



Dam Standards: A Rights-Based Approach

A GUIDEBOOK FOR CIVIL SOCIETY

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About International Rivers

International Rivers protects rivers and defends the rights of communities that depend on them. With offices on four continents, International Rivers works to stop destructive dams, improve decision-making processes in the water and energy sectors, and promote water and energy solutions for a just and sustainable world.

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Front Cover photo: Indigenous people protest against the planned Baram Dam in Sarawak, Malaysia. Photo courtesy of SAVE Rivers.

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ABBREVIATED TERMS

ADB	Asian Development Bank	FI	Financial Institution
ASEAN	Association of Southeast Asian Nations	FIRR	Financial Internal Rate of Return
BDP	Basin Development Plan	FIT	Feed-in Tariff
BBM	Building Block Methodology	FPIC	Free, Prior, and Informed Consent
CAO	Compliance Advisor Ombudsman	GDP	Gross Domestic Product
CAT	Convention Against Torture	HPP	Hydropower Project
CBD	Convention on Biological Diversity	HSAP	Hydropower Sustainability Assessment Protocol
CCA	Climate Change Assessment	IADB	Inter-American Development Bank
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women	ICCPED	International Convention for the Protection of All Persons from Enforced Disappearance
CIA	Cumulative Impacts Assessment	ICCPR	International Covenant on Civil and Political Rights
CPPCG	Convention on the Prevention and Punishment of the Crime of Genocide	ICERD	Convention on the Elimination of All Forms of Racial Discrimination
CRC	Convention on the Rights of the Child	ICESCR	International Covenant on Economic, Social, and Cultural Rights
CRPD	Convention on the Rights of Persons with Disabilities	ICP	Informed Consultation and Participation
CRSR	Convention Relating to the Status of Refugees and Protocol Relating to the Status of Refugees	ICSPCA	International Convention on the Suppression and Punishment of the Crime of Apartheid
DRIFT	Downstream Response to Imposed Flow Transformation	IFC	International Finance Corporation
EAP	Environmental Action Plan	IFIM	In-stream Flow Incremental Methodology
EFA	Environmental Flows Assessment	IHA	International Hydropower Association
EIA	Environmental Impact Assessment	ILO	International Labor Organization
EIRR	Economic Internal Rate of Return	IPCC	Intergovernmental Panel on Climate Change
ELOHA	Ecological Limits of Hydrologic Alteration	IRP	Integrated Resources Planning
ESIA	Environmental and Social Impact Assessment	ISEAL	International Social and Environmental Accreditation and Labeling Alliance

ISO	International Organization for Standardization	RPS	Renewable Energy Portfolio Standard
IWRM	Integrated Water Resources Management	RSAT	Rapid Sustainability Assessment Tool
LEAP	The Long-range Energy Alternatives Planning System	SEA	Strategic Environmental Assessment
MDB	Multilateral Development Bank	UDHR	Universal Declaration of Human Rights
MFI-WGE	Multilateral Finance Institutions' Working Group on the Environment	UN	United Nations
MIGA	Multilateral Investment Guarantee Agency	UNDRIP	Universal Declaration of the Rights of Indigenous Peoples
MRC	Mekong River Commission	UNECE	United Nations Economic Commission for Europe
MWC	International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families	UNEP	United Nations Environment Programme
NGO	Non-Governmental Organization	UNESCO	United Nations Educational, Scientific and Cultural Organization
OAS	Organization of American States	UNHRC	United Nations Human Rights Committee
OIC	Organization of Islamic Cooperation	VEC	Valuable Ecosystem Component
OECD	Organization of for Economic Cooperation and Development	WCD	World Commission on Dams
PHABSIM	Physical Habitat Simulation Model	WEAP	Water Evaluation and Planning
		WWF	World Wide Fund for Nature

GLOSSARY

Associated facilities: The various structures, systems, and infrastructure that are a crucial part of a hydropower project but are not necessarily the “dam” itself. These facilities include most carriage, distribution, and drainage systems, small diversion works, small pumping plants and power plants, dikes, open and closed conduits, tunnels, siphons, small regulating reservoirs, waterways, and bridges, as well as transmission lines and roads.

Benefit-sharing: Monetary benefits, including sharing part of the revenue generated by the operation of the infrastructure project with the affected communities, through preferential rates, property taxes, equity sharing or full ownership, and development funds; as well as non-monetary benefits, including integrating project benefits into local development strategies, through livelihood restoration and enhancement, community development, and catchment development.

Biodiversity offset: Measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from project development and persisting after appropriate avoidance, minimization and restoration measures have been taken.¹

Consultation: A process in which a proponent builds and maintains constructive relationships with local communities over the life of a project. Effective consultation is a two-way process that should: (i) begin early in the process of identification of environmental and social risks and impacts and continue on an ongoing basis as risks and impacts arise; (ii) be based on the prior disclosure and dissemination of relevant, transparent, objective, meaningful and easily accessible information available in a culturally appropriate local language(s) and format and is understandable to affected communities; (iii) focus inclusive engagement on those directly affected as well as those not directly affected; (iv) be free of external manipulation, interference, coercion, or intimidation; (v) enable meaningful participation, where applicable; and (vi) be documented.

Critical natural habitat: A specific geographic area(s) that is essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by a species but that will be necessary for its recovery.

Economic displacement: Loss of assets and/or means of livelihood, regardless of whether or not physical displacement takes place.

Ecosystem services: Benefits obtained from ecosystems. According to the Millennium Ecological Assessment, these may be organized in four primary categories. Provisioning services are the products obtained from ecosystems, such as food, genetic resources, fiber, and energy. Regulating services are the benefits obtained from the regulation of ecosystem processes, such as regulation of climate, water, and some human diseases. Cultural services are the non-material benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experience. Supporting services are ecosystem services that are necessary for the production of all other ecosystem services. Examples include biomass production, production of atmospheric oxygen, nutrient cycling, water cycling, and provisioning of habitat.

Energy efficiency (demand-side, supply-side): Energy efficiency is broadly defined as using less energy to provide the same service. Demand-side refers to steps taken to make increase the efficiency of energy consumption. Supply-side refers to steps taken to increase the efficiency of energy provision.

Environmental flows: The amount and quality of water provided within a river, wetland or coastal zone to maintain ecosystems, and their socially and culturally-defined benefits.

Environmental impact assessment: A procedure for evaluating the likely impact of a proposed activity on the environment, where “impact” means any effect caused by a proposed activity on the environment, including human health and safety, flora, fauna, soil, air, water, climate, landscape and historical monuments or other physical structures or the interaction among these factors; it also includes effects on cultural heritage or socio-economic conditions resulting from alterations to those factors; and where “trans-boundary impact” means any impact, not exclusively of a global nature, within an area under the jurisdiction of a Party caused by a proposed activity the physical origin of which is situated wholly or in part within the area under the jurisdiction of another Party.²

Free, prior, and informed consent: A collective expression of support for a proposed project by potentially affected communities reached through an independent and self-determined decision-making process undertaken with sufficient time, and in accordance with their cultural traditions, customs, and practices. Such consent does not necessarily require support from every individual. Whatever the form of consent, it must be free of coercion; obtained prior to the commencement of project activities; and informed through access to all the information necessary to make the decision, including knowledge of legal rights and the implications of the project.

Integrated resource planning: A comprehensive and holistic methodology of planning a country's electricity resources options, including both supply-side options for meeting generation, transmission, and distribution facilities needs, as well as demand-side options for meeting the needs of consumer productivity and efficiency. The methodology considers a full range of feasible supply-side and demand-side options and assesses them against a common set of planning objectives and criteria agreed to in a transparent and participatory process.

Integrated water resources management: Defined by the Global Water Partnership as a process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.

Involuntary displacement (or, forced eviction): The permanent or temporary removal against the will of individuals, families, and/or communities from the homes and/or lands which they occupy without the provision of, and access to, appropriate forms of legal and other protection.

Mitigation hierarchy: To anticipate and avoid, or where avoidance is not possible, minimize and, where residual impacts remain, compensate for or offset risks and impacts.

Non-stationarity: The phenomenon by which, as a result of climate change, future hydrological trends do not necessarily mirror past observations.

Place-based livelihood: A livelihood that derives its capabilities, assets (including both material and social resources) and activities required for a means of living from a specific territory or place. A livelihood is sustainable when it can cope with and recover from stress and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base.³

Significant conversion: Major changes in land or water use that eliminate or severely weaken the integrity of a natural habitat.

Strategic environmental assessment (regional, sectoral): An SEA is an evaluation of the likely environmental, including health, effects, which comprises the determination of the scope of an environmental report and its preparation, the carrying-out of public participation and consultations, and the taking into account of the environmental report and the results of the public participation and consultations in a plan or program, where "environmental, including health, effect" means any effect on the environment, including human health, flora, fauna, biodiversity, soil, climate, air, water, landscape, natural sites, material assets, cultural heritage and the interaction among these factors.⁴

Transparency: Information that is made available to the public domain that is: 1) relevant and accessible (presented in plain and readily comprehensible language and formats appropriate for different stakeholders. It should retain the detail and disaggregation necessary for analysis, evaluation and participation. Information should be made available in ways appropriate to different audiences) and 2) timely and accurate (made available with sufficient time to permit analysis, evaluation and engagement by relevant stakeholders). This means that information needs to be provided while planning as well as during and after the implementation of policies and programs. Information should be managed so that it is up-to-date, accurate, and complete.⁵

Valuable ecosystem component: A valuable ecosystem component is the environmental element of an ecosystem that is identified as having scientific, social, cultural, economic, historical, archaeological or aesthetic importance. The value of an ecosystem component may be determined on the basis of cultural ideals or scientific concern. Valued ecosystem components that have the potential to interact with project components should be included in an environmental impact assessment.

Executive Summary

In many countries, the most applicable means of protection for people affected by development projects are national and local laws. But in some countries, laws alone are not strong enough to protect the rights of affected communities. Standards may exist that affected communities and civil society will want to utilize to protect their rights when campaigning on development projects. Increasingly, companies, banks, and governments commit to follow internationally-recognized standards; some of these standards are voluntary, and sometimes the financing or support for a development project is conditional upon complying with them.

This guide attempts to summarize the strongest social and environmental standards related to dam building. It discusses options for civil society to use standards in order to advocate for stronger practices to be implemented by government ministries, dam financiers, and dam builders.

The guide takes the position that the most effective standards are those that safeguard the rights of dam-affected people, avoid risks, and allow the public to hold dam builders and financiers accountable. Such a rights-based approach to dam standards is based on national and international laws and covenants, and is distinguished from other approaches which may not recognize the inherent rights of dam-affected people. These approaches may include developing policies of corporate social responsibility, adhering to voluntary guidelines, or implementing project audits.

KEY ASPECTS OF RIGHTS-BASED DAM STANDARDS INCLUDE:

- Human Rights
- Women's Rights
- Indigenous Peoples' Rights
- Labor Rights

KEY ASPECTS OF STRATEGIC PLANNING STANDARDS INCLUDE:

- Integrated Resources Planning
- Basin Planning
- Strategic Environmental Assessment
- Cumulative Impact Assessment
- Climate Change Assessment

KEY IN WHICH TO PROMOTE STANDARDS:

- National legal systems
- The United Nations system
- Multilateral covenant bodies
- Financial institutions
- Corporate-level policies

As with any standard, a policy commitment is only as good as its results. Implementation, monitoring, and evaluation of standards remain weak even for the most highly regarded dam builders and financiers.

This guide will aid civil society to hold governments, institutions, and companies accountable to rights, standards, and ultimately, results. To promote more just and equitable outcomes for dam-affected communities and the environment, we must first understand why dam standards are necessary, and the increasingly complex universe of standards that has come about.

Introduction: Why Standards for the Dam Industry?

Dams are often built in areas of the world where the rule of law is weak or where affected people have little power in decision-making. This often leaves a gap in protections for dam-affected communities, and negative outcomes often result, which can impact both affected people and the dam builder themselves. Therefore, standards must be an important driver of the business model of the dam industry.

From the perspective of communities, standards reduce the likelihood of developers violating human rights, destroying sensitive ecosystems, disrupting indigenous and traditional ways of life, and negatively impacting women. As a result, the first and most important role that standards play is to protect the rights and lives of dam-affected communities and their environment.

From the perspective of companies, banks, and governments, standards help manage risks associated with dams. Without standards, dam builders and financiers would not be able to understand how investing in a dam could create risk to their institution, or jeopardize their cash flow, reputation, and competitive position in the market. Standards are often used as part of environmental and social risk analyses in order to help a business or financial institution decide whether or not to invest.

