asset after drought has repeatedly crippled hydropower production on the Zambezi. The **Ituango Dam in Colombia**, opposed by local communities, endangered the lives of thousands when the dam nearly breached, causing widespread displacement; activists have risked their lives to defend their rights.

Appendix B:

Looking forward: Freshwater conservation at the World Conservation Congress 2021

The IUCN World Conservation Congress was postponed in 2020 due to COVID-19 and is expected to take place in 2021. **“Conserving freshwater to sustain life”** is the central theme of the upcoming Congress. Many IUCN members from around the world have proposed motions calling for a concerted effort in freshwater conservation, integrated water resource management, and sustainable development.

Motion 9 highlights the **importance of river connectivity for supporting ecosystem services and biodiversity** and encourages governments to work with civil society, communities, Indigenous groups, and the private sector to identify, **restore, and protect free-flowing rivers** and their associated ecosystems. These ecosystems provide essential services and resilience in a changing climate. It requests that governments involve all local stakeholders in decision-making from the early phases of infrastructure projects. The motion calls for both strengthening existing models of protection and restoration as well as **innovating new models for financing river corridor protections in the post-2020 Global Biodiversity Framework**.

<http://www.iucncongress2020.org/motion/009>

Motion 14, devoted to **aquatic biodiversity conservation of shallow marine and freshwater systems**, encourages states to **support targets and strategies for aquatic conservation at the 15th COP** to the Convention on Biological Diversity and 2020 Global Biodiversity Framework.

<http://www.iucncongress2020.org/motion/014>

Motion 17 calls for **cooperation on transboundary freshwaters to ensure ecosystem conservation**, climate resilience and sustainable development. It urges governments to ratify and implement two existing global water conventions as well as the Ramsar Convention. It asks that governments cooperate in developing and implementing strategies and measures, in particular nature-based solutions, to adapt to climate change in transboundary basins.

<http://www.iucncongress2020.org/motion/017>

Motion 19 seeks to prevent negative impacts on wetlands and ecosystems from artificial structures that alter the natural flow of water. It invites governments of all states to review, reform and **implement legislation based on the precautionary principle to control the construction of artificial structures that prevent the natural flow of water**. It calls on governments to promote projects based on the idea of Ecosystem-based Disaster Risk Reduction, to **maintain and improve the natural flow of water and sediments in rivers**, coasts, and aquifers. *It also requests that governments of all states accept a fair third-party review, including by local communities and scientists, of the necessity, validity, and impacts of any project involving the building of artificial structures obstructing natural flows.*

<http://www.iucncongress2020.org/motion/019>

Motion 20 stresses that **inland fisheries are a critical source of food** and nutrition security for nearly a billion people, while the productivity of inland fisheries is gravely threatened by habitat degradation, flow management, overharvesting, and climate change. The motion calls for **supporting ecosystem-based management of inland fisheries and recognizing the relationship between inland fish catch and freshwater fish biodiversity**. It requests support for the assessment of **inland fisheries in the SDGs**, such that the national status of inland fisheries should not decline from their current state, or should be improved where the existing state is degraded. It also advises governments **to consult local fishing communities** before planning infrastructure projects that impact their inland fisheries.

Many other motions address the needs of specific basins. For example, Motion 63 seeks to prevent and reduce the impacts of hydropower and other water infrastructure on the wetlands of the Paraguay River Basin, the Pantanal, and the Paraguay-Paraná Wetland System. It requests that governments **discourage funding and suspend the installation of new hydroelectric projects** in the region until the synergistic impacts are better understood, and encourages the opening of a process to carry out surveys to find alternative options that can avoid these projects. Motion 13 on the protection of the Andes-Amazon rivers of Peru suggests creating a framework for protecting Peru's free-flowing rivers and calls for the **removal of the Amazon Waterway Project from the list of priority projects** in the National Infrastructure Plan of Peru. It also asks the government to **evaluate alternatives for promoting safe and improved river transportation** without dredging.