As a result, standards have dual, mutual benefits: they protect the rights of affected people, while they protect businesses against risks. Nonetheless, today, many dam builders still build dams that are considered to be below standards. Often, in a hurry to finance, governments and banks may not analyze the entire breadth of risks that dams can create. In so doing, the costs of these risks are often externalized by the dam builder during construction and operation, creating impacts that are absorbed by both affected communities and the environment. If dam builders were to

internalize these costs, they could outweigh the benefits, revealing certain dams to be poor investments. A responsibility of dam builders and financiers, then, is to make sure that the full risks and costs of a dam are incorporated into the decision of whether or not to build it.

But what exactly are dam standards, who makes them, and what should they say? The concept of a “standard” is often misunderstood. Does a standard refer to national laws and legislation? Or does a standard consist of international covenants and declarations? Perhaps standards refer to a financial institution’s own policies? What about recommendations and guidelines that have been agreed to in multilateral dialogues? Or screening tools, such as scorecards or audits?

There is no one, single answer. In reality, building a dam involves many actors – governments, financiers, developers, contractors, and consulting firms may adhere to diverse policies that define these actors’ responsibilities. The realm of standards could be thought of as a landscape – different actors around the world may create their own variant of policies that are meant to be used for different purposes. Some standards are meant to be applied at the earliest possible stage of development planning; other standards are meant to be applied when a development project is already creating project impacts or benefits. Diverse outcomes may be created, as a result.

ABOUT THIS GUIDE

This guide attempts to make sense of the landscape of “standards” and policy tools that are in play in dam building. The guide sets out, from a civil society point of view, what are considered to be the just and fair “standards” that dam planners, builders, and financiers should be expected to fulfill. The guide presents a core grouping of risks and issues throughout the dam-building process, from the point of view of protecting the rights of affected communities and the environment. The guide does not aim to critique existing standards and tools, nor to act as an exhaustive compendium of all policies and practices. To do so meaningfully is beyond its scope.

Instead, the guide provides a reference to standards that affected communities and civil society can promote at each stage of a dam project: from strategic planning, to project analysis, to implementation, operation, and dam decommissioning. The guide serves as a tool to build the capacity of affected communities and civil society to advocate for dam standards, and to hold dam builders and financiers compliant and accountable to their implementation.

The guide is a living document. Policies change constantly, international norms gain new signatories, and innovations in technology and approaches make old practices obsolete. As a result, there are certainly omissions in the guide that others will be more equipped to address. Still, the guide highlights many of the most important concepts and policies relevant to today’s context.

The guide is structured as follows. The first section, “Who Makes Dam Standards?” describes the standards landscape: the various types of policies, legal instruments, covenants, guidelines, and other documents that can be used to promote social and environmental standards. These include national laws, international covenants, declarations, financial standards, guidelines and recommendations, and auditing tools.

The following sections, compiled under “Social and Environmental Dam Standards,” walk you through the content of standards to promote at each stage of a dam project – from the origin of a project inside government plans, to its construction and operation, to its removal when it is time to decommission. At each step, the guide presents standards that should be upheld. The standards can vary according to what stage of development the project is in, what type of institution is involved in financing the dam, and what type of company is building the dam.

At the end of each section, the guide presents a short list of further resources, and presents ideas for related actions to influence decision-makers. These decision-makers might include:

- National lawmakers
- Ministries and regulatory agencies
- State and local authorities
- International rights bodies
- Multilateral institutions
- Project financiers
- Project developers and contractors

Case studies are used liberally throughout the guide. In some instances, we point out cases where high standards were successfully implemented. In others, we highlight cases where standards were absent, or outcomes were poor.

At the end of the guide, we provide a list of resources that will help you find more information about the various policies. Each resource has a hyperlinked web address for you to read more.



A meeting called at the village of Tebban to discuss opposition to the proposed 775 MW Luhri Dam on the Sutlej River in Himachal Pradesh, India. Photo by International Rivers.

Who Makes Dam Standards?

Before we describe what we consider to be the strongest social and environmental standards at each stage of a dam project, we should examine the multiple definitions of what a “standard” actually is. First, it is critical to know what laws govern the construction and operation of a dam. Project developers sometimes commit to meeting “international standards” to assure people that the dam will be well built and operated to the highest standard, but their use of this term can be vague. Thus, it is important to: (a) understand what the developer means when it commits to meeting “international standards”; (b) determine whether these standards are sufficient to protect the rights of affected communities and the environment; and (c) whether these standards are voluntary or mandatory, and if enforceable, by whom.

In the following section, we describe various possible meanings of the word “standard.”

NATIONAL LAWS AND POLICIES

The most relevant “standards” throughout any stage of dam building are national laws and policies. National laws set the requirements with which dam builders and financiers are expected to comply. For example, if a national law on water quality exists, then a dam proponent will be expected to meet the requirements of that law, and if the law is violated, the developer is penalized.

Some national laws are stronger than others. For example, laws governing biodiversity in Germany are stronger than others, while the laws governing land acquisition in India are stronger than others. These examples of national laws might varyingly be referred to as “standards” in the sense that they provide a blueprint for best practice across different legislative contexts. National laws set a benchmark for performance domestically, and they guide the behavior of companies operating abroad.

Examples of national laws include:

- United States' National Environmental Policy Act (NEPA) of 1969
- China's Environmental Protection Law of 1989
- Brazil's Law of Environmental Crimes (Law of Nature) of 1998
- India's Biological Diversity Act of 2002
- Germany's Water Management Act of 2010
- Bolivia's Law of the Rights of Mother Earth of 2010

Companies are generally expected to follow whatever has been promulgated into national law. Yet, even if laws exist on paper, they are not always implemented; corruption, political interests, or lack of institutional capacity can cause disruptions. Corruption may undercut the efficacy of national laws to assure requirements are being met. Political interests can cause a government to grant an exception to or suspend national law, as often happens in investment treaties. Or, governments simply may not have the budget or technical capacity to monitor implementation. As a result, enforcement of national law is often complicated by other factors.

INTERNATIONAL LAWS AND INSTRUMENTS

The term “standards” could also refer to those legal instruments developed by international bodies. Outside of national law, various types of policies exist, such as international covenants and declarations. UN covenants, statutes, protocols and conventions create binding obligations for those States that ratify or accede to them,⁶ and are often incorporated into national legislation. Countries must, at minimum, respect these conventions and not contribute to violating them, regardless of whether or not they comply with their obligations. However, companies operating in countries that have ratified these covenants are not directly bound to them. Rather, it is the binding “duty” of the government to comply with the covenants through national law, while it is the non-binding “responsibility” of companies to implement the laws that refer to these covenants. Some international agreements such as the UNFCCC and ILO anticipate company involvement in their wording. Yet, this is an exception to the general trend.

Examples of international laws include:

- The Conventions of the International Labor Organization (ILO)
- The Kyoto Protocol
- The UN Guiding Principles on Business and Human Rights
- The UN Principles on Development-Induced Displacement
- International Human Rights Conventions⁷

Some UN declarations, principles, guidelines, standard rules and recommendations have no binding legal effect, but have an undeniable moral force and provide practical guidance to states in their conduct. Usually, declarations are binding for states that have signed onto them, but their language is aspirational rather than mandatory. Ideally, declarations should be enacted through national legislation or constitutions. Companies developing dam projects could then fulfill those obligations by complying with national laws where investments are made.

Examples of international declarations include:

- The Universal Declaration of Human Rights (UN, 1948)
- The American Declaration of the Rights and Duties of Man (OAS, 1948)
- The Declaration on the Right to Development (UN, 1986)
- The Declaration on the Rights of Indigenous Peoples (UN, 2007)
- The UN Declaration on Sexual Orientation and Gender Identity (UN, 2008)

FINANCIAL INSTITUTION POLICIES

Financial institutions have their own standards apart from national and international law, which allow them to independently assess and manage the risks associated with financial transactions. These standards are often requirements that financial institutions expect the borrower to meet in order to obtain funding for a project. Many are project-level compliance measures expected to be fulfilled before financing is granted, while some are broader expectations of borrower performance, tying financing to borrower implementation of best or good practice principles.

One benefit of financial policies is that they outline key outcomes, such as respect for rights and environmental protection, that must be achieved throughout the life of a project. These policies help financial institutions calculate the environmental, social, governance, and other risks involved in financing a project, and often lead the financial institution to support the borrower in creating plans to mitigate impacts.

Some financial institutions, especially multilateral development banks, created their own accountability mechanisms to provide access to recourse in response to grievances from affected communities. The World Bank, for example, created the Inspection Panel in 1993 as an independent fact-finding body that investigates grievances filed over World Bank operations.⁸ The Panel reports directly to the World Bank Board of Executive Directors. Similarly, the Compliance Advisor Ombudsman (CAO) was established in 1999 to provide access to recourse for people affected by operations of the International Finance Corporation (IFC) and Multilateral Investment Guarantee Agency

(MIGA), the two private sector lending branches of the World Bank.⁹ The CAO reports directly to the President of the World Bank Group.

Examples of financial standards include:

National banks:

- KfW Bankengruppe's Sustainability Guidelines
- The Brazilian National Development Bank's Política Socioambiental
- The China Green Credit Guidelines created by the China Banking and Regulatory Commission
- China's Environmental Protection Guidelines for Foreign Investment Cooperation¹⁰

Multilateral banks:

- The World Bank Group Performance Standards
- The Asian Development Bank Safeguard Policies
- The Inter-American Development Bank Sustainability Standards

Private banks:

- The Equator Principles (based on the IFC Performance Standards)

Export credit agencies

Export credit agencies are often government institutions that provide financial credits and guarantees for exports for use in dam projects and associated facilities. Since their guarantees provide insurance against risks that could affect each project, these agencies often have their own social and environmental standards that developers must meet in order to qualify for a loan or guarantee.

Examples of export credit policies include:

- The US Export-Import Bank's Environmental Policy¹¹
- The US Overseas Private Investment Corporation Environmental and Social Policies¹²
- The OECD Common Approaches for Officially Supported Export Credits and Environmental and Social Due Diligence

CORPORATE POLICIES

Dam builders may have their own corporate policies that orient their sustainability practices and performance. These types of policies are mostly statements that outline a corporation's commitments to social responsibility, and can include policies in areas such as pollutants, social benefit-sharing, or resource efficiency plans adopted at the business' headquarters or branches. Often, dam builders will commit to International Standards Organization (ISO) standards that apply to their industry (see box). Alternatively, dam builders may commit to the sustainability principles of the United Nations Global Compact¹³ or the Global Reporting Initiative,¹⁴ two voluntary platforms for corporate sustainability.

Corporate sustainability policies may or may not be applicable to a dam builders' portfolio. When they are, these policies still have no binding force. If a dam builder voluntarily commits to ISO standards or international principles that are not required by national law, there is no way to hold the company accountable in case violations are committed.

ISO Standards

The International Standards Organization (ISO) is the world's largest developer of voluntary international standards. The ISO standards give specifications for products, services and good practice, aiming to help to make industry more efficient and effective. They are most frequently organized as technical standards across a wide variety of sectors.

Many of the standards that this guide may be advanced by compliance with ISO standards. For example, ISO 14000 outlines practices in environmental management, ISO 14064 refers to greenhouse gas emissions, and ISO 26000 refers to practices in social responsibility and is useful to human rights performance.

However, some countries' national regulations do not require adherence to ISO standards. As a result, adherence is usually voluntary at the level of corporate policy. Meanwhile, ISO standards may not actually address the rights concerns of external stakeholders such as affected communities. ISO standards are by and large technical in nature, and when used, are often only used internally by dam builders. While they may be useful as policies for technical procedures, they will not guarantee the rights of dam-affected communities.

Examples of Corporate Social Responsibility policies include:

- Sinohydro's Environmental Sustainability Policy¹⁵
- Eletrobras' Sustainability Policy¹⁶
- Statkraft's Sustainability Statement¹⁷
- GDF Suez' Ethics and Compliance Statements¹⁸

MULTILATERAL GUIDELINES, RECOMMENDATIONS AND AUDITING TOOLS

Guidelines, recommendations, and audits are voluntary and non-binding, and they often contain principles, recommendations, and/or refer to other international conventions and declarations.²⁰ Some are organized as a framework for corporate policies, while some may be adopted into laws or financial standards. They are useful in the sense that they may compile existing obligations related to a single topic into one document. Many relate to social and environmental impacts of dams, but they differ in their coverage of specific issues.

Examples of guidelines and recommendations include:

- The Guidelines and Recommendations of the World Commission on Dams
- The OECD Guidelines for Multinational Enterprises
- The Multilateral Finance Institutions Working Group on the Environment (MFI-WGE) "Common Framework for Environmental Impact Assessment"
- ISEAL Credibility Principles

Auditing tools are voluntary, non-binding, and incentives-based. They are designed for the purpose of screening and measuring a plan or a project, based on specific criteria relating to environmental and social risk management. In the realm of international auditing tools related to dams, the International Hydropower Association (IHA) developed a project-specific auditing tool called the Hydropower Sustainability Assessment Protocol (HSAP) for dam builders to internally assess their performance against a number of social and environmental topics. Similarly, WWF, the Asian Development Bank, and the Mekong River Commission developed the Rapid Basin-wide Sustainability Assessment Tool

The UN Global Compact

The UN Global Compact¹⁹ is a strategic policy initiative for businesses that are committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labor, environment and anti-corruption. With over 10,000 corporate participants and other stakeholders from over 130 countries, the UN Global Compact is the largest voluntary corporate responsibility initiative in the world.

The UN Global Compact's ten principles in the areas of human rights, labor, the environment and anti-corruption enjoy universal consensus and are derived from:

- The Universal Declaration of Human Rights
- The International Labour Organization's Declaration on Fundamental Principles and Rights at Work
- The Rio Declaration on Environment and Development
- The United Nations Convention Against Corruption

The UN Global Compact asks companies to embrace, support and enact, within their sphere of influence, a set of core values in the areas of human rights, labor standards, the environment and anti-corruption:

Human Rights

- Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and

- Principle 2: Make sure that they are not complicit in human rights abuses.

Labor

- Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
- Principle 4: The elimination of all forms of forced and compulsory labor;
- Principle 5: The effective abolition of child labor; and
- Principle 6: The elimination of discrimination in respect of employment and occupation.

Environment

- Principle 7: Businesses should support a precautionary approach to environmental challenges;
- Principle 8: Undertake initiatives to promote greater environmental responsibility; and
- Principle 9: Encourage the development and diffusion of environmentally friendly technologies.

Anti-Corruption

- Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

(RSAT), as a basin-level tool to measure hydropower development specific to the Mekong basin. The HSAP has so far been utilized mostly by hydropower companies who are members of the IHA, while the RSAT has mostly been used by governments in the Mekong basin. Both tools employ a “sustainability scoring” approach to promote stakeholder dialogue about performance relative to good and best practice.

Examples of auditing tools include:

- The Hydropower Sustainability Assessment Protocol (HSAP)
- The Rapid Sustainability Assessment Tool (RSAT) in the Mekong basin region

A RIGHTS-BASED APPROACH

“Given the significance of rights-related issues as well as the nature and magnitude of potential risks for all parties concerned, the Commission proposes that an approach based on ‘recognition of rights’ and ‘assessment of risks’ (particularly rights at risk) be developed as a tool for guiding future planning and decision-making. This will also provide a more effective framework for integrating the economic, social, and environmental dimensions for options assessment and the planning and project cycles.”

– *The Recommendations of the World Commission on Dams*

Dam development changes the lives of affected people in dramatic and often unforeseen ways. It also intrinsically changes the ecological composition of river basins, altering ecological services and natural processes in ways that may be irreversible. Such a combination of profound changes to social and environmental systems is often the result of dam builders externalizing the costs and risks of hydropower infrastructure onto affected communities and the environment upon which they depend. Recognition of the gravity of these changes invokes a responsibility to protect affected people’s rights and minimize the risks to their ecosystems and livelihoods. In this sense, a rights-based approach to dam standards is likely to produce better outcomes for all parties.

What does it mean to take a rights-based approach to dam standards? When a person has a “right” it means that they have been born with that right, independent of whether a government has granted a recognition of that right. In all situations, human beings have

What is Enforceable?

It is important to keep in mind that no matter what kind of standard is produced by each institution, some of the above policies are voluntary, while others are mandatory. For those that are mandatory, it is important to know who might be able to enforce the provisions and how hard it is to enforce them. It is often only the government that has the right to enforce a standard governing construction of a dam, for example.

To determine whether a standard is mandatory, one needs to determine whether the developer is bound by the legal instrument creating the standard, and whether the provision is obligatory. For example, if a law says a developer “shall” do something, that is a good indication that the standard might be binding. The next question is whether the community can enforce the standard. These are all questions that should be answered by a local lawyer.

the capacity to insist their rights be respected. If a right is not respected, access to justice and remedies for grievances should still be available. Additionally, whenever someone has a “right” it means that someone else has a corresponding “duty.” In this case, it is the duty of governments, and the responsibility of businesses, to respect rights. So a rights-based approach clearly insists that people must have access to both justice and remedies, while it defines the duties and responsibilities of all actors involved: the host governments, the financiers, the developers, the consulting firms, and others.

A rights-based approach differs from a voluntary, best practices approach in that developers must actively uphold their responsibility of protecting affected people’s rights and avoiding risks in a way that is satisfactory to external stakeholders. This differs from simply making an internal commitment to reform or from incorporating technical changes into project designs.

Finally, understanding dam standards from the lens of rights, duties, and responsibilities helps us to identify which standards should be promoted, and what should happen during their implementation. This guide argues that the highest dam standards are those that create the best outcomes. They are discussed in detail in the section that follows.



ecting river water
for consumption,
ng River. Photo by
hep Kritsanavarin.

Social and Environmental Dam Standards

The life of a dam is made up of discrete stages. It is born inside the planning processes of government ministries and agencies, approved in the legal system, paid for by project financiers and underwriters, constructed and operated by developers and contractors. In each case, a dam will age and must either be rehabilitated or decommissioned. Let's walk through the stages of a dam project to understand which standards you should promote and when. There are critical project and financing decisions taken at each stage, and assessing decision-makers' performance and compliance with standards at each moment is a critical opportunity to influence project outcomes. In some cases, if a dam does not meet the standards that follow, it most likely means it should not be built.

Rights Across All Stages

A number of the rights described in this guide are cross-cutting, meaning they apply to all or most stages of a dam project.

These cross-cutting areas include:

- Human Rights
- The Principle of Meaningful and Accountable Consultation and Participation
- Gender and Women's Rights
- Indigenous Peoples' Rights
- Labor Rights

Human Rights

Dams often violate human rights among diverse groups of stakeholders, in sometimes grave and irreversible ways. Human rights standards are cross-cutting across various aspects of hydropower projects and should be applied during various circumstances. These standards apply to all populations potentially affected by dams, but women and indigenous peoples also have rights that are specific to them, and these are described in following sections.

According to the World Commission on Dams, “Various types of rights may be relevant in the context of large dam projects. These include constitutional rights, customary rights, rights codified through legislation, property rights or the rights of developers and investors. They can be classified on the basis of their legal status, their spatial and temporal reach, or their purpose. In the spatial and temporal dimensions, one can

distinguish the rights of local, basin, regional and national entities, the rights of riparian countries, or the rights of present and future generations. Regarding the purpose or subject of rights, one can distinguish rights to material resources such as land and water, and rights to spiritual, moral, or cultural goods such as religion and dignity.” (p. 206)

Some human rights, especially those related to political rights, are not ratified by all countries. Some governments may argue that “human rights” is a western concept. For other governments, the leverage of human rights is much stronger. Still, human rights conventions have been widely accepted in most parts of the world: the ICCPR has 174 parties; the ICESCR has 160, including China; CEDAW has 187, including China; and there is currently movement in ASEAN countries to adopt some sort of multilateral agreement on human rights.

Government Duty vs. Corporate Responsibility to Respect, Protect, and Fulfill Human Rights

Traditionally, it is the government that has the *duty* to respect, protect, and fulfill human rights. As a result, rights may be violated if governments do not fulfill their duty. That could happen, for example, if a government does not protect its people from the abuses of third parties, like corporations. But in that case, the violation would be committed by the government, not the corporation itself.

The **UN Framework on Business and Human Rights** establishes the *responsibility* of corporations to respect human rights. Corporate responsibility differs from government duty. If a corporation has not upheld its responsibility under the UN Framework, it is not technically correct to say that it has also committed a violation of a treaty.

In general, human rights laws and policies are found in the following international agreements:

- The Core UN Human Rights Treaties²¹ and the optional protocols to these treaties
- The International Bill of Human Rights,²² which includes the International Covenant on Civil and Political Rights and the International Covenant on Economic, Social, and Cultural Rights
- The International Labor Organization Conventions, Protocols, and Recommendation²³

The Right to Self-determination

Dams, like any infrastructure project, may impact people's right to self-determination. Self-determination is a collective right which is available both to peoples as well as individuals. It encompasses the right of peoples to freely determine their political status, freely pursue their economic, social, and cultural development, and freely dispose of their natural wealth and resources.

Relevant policies:

- Article 1 ICCPR
- Article 1 ICESCR

The Right to Life

Dam development may place individuals, families, or communities at risk of violence. The right to life includes the right not to be deprived of life, the right to have one's life protected, and the right to reasonable protection from threats to one's life (including those which arise outside the context of violence). States must protect the right to life of those within their territory. For instance, they must refrain from unlawful or arbitrary killing, use of the death penalty must be limited to only the most serious crimes, executions should not occur under convictions which infringe the right to a fair trial. Additionally, states must provide appropriate health care to facilitate the right to life and must ensure access to basic necessities which enable survival, including food and essential medicines.

"The practice of forced evictions is widespread and affects persons in both developed and developing countries. Owing to the interrelationship and interdependency which exist among all human rights, forced evictions frequently violate other human rights. Thus, while manifestly breaching the rights enshrined in the Covenant, the practice of forced evictions may also result in violations of civil and political rights, such as the right to life, the

right to security of the person, the right to non-interference with privacy, family and home and the right to the peaceful enjoyment of possessions."

– *General Comments of the UN Treaty Bodies*

Relevant policies:

- Article 6 ICCPR
- Article 3 UDHR

The Right to Equality Before the Law and Equal Protection of the Law

Often times, dam planners and builders do not recognize dam-affected communities as equal under the law to non-affected communities. The right to equality before the law, equal protection of the law, and rights of non-discrimination requires protection from discrimination on grounds including race, color, sex, language, religion, political or other opinion, national, or social origin, property, and birth or other status. The latter is interpreted widely and includes health, disability, marital status, age, and sexual orientation.

Relevant policies:

- Article 26 ICCPR
- Article 7 UDHR
- Article 2 UNDRIP

Rights of Non-discrimination

Sometimes, dam planners and builders discriminate against dam-affected communities in order to build a project. The term "discrimination" includes any distinction, exclusion, or preference made on one or more of the above grounds which has the effect of reducing or removing equality of opportunity or treatment.

Relevant policies:

- ICERD
- CEDAW
- CRPD
- Article 1 of the UDHR
- Article 2 of the UDHR

"All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood."

"Everyone is entitled to all the rights and freedoms set forth in this Declaration, without distinction of any kind, such as race, colour, sex, language, religion,

political or other opinion, national or social origin, property, birth or other status. Furthermore, no distinction shall be made on the basis of the political, jurisdictional or international status of the country or territory to which a person belongs, whether it be independent, trust, non-self-governing or under any other limitation of sovereignty.”

– *Articles 1 and 2 of the Universal Declaration of Human Rights*

The Right to Water and Sanitation

Dams can fundamentally change dam-affected people’s right to access and use water, by flooding, dewatering, and/or altering the course of a river on which they depend. The right to water and sanitation recognizes access to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights.

Relevant Policy:

- UN Resolution 64/292

The Right of Freedom of Movement

By displacing hundreds, thousands, and sometimes more, dams also fundamentally impinge on affected people’s right to freedom of movement. This right entails the right to move freely and to choose where to live (as long as a person is lawfully present in the State) as well as the right to leave the country. The denial of the right to freedom of movement can impact on the ability to exercise other human rights; for example, being politically repressed or not being allowed to practice one’s own religion.

Relevant policies:

- Article 13 of the UDHR
- Article 12 of the ICCPR
- ICCPR General Comment 27

Rights to Freedom of Opinion and Expression

Often times, opponents of dams are threatened with repression for exercising their freedom of opinion and expression. The right to hold an opinion without interference is a right that cannot be suspended or limited under any circumstances. The right to expression includes the right to seek, receive, and impart information and ideas through any media and regardless of frontiers. This right may be restricted by law on the basis that it is necessary to protect the rights or reputation of others (for example, the right to privacy) or to protect national security, public order, public health, or morals.

Relevant policies:

- Article 19 ICCPR
- Article 19 UDHR

The Right to Freedom of Speech

Transparent access to information should be a central practice of any dam builder and financier. However, in repressive regimes, dam builders and financiers may purposely withhold information from or prevent dam-affected people from freely expressing their speech regarding a project. Freedom of speech is understood as a multi-faceted right that includes not only the right to express, or disseminate, information and ideas, but three further distinct aspects: the right to seek information and ideas; the right to receive information and ideas; and the right to impart information and ideas.

Relevant policies:

- Article 19 of the ICCPR
- Article 10 of the European Convention on Human Rights
- Article 13 of the American Convention on Human Rights
- Article 9 of the African Charter on Human and Peoples’ Rights
- Article 19 of the UDHR

“Everyone has the right to freedom of thought and expression. This right includes freedom to seek, receive, and impart information and ideas of all kinds, regardless of frontiers, either orally, in writing, in print, in the form of art, or through any other medium of one’s choice.