Appendix C:

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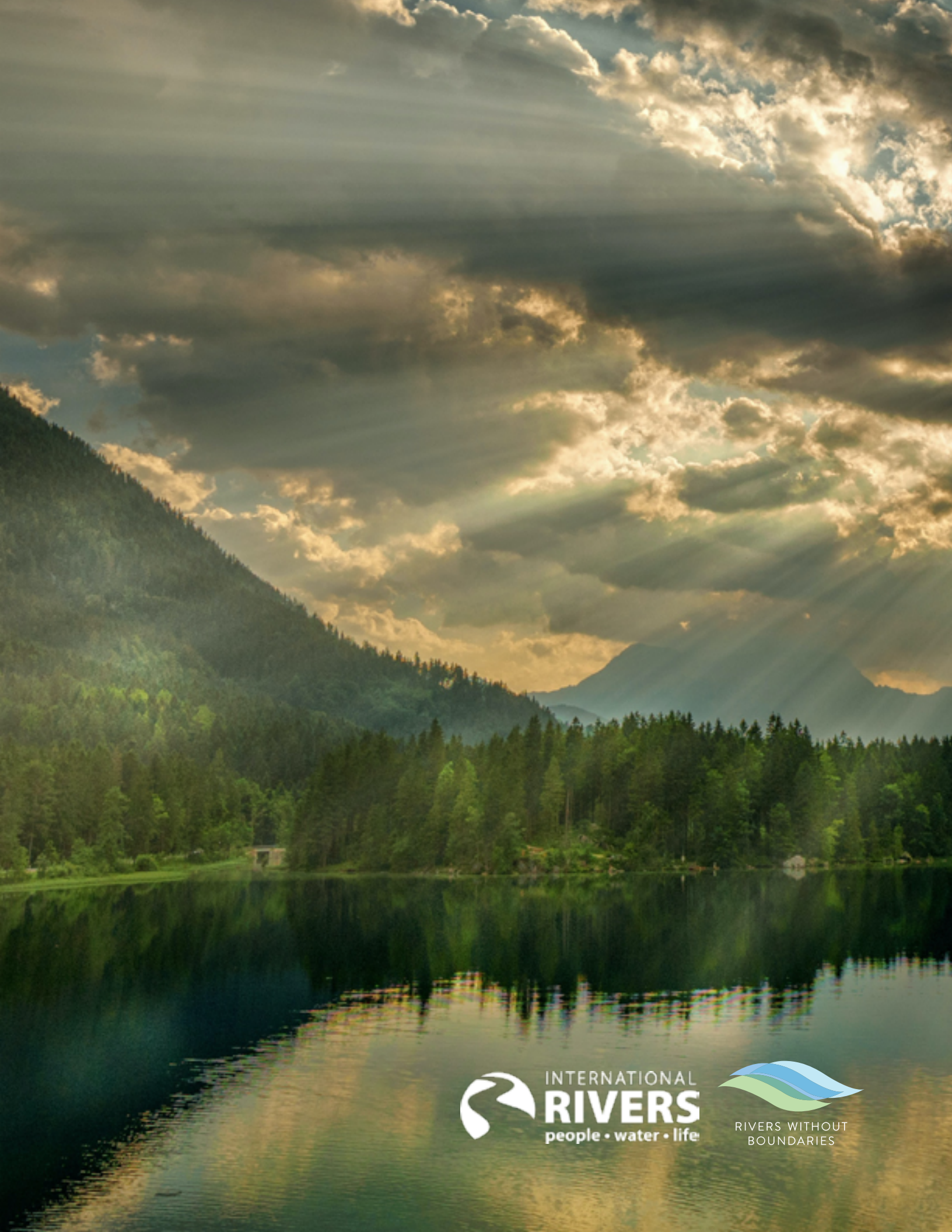
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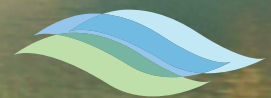
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Woman collects plants along river. Photo by Vietnam Rivers Network.



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