The right of expression may not be restricted by indirect methods or means, such as the abuse of government or private controls over newsprint, radio broadcasting frequencies, or equipment used in the dissemination of information, or by any other means tending to impede the communication and circulation of ideas and opinions.”

– *Article 13 (1) and (3) of the American Convention on Human Rights*

The Right to Freedom of Assembly

This right protects the right of people to assemble peacefully and includes public demonstrations and protests. The scope of this right is limited only by laws necessary for the protection of national security, public safety, public order, public health or morals or the protection of the rights and freedoms of others. Dam builders can be implicated in the violation of this right if they, for example, seek to prevent public demonstrations in opposition to their projects either through the use of private security forces, or with government assistance.

Relevant policies:

- Article 21 ICCPR
- Article 20 UDHR, Voluntary Principles on Security and Human Rights
- UN Code of Conduct for Law Enforcement Officials
- UN Basic Principles on the Use of Force and Firearms

The Right to Freedom from Torture and Degrading Treatment

When dams are built under repressive regimes, repression of dam opponents may include torture or degrading treatment. This right includes the right to freedom from “any act by which severe pain or suffering, whether physical or mental, is intentionally inflicted on a person for such purposes as obtaining from him or a third person information or a confession, punishing him for an act he or a third person has committed or is suspected of having committed, or intimidating or coercing him or a third person, or for any reason based on discrimination of any kind, when such pain or suffering is inflicted by or at the instigation of or with the consent or acquiescence of a public official or other person acting in an official capacity.”

Relevant policy:

- The Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment

The Right to Health

Dams often cause irreversible negative impacts on dam-affected communities’ health. For example, a slow-moving reservoir in the tropics may attract zoonotic diseases such as malaria, schistosomiasis, and leishmaniasis. Everyone has the right to the enjoyment of the highest attainable standard of physical and mental health. State parties are to take steps to achieve the full realization of this right, such as the reduction of infant mortality rates, provision for the healthy development of children, improvement of all aspects of environmental and industrial hygiene, the prevention, treatment, and control of disease and the creation of conditions ensuring that medical services and attention are available to all in the event of sickness. The right to health is innately linked to the right to an adequate standard of living.

Relevant policies:

- Article 12 ICESCR
- Article 25 UDHR
- Articles 21 & 24, UNDRIP

“Indigenous peoples have the right to their traditional medicines and to maintain their health practices, including the conservation of their vital medicinal plants, animals, and minerals. Indigenous individuals also have the right to access, without any discrimination, to all social and health services.

Indigenous individuals have an equal right to the enjoyment of the highest attainable standard of physical and mental health. States shall take the necessary steps with a view to achieving progressively the full realization of this right.”

– Article 24 (1) and (2), the United Nations Declaration on the Rights of Indigenous Peoples

The Right to Housing

In some situations, dam-affected communities or populations may be derived of culturally-appropriate housing as a result of displacement or a resettlement plan. The right to housing is recognized as part of the right to an adequate standard of living. Article 25 of the Universal Declaration of Human Rights states that “Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control”

Relevant policies:

- Article 25 of the UDHR
- Article 11 of the ICESCR
- The 1991 General Comment no 4 on Adequate Housing by the UN Committee on Economic, Social and Cultural Rights
- The Yogyakarta Principles on the application of international human rights law in relation to sexual orientation and gender identity
- Article 16 of the European Social Charter (Article 31 of the Revised European Social charter)
- The Basic Principles and Guidelines on Development-Based Evictions and Displacement
- Regional policies, such as the African Charter on Human and Peoples’ Rights²⁴

The Right to Food

Dams can cause large negative impacts on fisheries and soil quality, which may disrupt dam-affected communities’ food security. The UN Special Rapporteur on the Right to Food in 2002 defined the right to food as “The right to have regular,

Case Study: Human Rights Violations Over Land Grabs and Resettlement for Gibe 3 Dam, Ethiopia

The Gibe 3 Dam began construction in 2006 on the Omo River Basin in Ethiopia, and is set to begin operation in 2014. The 243-meter dam has the capacity to produce up to 1870 MW of hydroelectricity; the regulation of the river also allows the diversion of water, which will be used to irrigate 240,000 hectares of large-scale agriculture.

According to Human Rights Watch, Ethiopian government security forces have committed various human rights violations against indigenous communities in the Lower Omo Valley during the construction of the Gibe 3 Dam and clearing out settlements to make way for sugarcane plantations that would be irrigated with water diverted from the river just below the dam. The report, "What Will Happen When Hunger Comes? Abuses Against the Indigenous Peoples of Ethiopia's Lower Omo Valley," found in 2011 that "local government and security forces had carried out arbitrary arrests and detentions, used physical violence, and seized or destroyed the property of indigenous communities. Residents said military units regularly visited villages to intimidate residents and suppress dissent related to the sugar plantation development. According to local people anything less than fully expressed support for plantation development was met with beatings, harassment, or arrest. In addition several agro-pastoral communities in the Lower Omo told



Three Generations of Women Looking Out Over the Omo River.
Photo by Alison M. Jones, www.nowater-nolife.org

Human Rights Watch that state agents informed them that they would have to reduce cattle numbers, settle in one place, and most probably lose access to the Omo River – all of which are critical to their livelihoods and food security. Soldiers regularly stole or killed cattle.”²⁷

Although the Ethiopian government signed the International Covenant on Economic, Social and Cultural Rights (ICESR) in 1993, it has unfortunately never signed or ratified the majority of international human rights treaties and covenants.

permanent and unrestricted access, either directly or by means of financial purchases, to quantitatively and qualitatively adequate and sufficient food corresponding to the cultural traditions of the people to which the consumer belongs, and which ensure a physical and mental, individual and collective, fulfilling and dignified life free of fear.”

Relevant policies:

- Article 25 of the UDHR
- Article 2 of the 1948 Genocide Convention
- Articles 20 and 23 of the CRSR
- Articles 24 and 27 of the CRC
- Article 12 of CEDAW

- Articles 25 and 28 of the CRPD

- General Comment 12 of the ICESCR Article 12 ICESCR

The Right to Culture

Dams may cause a profound and irreversible change to affected communities' culture. For example, indigenous people who consider a river a sacred component of their culture and origin story, and depend on the river for sustenance, may be changed forever as a result of a dam. The right to culture includes the right to freely participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits, and the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.

Relevant policies:

- Universal Declaration on Cultural Diversity
- Article 27 of the UDHR

Rights of Disabled People

Dams may cause more significant impacts on those members of dam-affected communities who are disabled in any way. Persons with disabilities enjoy the same human rights and the same full equality under the law as any other person.¹

Relevant policy:

- The UN CRPD²⁵

Rights of the Child

Similarly, dams may cause disproportionate impacts on children, in relation to other members of dam-affected communities. The rights of the child state that “every human being below the age of eighteen years, unless, under the law applicable to the child, majority is attained earlier,” has the right to non-discrimination; the right of devotion to the best interests of the child; the right to life, survival and development; and respect for the views of the child.

Relevant policy:

- The UN CRC²⁶

FURTHER READING:

- Search the Universal Human Rights Index for recommendations made to specific countries: <http://www.ohchr.org/EN/HRBodies/Pages/UniversalHumanRightsIndexDatabase.aspx>
- Read the Universal Declaration of Human Rights in over 400 languages at <http://www.ohchr.org/EN/UDHR/Pages/Introduction.aspx>
- Read a “Rights and Democracy Guide to Human Rights Impact Assessments” at: <http://equalit.ie/content/human-rights-impact-assessment-tool>

IDEAS FOR ACTION:

- Every one of the treaties has a treaty body that monitors implementation and usually has some form of complaints procedure. These treaty bodies are committees of independent experts that monitor the implementation of the United Nations human rights treaties by States parties. They do this by reviewing reports submitted periodically by States parties on steps taken to implement treaty provisions. Most human rights treaty bodies are competent to receive and consider individual complaints, while several may conduct inquiries.
 - ❑ Read the Civil Society Handbook for Working with the United Nations Human Rights Programme http://www.ohchr.org/EN/AboutUs/CivilSociety/Documents/Handbook_en.pdf
 - ❑ To access links to each treaty body, visit the United Nations webpage: <http://www.ohchr.org/EN/HRBodies/TBPetitions/Pages/HRTBPetitions.aspx>
- Several special procedures mechanisms intervene directly with Governments on specific allegations of violations of human rights that come within their mandates. There are also complaint procedures that are received by UN special rapporteurs.
 - ❑ These are available through the webpage of the Special Procedures of the Human Rights Council: <http://www.ohchr.org/en/HRBodies/SP/Pages/Welcomepage.aspx>
 - ❑ Access the communications portal to submit information to a special procedures mechanism: <http://www.ohchr.org/EN/HRBodies/SP/Pages/Communications.aspx>
 - ❑ In 2007, the Office established a Complaint Procedure for the UN Human Rights Council. Read the instructions on how to submit complaints and information at <http://www.ohchr.org/EN/HRBodies/HRC/ComplaintProcedure/Pages/HRCComplaintProcedureIndex.aspx>
- Contact National and Regional Human Rights Institutions that coordinate with the UN at <http://www.ohchr.org/EN/Countries/NHRI/Pages/NHRIMain.aspx>
- Download and use a Human Rights Impact Assessment Toolkit from Nomogaia: <http://nomogaia.org/tools/>

The Principle of Meaningful and Accountable Consultation and Participation

Dams create large and sometimes irreversible impacts on affected communities located in the project impact area. As a result, participation of affected communities in development decisions is necessary as a way to protect communities' rights and create positive outcomes. Proper participation involves ensuring institutional transparency, granting access to information, holding proper consultations, and ultimately assuring the participation of affected communities in decision-making, at each stage of project development.

The principle of meaningful and accountable consultation and participation is a facet of human rights. The UN General Assembly Human Rights Council has stated that "the human rights whose enjoyment can be affected by environmental harm are not the only rights directly relevant to the environment. Another approach to clarifying the relationship of already recognized rights with the environment is to identify rights whose implementation is vital to environmental policymaking. In general, these are rights whose free exercise makes policies more transparent, better informed and more responsive. They include rights to freedom of expression and association, rights to receive information and participate in decision-making processes, and rights to legal remedies. When directed at environmental issues, the exercise of such rights results in policies that better reflect the concerns of those most concerned and, as a result, that better safeguard their rights to life



Day of action praying for the Salween River, Myanmar, 2013. Photo by International Rivers.

and health, among others, from infringement through environmental harm.”²⁸

The Right to Transparency and Access to Information

Project-affected people have the right to access to free and transparent information regarding any facet of a dam or series of dams, whose direct, indirect, and cumulative impacts on them and the ecosystem services which they use.

The right to information and participation in decision-making is protected under the larger banner of human rights. John Knox, the UN Independent Expert on Human Rights and the Environment, summarizes these in a recent report.²⁹

Relevant Policies:

- Inter-American System: Organization of American States General Assembly Resolutions³⁰
- European System: The UNECE Aarhus Convention Article 4
- Article 27, UNDRIP

The Right to Participation in Decision-Making

Affected people occupy a disadvantaged position in political and economic decisions which affect their livelihoods. Civil society organizations and affected people have the right to fully participate in decision-making which affects them, including in plan, policy, and project-level decisions. Civil society and affected people should be able to freely play

The UNECE Aarhus Convention

One of the strongest examples of multilateral legal cooperation to protect the principle of meaningful and accountable consultation and participation is the Aarhus Convention. The Aarhus Convention is limited to the Member States of the European Union. However, similar efforts to create multilateral agreements regarding transparency and participation in other regions are underway. Generally, the Aarhus Convention recognizes the Right to Transparency and Access to Information, the Right to Participation in Decision-Making, and the Right to Access to Justice, which are described below.

a role in strengthening regional water and energy development planning, and in assuring that project financiers and developers comply with best practices during project implementation.

Relevant Policies:

- The UNECE Aarhus Convention Article 6, Public Participation In Decisions On Specific Activities.
- The UNECE Aarhus Convention Article 7, Public Participation Concerning Plans, Programs And Policies Relating To The Environment.
- The UNECE Aarhus Convention Article 8, Public Participation During The Preparation Of Executive Regulations And/Or Generally Applicable Legally Binding Normative Instruments.
- Article 18, UNDRIP

Right to Access to Justice

Project-affected people have the right to a grievance mechanism that grants access to justice in the case that plans, policies, and projects cause negative impacts. Project-affected communities also have the right to the legal enforcement of remedies for grievance, which must be made available at the time it is expressed.

Relevant Policies:

- The UNECE Aarhus Convention Article 9, Access to Justice
- The OECD Guidelines for Multinational Enterprises
- Article 28, UNDRIP

Grievance Mechanisms and Access to Remedy

The Guiding Principles of the UN Framework on Business and Human Rights Guiding Principles state:

"As part of their duty to protect against business-related human rights abuse, States must take appropriate steps to ensure, through judicial, administrative, legislative or other appropriate means, that when such abuses occur within their territory and/or jurisdiction those affected have access to effective remedy."

– *Foundational Principles on Access to Remedy (25), Guiding Principles on Business and Human Rights*³¹

Meanwhile, the OECD Guidelines for Multinational Enterprises state the following:

"When enterprises identify through their human rights due diligence process or other means that they have caused or contributed to an adverse impact, the Guidelines recommend that enterprises have processes in place to enable remediation. Some situations require cooperation with judicial or State-based non-judicial mechanisms. In others, operational level grievance mechanisms for those potentially impacted by enterprises' activities can be an effective means of providing for such processes when they meet the core criteria of legitimacy, accessibility, predictability, equitability, compatibility with the Guidelines and transparency, and are based on dialogue and engagement with a view to seeking agreed solutions. Such mechanisms can be administered by an enterprise alone or in collaboration with other stakeholders and can be a source of continuous learning. Operational-level grievance mechanisms should not be used to undermine the role of trade unions in addressing labour-related disputes, nor should such mechanisms preclude access to judicial or non-judicial grievance mechanisms, including the National Contact Points under the Guidelines."

– *Paragraph 46 of the OECD Guidelines for Multinational Enterprises*³²

Case Study: No Transparency in the Murum Dam, Sarawak, Malaysia

From 2012 through 2013, in Sarawak, Malaysia, state dam builder Sarawak Energy built the Murum Dam. However, Sarawak Energy began construction prior to releasing the project EIA to the project-affected communities, a large percentage of whom are Penan indigenous people. Without having access to project information from Sarawak Energy, the affected Penan had no way of learning of the project impacts, nor of exercising their right to consent and participation in the mitigation plans.

The Government of Malaysia ratified the UNDRIP in 2007, and thus recognizes indigenous peoples' rights to information, participation in decision-making, and redress. However, UNDRIP remains an aspirational declaration, not a binding covenant. As a result, Malaysian federal law is not required to protect these rights, but is rather only expected to aspire to their implementation.

In the meantime, Sarawak state law is distinct from Malaysian federal law. Before the creation of Malaysia as a federation of independent nation-states, the state of Sarawak signed an 18-point agreement establishing Sarawak's "free association" with the Federation of Malaysia. As a result, not all Malaysian constitutional law applies within Sarawak.

Still, as of 2011, Sarawak Energy has been a partner of the Hydropower Sustainability Assessment Protocol. The HSAP score for "best recognized practice" in governance-related stakeholder engagement states that a dam builder *"must make significant project reports publicly available and publicly reports on project performance in sustainability areas of high interest to its stakeholders."*⁸³ In an HSAP implementation stage assessment of the Murum Dam in 2012, Sarawak Energy scored low in this and other sustainability topics.

Because of the limitations to both federal and state implementation of UNDRIP, Sarawak Energy was able to avoid protecting indigenous peoples' rights to transparency, participation in decision-making, and redress. During 2012 and 2013, affected Penan blockaded roads in protest.

Despite the poor results both in assessment and on the ground, policy-level protection of affected people's rights have not been implemented, at both the level of the Sarawak state, and at the corporate level of Sarawak Energy.

FURTHER READING:

- Read about laws and practices relevant to the rights described in the Aarhus Convention at the Convention's clearinghouse: <http://aarhusclearinghouse.unece.org/>
- Read the resources on grievance procedures at the Business and Human Rights Resource Centre: <http://www.business-humanrights.org/ToolsGuidancePortal/Issues/Grievanceprocedures>

IDEAS FOR ACTION:

- Contact the UN Human Rights treaty bodies to lodge complaints or request more information, as outlined in the above section on Human Rights.
- Learn how to promote the same rights recognized within the Aarhus Convention in your region:
 - ❑ Contact the Aarhus Convention Secretariat http://www.unece.org/env/pp/fp_secretariat.html
 - ❑ Contact the Aarhus Convention National Focal Points <http://www.unece.org/environmental-policy/treaties/public-participation/envppcontacts-fp/envppfpnew.html>
 - ❑ Contact Aarhus Convention non-governmental organization contacts http://www.unece.org/env/pp/fp_org.html

Gender and Women's Rights



Riverine women along the Mekong River. Photo by International Rivers.

Women's rights are human rights. Having a clear understanding of the gender dimensions within river-basins is required for good practice planning to ensure that the needs, rights and interests of all uses and users of a river are considered. If gender issues are not considered, projects often reinforce or expand inequalities between women and men.

Planning and policy tools mentioned later in this paper, such as social impact assessments, human rights assessments, "do no harm" safeguard policies and basin scale planning should consider the particular and often distinct interests of men and women. In practice this can be best be achieved by both implementing a "mainstreaming approach" to considering gendered rights and outcomes across all processes and cycles of a project's development, as well as by employing stand-alone gender assessments and gender action plans.

Because real power imbalances exist between men and women in most societies, these assessments and plans should include understanding of the different opportunities and resources afforded to them, and the differential impact of development on them that result. Projects are rarely gender neutral in their impacts. Achieving gender justice is fundamental to overcoming poverty, suffering and injustice.

Women are consistently under-represented in decision making around hydropower and infrastructure development. This is particularly of concern as it is women and girls who are disproportionately affected by changes to ecosystems, livelihoods and social structures – changes that occur in the development of

most dam projects. As with other elements of 'benefit sharing,' there are times and instances where there can be positive influences on women and gender relations, but these are possible only when there are best practice approaches in place that consider the rights and interests of women consistently from basin planning all the way through a project's operation.

Basin Context

Gender dimensions should be understood in a basin context. Where a dam project is being developed ensuring analysis of the baseline situation should include assessment across impact areas, including: the lands and resources around the project site; the reservoir and infrastructure impact areas and the upstream and downstream watersheds. Also important are consideration of gender dimensions at host community sites if there is involuntary resettlement anticipated.

Across Project Cycle

Understanding gender dimensions should be mainstreamed in all data and information collection regarding a project – from early stage pre-feasibility for projects all the way through a project's development, implementation, management and operation. Particularly important are project stakeholder consultations; human rights and social impact assessments. Consultations, including processes designed to advance the Free, Prior, and Informed Consent of project affected peoples should ensure equal participation of men and women, and project grievance mechanisms should also be designed with consideration of gender issues of access and use. Analysis from basin scale assessments, baseline data capture through to impact analyses and action plans should be inclusive of women, and consider gendered outcomes.

Relevant Policies:

- Convention on the Elimination of All Forms of Discrimination against Women (CEDAW); The "Women's Bill of Rights." More than 185 countries are parties to the Convention.

CEDAW has an optional Protocol which enables individuals or groups of individuals to seek redress for violations of their human rights under the international human rights treaty. An international complaint mechanism can be effective in drawing international attention to alleged violations of rights.

Case Study: The Asian Development Bank's Gender Impact Assessment for the Song Bung 4 Dam

The Song Bung 4 Dam³⁴ (156 MW) is being constructed in Quang Nam Province in northwest Vietnam, close to the border with Laos. The project affects villages of the Co Tu indigenous ethnic minority group, whose economy and cultural organization is heavily subsistence-based. Co Tu women are largely agriculturalists, and are responsible for 57% of subsistence labor compared with 35% for men and 8% for children. Women have no ownership of land, houses, or other assets in the patrilineal and patrilocal Co Tu culture, and were recognized to have little representation in the traditional leadership and decision-making of villages. The Song Bung 4 Dam reservoir was projected to flood areas of three Co Tu communes and four villages, leading to the resettlement of community inhabitants, and changes to women's subsistence strategies, agricultural activities, and cultural traditions, structure, and worldview.

The Vietnam government ratified CEDAW in 1980, and in 2002, the Prime Minister approved the first ten-year plan for the Advancement of Women. In 1993 the government created the National Committee for the Advancement of Women to promote the status of women and provide advice on the development and advancement of the five-year National Plans of Action for Women's Advancement, though the ADB's Gender Action Plan found that neither the committee nor the five-year plans had separate budgets or proper capacity. The Ministry of Agriculture and Rural Development in 2003 created a Gender Strategy in Agriculture and Rural Development through 2010.

The Asian Development Bank has a Policy on Gender and Development, which adopts gender mainstreaming as a key strategy for promoting gender equality, and for ensuring that women participate in and that their needs are explicitly addressed in the decision-making process for development activities. The policy requires a Gender Action Plan to address concerns and involve women in the design, implementation, and monitoring of projects which affect them. The policy requires gender sensitivity to observe how the project impacts women and men

differently and to take account of their different needs and perspectives in resettlement planning; gender analysis to systematically assess project impacts on men and women and on their economic and social relationships; gender planning to formulate specific strategies to bring about equal opportunities to men and women; mainstreaming to ensure consideration of gender issues at all stages of the project and that women participate in the decision-making process; and agenda setting.

In 2007, the Asian Development Bank and Electricity of Vietnam produced a Gender Action Plan for Phase II of the Song Bung 4 Dam. The Action Plan included a Gender Impact Assessment to study the negative and positive impacts of the dam on women's lives, as well as a mitigation plan of activities related to village relocation, ownership and compensation, livelihoods restoration and development, and fishery compensation, among others. The plan outlined a strategy to mainstream gender concerns into all areas of the project, across its planning, implementation, and monitoring and evaluation activities, and mainstreamed gender issues into all data gathering, stakeholder consultations, analysis and planning components.

Women and gender aspects were incorporated into gender-specific mitigation activities across the entire project cycle. These included:

- Gender-separated stakeholder consultations
- Integrating women's concerns about resettlement, livelihoods development programs, and monitoring and evaluation
- Designing gender-separate technical training and income earning improvement components
- Incorporating women into the selection of resettlement sites and into designing village layouts
- Extending land use rights to men and women equally
- Creating gender-separate workshops

continued next page

Case Study continued

- Including women in Community Based Forest Development Plans
- Extending training for women
- Creating a grievance committee mechanism specifically for Co Tu women
- Creating capacity building programs for women, and awareness activities about HIV/AIDS and trafficking
- Integrating female health issues into the project's Health Action Plan
- Prioritizing the selection of women for employment in the dam project
- Disaggregating monitoring indicators by gender and ethnicity
- Creating trainings for gender sensitivity

FURTHER READING:

- Read Oxfam Australia's Gender Impact Assessment and Hydropower: www.oxfam.org.au/giamanual

IDEAS FOR ACTION:

- Submit your own reports to the CEDAW committee: http://www.un.org/womenwatch/daw/cedaw/NGO_Information_note_CEDAW.pdf

The Rights of Indigenous People

As in all development projects, with dams, indigenous people must be guaranteed the right to self-determination, including the right to make development decisions that influence their cultural, social, physical, ecological, and economic well-being. The full breadth of the rights of indigenous people is covered by the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), and is too broad to describe here. Below, we focus on aspects of indigenous rights which are especially important to protect in relation to dam-building.

The Right to Self-determination and Self-government

Article 3 of the UNDRIP states that “Indigenous peoples have the right to self-determination. By virtue of that right they freely determine their political status and freely pursue their economic, social and cultural development.”

The definition of the term Indigenous People has been hotly debated. For example, the Government of China recognizes “minority groups,” but not “indigenous groups;” though the two may be the same, the way that they are categorized by law is a political decision. Where “indigenous people” are recognized politically, there may be various definitions of the terms “People” and “Community.” “People” usually refers to the communal identity of a tribal nation. Tribal national identity often transcends political, geographical, and economic boundaries. Examples may be Navajo, Cree, Ikpeng, Shuar, and the like. The term “Community,” on the other hand, often refers to a specific set of families or relations within a “People” that share common political, geographical, economic, and other boundaries. Examples may include “La comunidad del 7 de septiembre” or “the White Lake community.”

Who specifically enjoys what type of rights within indigenous peoples has also been highly debated. The term “Collective Rights” is usually contrasted with versus the term “Individual Rights” in this fashion. Indigenous peoples’ rights often refer to both collective and individual rights shared by an Indigenous People as well as their representative indigenous communities, and the distinct members of those communities.³⁵

Indigenous Peoples’ Land Rights and Permanent Sovereignty over Natural Resources³⁶

Indigenous peoples’ development, and in fact physical and cultural survival, is intricately linked to their lands and resources. Indigenous peoples have

a “distinctive and profound spiritual and material relationship with their lands and resources”³⁷ and this relationship forms the “fundamental basis of their cultures, their spiritual life, their integrity, and their economic survival.”³⁸

The realization of indigenous peoples’ rights to own their lands and resources is therefore “critical to the future well-being, the alleviation of poverty, the physical and cultural survival, and the social and economic development of indigenous peoples.” Indigenous peoples own their land and resources collectively, and though they often lack official title, their aboriginal title, or ownership by reason of long-standing possession, is recognized in international law. Because they are distinct peoples, indigenous peoples have what is referred to as permanent sovereignty over their natural resources, or “legal, governmental control and management authority.”³⁹

Under UN Declaration Arts. 26 and 32., indigenous peoples have rights to full collective ownership over lands, territories and resources under their possession, including both traditional lands and those they have otherwise acquired. This includes legal, governmental control and management authority, or what is known as indigenous peoples’ permanent sovereignty over their natural resources. States have an obligation to recognize these rights enshrined in core international treaties⁴⁰ the UN Declaration⁴¹ and other instruments.⁴²

Respect to indigenous peoples’ collectively held lands and resources is at the heart of their demands to States and intergovernmental organizations. The right of self-determination and collective ownership rights to land and resources are central for the physical and cultural survival of indigenous peoples as distinctive peoples within the existing nation-states. Any project on indigenous lands or affecting said lands (i.e. energy, infrastructure and extractive) must respect indigenous peoples’ land rights.

Free, Prior, and Informed Consent

Free, Prior, and Informed Consent (FPIC) is recognized by multilateral international bodies, most principally by the United Nations. It generally states that indigenous peoples have the right to approve or reject proposed actions or projects that may affect them or their lands, territories or resources.

Article 10 of the UNDRIP states that “Indigenous peoples shall not be forcibly removed from their lands

FPIC Interpreted by the Law of the Government of Peru

In general, FPIC is far from being implemented evenly in practice. One example illustrates how FPIC has recently been implemented at the level of national policy. In 2013, the Government of Peru published a “Methodology Guide on the Law on the Right to Prior Consultation of Indigenous and Aboriginal Peoples.”⁴⁷ The guide describes a seven-step process for the prior consultation of affected indigenous peoples:

- Identification of the measure on which to consult
- Identification of the indigenous peoples and their representative organizations to be consulted
- Publication of the measure
- Information sharing
- Internal evaluation of the indigenous peoples
- Dialogue between the State and indigenous peoples
- Decision

or territories. No relocation shall take place without the free, prior and informed consent of the indigenous peoples concerned and after agreement on just and fair compensation and, where possible, with the option of return.”

FPIC and Women’s Rights

FPIC requires respect for indigenous peoples’ traditional and contemporary representative structures, and customary laws and practices of communities including collective decision making practices. FPIC processes must also involve the participation of both indigenous women and men. The right to FPIC (and more generally to participate in community decision making processes) is not one held by men only. Women have equal rights⁴⁴ including to participate in community decision making processes, to benefit from development and to be safe from the potential negative impacts of actions and projects. Yet it must be acknowledged that indigenous women often face exceptional impediments to participation in decision making.⁴⁵ Any supposed justifications based on

culture for the exclusion of indigenous women must be challenged – within many indigenous communities, women do have (or traditionally had) important decision making roles. Dam companies should not condone, tolerate or perpetuate discrimination against women. They should acknowledge and work to avoid the gendered impacts of dams⁴⁶ including by ensuring the involvement of indigenous women in FPIC processes.

Right to Participate in the Adoption of Decisions

Article 18 of UNDRIP states that “Indigenous peoples have the right to participate in decision-making in matters which would affect their rights, through representatives chosen by themselves in accordance with their own procedures, as well as to maintain and develop their own indigenous decision-making institutions.” This right reinforces the broader human rights to transparency, participation, and access to justice.

“Free, Prior, and Informed Consent” versus “Informed Consultation and Participation”

The International Finance Corporation’s Performance Standard 7 states that “informed consultation and participation” (ICP) of indigenous peoples in actions or projects that affect them should be considered best practice, while it reserves the application of FPIC for specific situations.

A significant distinction exists between “consent” and “consultation.” The term “free, prior, and informed consent” is not defined by the UNDRIP. Yet, its meaning has been suggested to imply that indigenous peoples have the right to say “no” to any project, plan, or policy which they oppose, and the right to say “yes” to those which they do support.⁴⁸ The term “consultation,” in contrast, suggests engagement and two-way dialogue with indigenous peoples. Some institutions have not yet recognized FPIC as a right of indigenous people during project development, over a fear that doing so would grant indigenous people veto power over projects, plans, or policies to which they say “no.” As a result, many institutions settle on granting indigenous people the right to “Informed Consultation and Participation” or ICP, limiting indigenous peoples’ rights to simply participating in project consultations in an informed way.

Dam Builders’ Corporate Partnerships with Indigenous Peoples

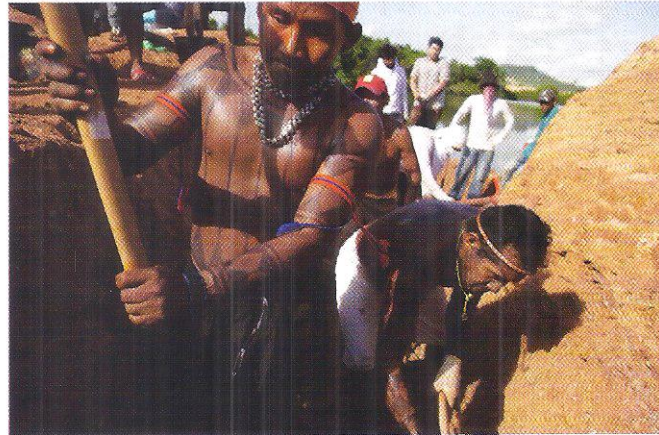
Many dam planners and developers have sought to achieve FPIC from indigenous peoples by creating benefit-sharing programs that distribute royalties and other goods. In Manitoba, Conawapa Dam operator Manitoba Hydro entered into this type of agreement

Case Study: FPIC and the Belo Monte Dam, Xingu River, Brazil

The Belo Monte Dam de-waters 100 kilometers of the Xingu river, where two tribal lands are located: the Paquiçamba territory of the Juruna tribe, and the Arara da Volta Grande territory of the Arara tribe. Further upstream on the Bacajá river tributary, a third tribe, the Xikrin do Kayapó, would be affected.

Project leader Eletrobras developed the “Indigenous Component” to the Belo Monte EIA, which contained anthropological studies of the tribes to be affected. Project consultations included representatives from the affected indigenous tribes. Yet, the consultations did not result in Eletrobras obtaining Free, Prior, and Informed Consent. Rather, the consultations simply explained project impacts to the tribes, and discussed possible mitigation activities and compensation. Simply explaining project impacts to tribes *does not constitute obtaining Free, Prior, and Informed Consent* from them for a project.

Further, Eletrobras’ implementation of mitigation activities and compensation was highly incomplete. The Brazilian



Indigenous protesters dig through the Belo Monte coffer dam to allow the Xingu River to flow freely. Photo by the Movimento Xingu Vivo Para Sempre.

environmental agency IBAMA and its indigenous peoples’ agency FUNAI fined the Belo Monte project consortium in 2012 and 2013 for having failed to properly implement mitigation actions.

when the Fox Lake Cree First Nation voted to receive compensation from the company.⁴³

While benefit-sharing should be considered in principle a common standard for any dam that will be built, indigenous communities have the right to decide whether or not to partner with a hydropower operator in such a way to derive benefits. Partnerships between operators and tribal leaders that involve the introduction of monetary benefits, gifts, and other promises may create undesirable divisions between communities, and may create unwanted dependencies on welfare derived from a project.

The Parakanã tribe in Brazil, who were displaced by the Tucuruí Dam in the 1980s in the state of Pará, became almost entirely dependent on project-generated welfare distributed by dam operator Eletrobras. Similarly, Guaraní tribes in southern Brazil became dependent on welfare generated from the Itaipú Dam, Brazil’s largest, distributed to them by dam operator Itaipú Binacional. Such dependence creates risk for indigenous communities, as control over benefits remains in the hands of the

operators, while changes in yearly project budgets may negatively affect the terms of and benefits derived from the partnership.

Pertinent International Laws

- The United Nations Declaration on the Rights of Indigenous People (UNDRIP) has been adopted by 144 countries as of 2010.
- The UN Human Rights Council (HRC)
- The International Covenant on Economic, Social and Cultural Rights (ICESCR)
- The International Convention on the Elimination of All Forms of Racial Discrimination (ICERD)
- The International Labor Organization Convention 169
- The Inter-American Human Rights System
- The International Covenant on Civil and Political Rights (ICCPR)

FURTHER READING:

- Read the United Nations Declaration of the Rights of Indigenous People (2007):
http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf
- Read Anaya, J., 2004. Indigenous Peoples in International Law. Oxford University Press: London.
- Read the Inter-American Declaration on the Rights of Indigenous Peoples (1995):
<http://ankn.uaf.edu/iks/iachr.html>
- Read the training materials of the International Indian Treaty Council:
<http://www.iitc.org/resources-links/training-materials/>

IDEAS FOR ACTION:

- Contact the UN Special Rapporteur on Indigenous Peoples to lodge a complaint/grievance:
<http://www.ohchr.org/EN/Issues/IPeoples/SRIndigenousPeoples/Pages/SubmitInformation.aspx>

Labor Rights

Dams often involve large impacts on workers. Proper infrastructure development should guarantee that workers' rights are safeguarded throughout the project cycle. The full breadth of labor rights is covered by the International Labor Organization's core labor standards, and is too broad to describe here. Below we list a number of labor rights which are especially important to protect in relation to dam-building.

Labor rights overlap quite consistently with those human rights concepts mentioned earlier. In general, protecting labor rights involves the following:

- The practice of transparency
- The establishment of grievance mechanisms
- The verification of working conditions
- Freedom from forced labor
- Absence of child labor
- Freedom of association and collective bargaining
- Freedom from discrimination
- Job security and permanent contracts
- Workplace health and safety
- Workers are paid a living wage

Relevant Policies:

The ILO's Declaration on Fundamental Principles and Rights at Work (1998) define eight core conventions on labor rights. These are:

- The Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87)
- The Right to Organise and Collective Bargaining Convention, 1949 (No. 98)
- The Forced Labour Convention, 1930 (No. 29)
- The Abolition of Forced Labour Convention, 1957 (No. 105)
- The Minimum Age Convention, 1973 (No. 138)
- The Worst Forms of Child Labour Convention, 1999 (No. 182)

Case Study: Poor Working Conditions at the Jirau Dam on the Madeira River, Brazil



Workers strike at the Jirau Dam on the Madeira River in the Brazilian Amazon, due to violation of their right to a living wage. Photo courtesy of Google Images.

In 2012 in Porto Velho, Brasil, a consortium led by Eletrobras and GDF Suez built the Jirau Dam on the Madeira River, the largest tributary of the Amazon. As

a result of lack of pay, poor health care, poor working conditions, inadequate time off and poor compensation, consortium workers held strikes on various occasions. 16,000 workers at the dam site left work, demanding improved conditions. One demand consisted of a 30% increase in salary, and the right to take 5 days of leave for every 70 days instead of 90 days worked.

The 2012 strike followed a larger strike in 2011. On that occasion, thousands of workers overturned consortium vehicles and burned worker encampments, due to the resistance of the company to attend to their grievances over the same poor working conditions.

As a result of the 2012 strike, the Federal Labor Justice set a fine of R\$200,000 (about USD \$85,000) for each day that the consortium continued to ignore the workers' demands.

- The Equal Remuneration Convention, 1951 (No. 100)
- The Discrimination (Employment and Occupation) Convention, 1958 (No. 111)

Together, these eight conventions generally protect the right to freedom of assembly, association and expression; the right to work and decent living conditions; the right to adequate housing; the right to full compensation for losses; the right of access to justice and the reasonable duration of judicial proceedings; and the right to reparation of past losses.

FURTHER READING:

- Query which countries have ratified these core eight conventions, here: <http://www.ilo.org/global/standards/introduction-to-international-labour-standards/conventions-and-recommendations/lang--en/index.htm>
- Read Oxfam's "Checking Up on Labor Rights": <http://policy-practice.oxfam.org.uk/publications/checking-up-on-labour-rights-a-basic-assessment-tool-for-the-labour-policies-an-296870>
<http://oxfamlibrary.openrepository.com/oxfam/bitstream/10546/296870/1/ml-checking-up-on-labour-rights-assessment-tool-010713-en.pdf>

IDEAS FOR ACTION:

- Contact your respective national office of the ILO here: http://www.ilo.org/global/about-the-ilo/how-the-ilo-works/departments-and-offices/lang--en/index.htm?lang=en#q_8



Strategic Planning: Before Projects are Chosen

An electricity pylon.
Photo courtesy of
Google Images.

Dams are born in the board rooms of government planners, often including the Ministry of Mines and Energy, the Ministry of Finance, the Ministry of Water, and the Ministry of Development or similar branches of a government. We often refer to this stage as “upstream,” because it is when a government decides how much energy is needed, and by whom; what projects should or should not happen; what types of technologies should be used; and how large the budget is for a given project. Different actors have different types of responsibilities. Often, dam builders will only be directly involved in project planning, while policy and overall power sector planning will be the responsibility of the government, and may take place before specific projects are identified. In many countries, however, the distinction between government and developer is blurred; many well-connected companies are also formally or informally involved in writing policy and power sector development plans.

Integrated Energy Resources Planning

In many countries, governments produce yearly or multi-year **power development plans**. These plans allow governments to model energy demand during a given period into the future, and to prioritize what types of energy should be used to meet demand. Unfortunately, the assumptions made during the creation of power development plans may be too simplistic; may not include all social and environmental costs; and may be biased by political interests.

Conventional Energy Planning

Conventional power sector planning practices generally comprise a bundle of practices and assumptions that are generally referred to (especially by utilities) as “least cost planning.” What they generally mean is “least cost generation planning from the utility’s financial perspective.” This “least-cost” planning typically arrives at a power development plan through a process that comprises load forecasting, developing assumptions about investment and operations costs of a limited list of options, and a computerized optimization that chooses among the limited options considered.

Conventional power planning typically includes only generation costs (and not social and environmental costs or even transmission cost). Transmission costs can account for 40% or more of total system expansion costs, but conventional planning simply adds transmission costs “after the fact” once generation costs are minimized. As a result, the optimization in conventional planning misses benefits that accrue from decentralized energy efficiency measures or generation which require no or substantially less investment in transmission.

True least cost planning should instead be based on the economic costs (including environmental externalities) of delivered electricity services to end users.

Conventional planning also treats risk in a very limited way: it makes a fixed assumption about all costs (including, crucially, fuel costs) and then optimizes based on this assumption. This yields a plan that is only optimized for a future that turns out to be similar to the assumptions that were adopted. The conventional planning process provides little or no information about the sensitivity of the selected plan to variations in key assumptions, and even less information on the sensitivity to changes in multiple variables simultaneously (for example, high natural gas price + drought year + carbon pricing). Meanwhile, conventional

power planning often occurs behind closed doors, without participation of public stakeholders.

Integrated Resources Planning

In contrast to the conventional practices described above, dam planners should utilize **Integrated Resources Planning (IRP)**. Integrated Resources Planning is a type of long-term (20–30 year) comprehensive needs and options assessment that evaluates all options on an equal basis, internalizing economic, social and environmental costs as risks. Integrated Resources Planning can help prioritize the best energy options.

Energy Options on a Level Playing Field

In contrast to the limited choices considered in conventional power development planning processes, IRP considers a full range of power sector investments on an equal basis to meet new demand for electricity: not only new generation sources, but also transmission, distribution, and – importantly – demand-side measures such as energy efficiency. Investing in helping customers to save electricity is typically many times less expensive than building new power plants and fueling them for decades. IRPs include careful consideration of risk, integrating social, environmental, and other external costs and benefits.

As a result, IRP can be highly relevant to the hydroelectric sector, which is closely associated with high social and environmental costs. IRP is also useful in that it helps to illustrate poor efficiency performance of existing dams, highlighting the need to increase efficiency ratings before constructing new projects. Utilities that rigorously implement IRP consistently report good news: there are many opportunities for energy efficiency investments, and IRP can lead to substantially lower customer bills while avoiding the social and environmental disruptions and destruction that accompany new power plant construction and operation.

Participatory and Transparent

By nature, IRP is a highly participatory and transparent process. It is a public process in which planners work together with stakeholders to establish scope, investigate options, prepare and evaluate integrated plans, select preferred plans, as well as establish mechanisms to monitor, evaluate, and iterate plans as conditions change.

IRP contrasts with traditional, top-down planning, where public consultation occurs only as a last step,

after plans are virtually complete. IRP can make planning more open to relevant governmental agencies, consumer groups, and others, thereby incorporating the needs and ideas of all parties and stakeholders, including affected communities, indigenous people, women, and NGOs.

When done properly, IRP provides a structure and an opportunity for utility systems and stakeholders to learn and to develop plans in a co-operative atmosphere. Ultimately, better decision-making processes result in power plans more closely aligned with societal goals.

Although a comprehensive IRP process requires a substantial commitment of time, IRPs lead to better outcomes: lower cost electricity, lower risk from price volatility, and lower social and environmental impact. IRP achieves these by emphasizing services (cooling, heating, lighting, etc.) rather than kilowatt hours of electricity alone; through considering all social and environmental costs rather than narrowly considering only utility finances; and through prioritizing choices that lower costs to society under a full spectrum of scenarios. Generally, these better outcomes involve considerably higher investment in energy efficiency and demand-side management than utilities would deploy without an IRP process.

Feed-In Tariffs and Renewable Energy Portfolio Standards

Two important tools to implement the results of an IRP are Feed-in Tariffs (FiTs) and Renewable Energy Portfolio Standards.

A feed-in tariff (FiT) is a policy mechanism designed to increase investment in renewable energy sources. It creates long-term contracts for large- and small-scale renewable energy producers, usually based on the generation cost of each technology.

FiTs typically provide three provisions:

- guaranteed grid access
- long-term contracts
- cost-based purchase prices

Under a feed-in tariff, eligible renewable electricity generators, including homeowners, business owners, farmers and private investors, are paid a cost-based price for the renewable electricity they supply to the grid. This enables diverse technologies (wind, solar, biogas, etc.) to be developed and provides investors a reasonable return.

Typical Components of an IRP

- Creating an electricity load forecast
- Determining reserves and reliability
- Establishing demand-side management options
- Determining supply options
- Calculating fuel prices
- Determining environmental costs and constraints
- Evaluating existing resources
- Performing integrated analysis of supply and demand options to choose an optimal plan and contingent plans
- Establishing a time frame
- Accounting for uncertainty
- Valuing and selecting plans
- Creating an action plan
- Providing documentation
- Creating iterations of the plan

Many computer models exist that can assist in optimizing energy resources to support the creation of an IRP. These include:

- EGEAS: Electric Generation Expansion Analysis System;⁴⁹
- MIDAS: Multi-objective Integrated Decision Analysis System
- Strategist⁵⁰
- System Optimizer⁵¹
- LEAP⁵²

Feed-in tariff policies have been enacted in over 50 countries, including Algeria, Australia, Austria, Belgium, Brazil, Canada, China, Cyprus, the Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Iran, Republic of Ireland, Israel, Italy, Kenya, the Republic of Korea, Lithuania, Luxembourg, the Netherlands, Portugal, South Africa, Spain, Switzerland, Tanzania, Thailand, and Turkey.

In contrast to a feed-in tariff, a **Renewable Energy Portfolio Standard (RPS)** is a regulatory framework that requires utilities' supply-side generation options to include a certain amount of electricity from renewable energy sources such as wind, solar, biomass, and geothermal. An RPS requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to a pre-determined percentage of total procurement. RPS-type mechanisms have been adopted at either state or federal levels in many countries, including Australia, Belgium, Britain, Chile, China, Germany, Italy, Japan, Poland, Sweden, and the United States.

One of the key elements of an RPS is the types of energy sources that qualify as renewable. Typically, solar, wind, and energy efficiency are the most preferred renewable energy sources in an RPS. Since the goal of an RPS is to encourage the development of new renewable energy sources, many governments don't let existing hydropower qualify. However, each state treats hydropower in its own way. In some states, hydropower is restricted by capacity (e.g. 10 MW), while in others it is restricted by technology. Hydropower generated from efficiency improvements at existing facilities, and hydropower generated from capacity additions at existing facilities should generally qualify.

Germany's Feed-in Tariff in its Renewable Energy Sources (EEG) Act of 2012

On June 30th, 2011, the German Bundestag adopted the "Act on the amendment of the legal framework for the promotion of electricity generation from renewable energies" ("Gesetz zur Neuregelung des Rechtsrahmens für die Förderung der Stromerzeugung aus erneuerbaren Energien.")⁵³

Section 3 on "Feed-in Tariffs" states that:

"Grid system operators shall pay installation operators tariffs... for electricity generated in installations exclusively utilising renewable energy sources or mine gas... Monthly advance payments of an appropriate amount shall be made for the anticipated payments.

The obligation pursuant to subsection (1) above shall also apply where the electricity was

temporarily stored prior to being fed into the grid system. In such cases, the obligation shall apply to the quantity of electricity that is fed into the grid system from the temporary store. The amount of the tariff shall be determined based on the amount of the tariff that the grid system operator would be required to pay to the installation operator in accordance with subsection (1) above if the electricity were fed into the grid system without being temporarily stored. The obligation pursuant to the first sentence above shall also apply where a mixture of renewable energy sources and storage gases are used. Sentence 1 above shall not apply to electricity generated from solar radiation if a tariff has been claimed for this electricity in accordance with section 33(2).

Installation operators who assert the entitlement to tariff payments in accordance with subsection (1) above for electricity from an installation shall, from that time, put at the disposal of the grid system operator the entire electricity generated in that installation:

1. for which an entitlement to tariff payment exists on the merits under subsection (1) above;
2. which the installation operator himself or third parties in the immediate vicinity of the installation are not using; and
3. which is transmitted via a grid system; and they may not sell the electricity generated in the installation as balancing energy."

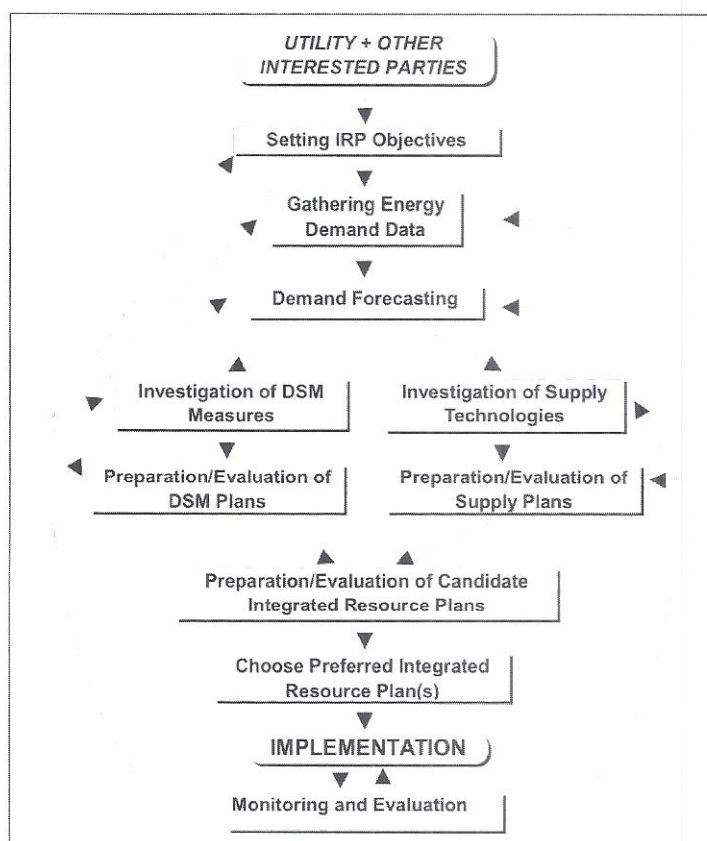


Figure 1. A flow chart describing the Integrated Resources Planning process.
Source: Von Hippel and Nichols, 2000. Best Practice Guide: Integrated Resource Planning for Electricity.

Case Study: The State of Oregon's Integrated Resources Plan

In the United States, the State of Oregon's IRP process is one of the brightest examples on the planet. The plan prioritizes energy efficiency over new, greenfield dam projects, and involves stakeholders, including all affected communities, from the earliest stages of planning in a highly transparent manner. Affected communities form a permanent part of the decision-making process for subsequent iterations of the plan.

The plan identifies the "least-cost" energy option not simply as an economic metric of least cost to the developers. Instead, it defines the term as that which integrates both supply and demand management options; fully considers external costs to the utility; and includes the

public and all stakeholders in decision-making prior, to rather than after, energy options are chosen.

The state's IRP process not only considers those potential costs faced by the utility, but actually refers to the broader overall costs to society as a whole. As a result, the external costs and risks associated with the process of deciding over energy options include specific particulate emissions, greenhouse gas emissions, public opinion, as well as load requirements, hydroelectric generation, plant forced outages, fuel prices, electricity prices, and costs of complying with regulation. These factors are all integrated into Oregon's IRP.

FURTHER READING:

- Read International Rivers' "An Introduction to Integrated Resources Planning" (2013): <http://www.internationalrivers.org/resources/an-introduction-to-integrated-resources-planning-8143>
- Read "Best Practices in Electric Utility Integrated Resource Planning," Regulatory Assistance Project (2013): <http://www.synapsc-energy.com/Downloads/SynapseReport.2013-06.RAP.Best-Practices-in-IRP.13-038.pdf>
- Read USAID's "Best Practices Guide in Integrated Resource Planning for Electricity" (2006): http://pdf.usaid.gov/pdf_docs/PNACQ960.pdf

IDEAS FOR ACTION:

- Contact your national and/or state electric utility board. If an IRP process exists, demand to be included in the creation and revision of the plan. If an IRP process does not exist, meet with planners and lawmakers to insist that one be created.

Integrated Water Resources Planning

Parallel to integrated resources planning for electricity is the process of integrated resources planning for water resources. Diverse water assets are demanded by diverse water users within the same river basin or watershed. In many instances, the needs of users located outside the basin are also included, either by way of inter-basin transfers, or when administrative or planning boundaries do not coincide with river basin boundaries. Still, a basin-wide approach to water resources planning and management helps decision-makers to strike a balance between resource availability and demand from a multitude of users.

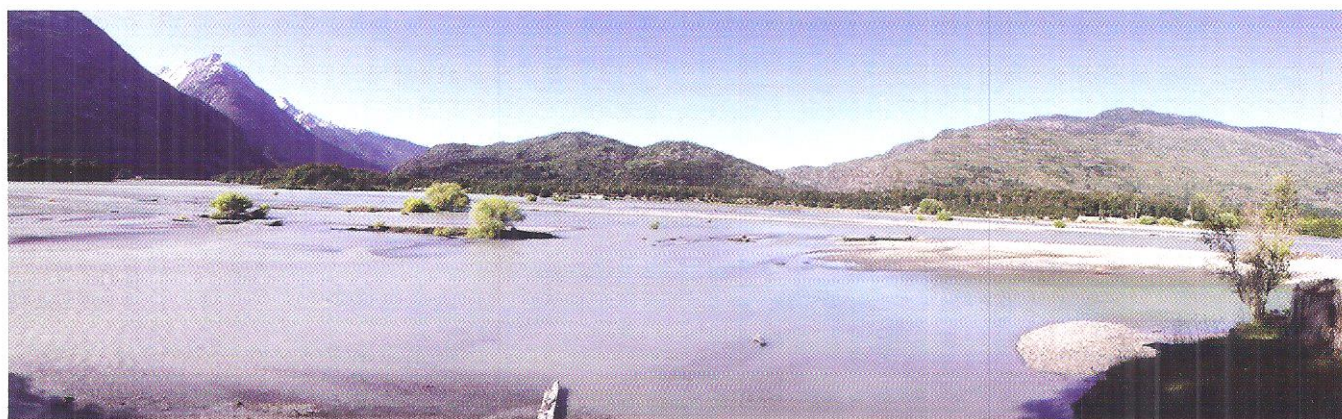
Creating a **Basin Plan** is the first step in creating a responsible social and environmental water resources management system. River basin plans define the ecologically and socially sustainable levels at which groundwater and surface water may be diverted, consumed, and abstracted by the total number of users in a basin.

Such plans should include an **Integrated Water Resources Management Plan**. Integrated Water Resources Management (IWRM) is defined by the Global Water Partnership as: “a process which promotes the co-ordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.”⁵⁴ Ideally, IWRM seeks to allocate water resources among all users in a specific spatial scale, such as a river basin or watershed, while promoting water’s equitable and reasonable use towards achieving reduced tensions over the quantity and quality of available water.

Still, IWRM has been criticized as a tool that can help larger, more powerful water users to secure and sustain water access while insufficient attention is paid to the needs of affected communities and ecosystems.

Pertinent International Policies:

- The UNEP Ecosystem Approaches in Integrated Water Resources Management (IWRM)
- The UN Convention on the Non-Navigational Uses of International Watercourses of 1997. However, the Convention has not yet entered into force.
- The Convention of the UN Economic Commission for Europe on the Protection and Use of Trans-boundary Watercourses and International Lakes (Helsinki Convention, UNECE Water Convention) is intended to strengthen national measures for the protection and ecologically sound management of trans-boundary surface waters and groundwaters. The Convention is now open to adherence from countries across the world.
- The Rapid Sustainability Assessment Tool (RSAT) is a desktop assessment auditing tool that assesses a single hydropower project and its relationship to a sub-basin; existing and proposed cascades of hydropower projects within a sub-basin or multiple projects within a sub-basin (or 2nd order sub-basin tributary); a sub-basin as a whole that has hydropower potential; and trans-boundary issues for basins shared by different countries, where hydropower is already developed or could be developed in future.



The confluence of the Baker and Ñadis Rivers, in Chilean Patagonia. Photo by International Rivers.

Case Study: The Murray-Darling River Basin Plan and Water Resources Management Plan⁵⁵

The Government of Australia created the Murray-Darling River Basin Plan under the Water Act of 2007. The Basin Plan provides a coordinated approach to water use across the Basin's four States, Queensland, New South Wales, Victoria, and South Australia, and the Australian Capital Territory. It limits water use at environmentally sustainable levels by determining long-term average Sustainable Diversion Limits for both surface water and groundwater resources.

The Murray-Darling Basin Authority has determined 10,873 gigaliters per year (GL/yr) to be the volume of surface water that reflects an environmentally sustainable level of take as a long term average with different limits for every river valley in the Basin. For groundwater, this volume is 3324 GL/yr.

The Plan is an adaptive framework and will be rolled out over seven years. It allows for further improvements in outcomes through a sustainable diversion limits adjustment mechanism and a constraints management strategy. The Plan is supported by Commonwealth investment in modernizing irrigation infrastructure and voluntary

water purchasing through the environmental water recovery strategy.

The Basin Plan includes:

- an environmental watering plan to optimize environmental outcomes for the Basin
- a water quality and salinity management plan
- requirements that state water resource plans will need to comply with, if they are to be accredited
- a mechanism to manage critical human water needs
- requirements for monitoring and evaluation the effectiveness of the implementation of the Basin Plan.

For more information, see

- The Murray-Darling Basin Authority Explanatory Statement⁵⁶
- The Murray-Darling Basin Authority Basin Plan (November 2012)⁵⁷

FURTHER READING:

- Take a look at the European Union's Water Framework Directive for an example of trans-boundary basin planning: <http://ec.europa.eu/environment/water/water-framework/>
- Read the Integrated Tisza River Basin Management Plan as an example of basin planning: <http://www.icpdr.org/main/danube-basin/tisza-basin>
- Read Australia's Murray-Darling River Basin Plan: <http://www.mdba.gov.au/sites/default/files/Basin-Plan/Basin-Plan-Nov2012.pdf>

IDEAS FOR ACTION:

- Contact your water resources planning board and demand to participate in the creation and iterative revisions of your watershed's basin plan and water resources management plan.

Basin-Wide Assessment

If, after the elaboration of resource plans for both the electricity and water sectors, dams are still chosen as a viable option, a number of assessment tools that operate at the basin-wide level will help you protect your social and environmental rights. These

include Strategic Environmental Assessments (SEAs), Cumulative Impacts Assessments (CIAs), Climate Change Assessments (CCAs), and Environmental Flows Assessments (EFAs).

Strategic Environmental Assessment

Strategic Environmental Assessments (SEA) are an assessment of environmental effects of plans, programs, and policies at broader spatial and temporal scales. They differ from project-level environmental impact assessments, which are limited to the specific scope of a singular project's area of impacts, and which may not assess broader impacts that a project contributes to large-scale processes and assets, such as at the level of a river basin.

The *SEA Protocol to the Espoo Convention* states that an SEA is an early warning tool for the long-term cumulative, induced, and ancillary impacts of a policy, plan, or program, as compared to an environmental impact assessment, which is project-specific and usually conducted at the end of the decision-making cycle. Strategic environmental assessments precede the environmental and social impact assessment process by streamlining their scope and costs by ensuring that project proposals are set within a policy framework that has already been subject to environmental scrutiny.

Cross-Sectoral and Basin-Wide

Ideally, SEAs should assess not only effects from the dam sector itself, but from the larger sector, such as energy, agriculture, water, and the like, which include the full range of options. For this reason, SEAs are most logically developed at the basin-wide level. In contexts where basins span across national borders, SEAs must be trans-boundary assessments. The Convention on Environmental Impact Assessment in a Trans-boundary Context (the Espoo Convention) outlines international norms in trans-boundary SEAs. Basins in which current dam planning justifies the creation and implementation of trans-boundary SEAs include most of the world's major river basins: the Nile Basin, the Congo Basin, the Zambezi Basin, the Ganges-Brahmaputra-Meghna Basin, the Mekong Basin, the Salween Basin, the Irrawaddy Basin, the Amazon Basin, the Orinoco Basin, the Danube Basin, the Dnieper Basin, and others.

"A strategic environmental assessment shall be carried out for plans and programs which are prepared for agriculture, forestry, fisheries, energy, industry including mining, transport, regional development, waste management, water management, telecommunications, tourism, town and country planning or land use, and which set the framework for future development consent for projects that requires an environmental impact assessment under national legislation."

– *The Convention on Environmental Impact Assessment in a Trans-boundary Context*
(the Espoo Convention)

Typical Components of an SEA⁵⁸

- Evaluate the environmental consequences of official draft plans, programs, policies, and legislation;
- Undertake SEA early in the decision-making process, well before the elaboration of project-level EIAs;
- Weigh environmental objectives equally to socio-economic objectives;
- Guarantee public participation in government decision-making across all development sectors. The public not only has the right to know about plans and programs, but also the right to comment, have their comments taken into account, and be told of the final decision and why it was taken. Public Participation in Decision-Making and Access to Justice in Environmental Matters is outlined by the Aarhus Convention;
- Place a special emphasis on human health, going beyond existing legislation in the region.

Case Study: The Mekong River Commission's SEA for the Mekong Mainstream

The Mekong River Commission (MRC) commissioned the Australian firm International Center for Environmental Management (ICEM) to develop a Strategic Environmental Assessment of the mainstream portion of the Mekong River. The SEA provided an "understanding of the implications of mainstream hydropower development and recommendations on whether and how the proposed projects should best be pursued. The SEA was intended as input to feed into the MRC Basin Development Plan (BDP), and ultimately to support national decisions concerning the mainstream proposals."

The SEA focused on proposals in three distinct hydro-ecological zones and assessed them in five different dam groupings: 1) all proposed Lower Mekong Basin mainstream dams, 2) the cluster of 6 Upper Lao projects of Vientiane, 3) the two Middle-Lao projects immediately up and downstream of Pakse (Ban Koum, Lat Sua), 4) the two smaller Lower Lao projects at Khone Falls (Don Sahong, Thakho), and 5) the two Cambodian projects upstream of Kratie (Stung Treng, Sambor).

The SEA ran in four phases over 16 months from May 2009: 1) a scoping phase to define key strategic issues of concern to Mekong River development; 2) a baseline assessment to describe past trends in those issues and their projection to 2030 without mainstream hydropower; 3) an impact assessment of the effects of mainstream hydropower on those trends; and 4) a phase to identify ways of avoiding and mitigating the risks and enhancing the benefits.

The SEA was intensively consultative, involving over 60 line agencies, 40 NGOs and civil society organizations, and some 20 international development organizations in meetings and workshops. The SEA process also included the participation of China through the high-level Ecosystem Study Commission for International Rivers (ESCIR)."

The SEA included a trans-boundary strategic assessment of power generation options; economic development; ecosystems integrity and diversity; fisheries and food security; and livelihoods and cultures of affected communities. The final report included five recommendations for hydropower planning by the Mekong River Commission:

- Decisions on mainstream dams should be deferred for a period of ten years with reviews every three years to ensure that essential deferment period activities are being conducted effectively.
- As the highest priority, the deferment period would include a comprehensive undertaking of feasibility studies for partial in-channel diversion and other innovative systems for tapping the power of the mainstream in ways which do not require dams across the full breadth of the river channel. This would involve governments in partnership with the MRC, multilateral development banks and developers.
- The deferment period would also include a comprehensive assessment and fast tracking of tributary projects that are considered feasible and ecologically sustainable according to current international good practice, including retrofitting of existing projects and innovative schemes.
- The deferment period needs to commence with a systematic distribution of the SEA report within each Lower Mekong Basin country in national language and consultation with line agencies, private sector and the NGO community.
- The Mekong mainstream should never be used as a test case for proving and improving full dam hydropower technologies.

The full assessment was completed in 2010. However, due to politics at the MRC, the final assessment was never officially endorsed by the four governments (Laos refused to endorse it because it did not want to delay Mekong dam-building for 10 years. In contrast, Vietnam openly called for a 10 year delay in Mekong dam building). Despite the fact that it never acquired official status, the SEA has been highly influential and has significantly raised awareness among Mekong government officials of the economic, environmental, and social implications of damming the Lower Mekong. The result has been closer scrutiny by the Cambodian and Vietnamese governments of hydropower projects proposed upstream.

Associated Facilities

A successful strategic environmental assessment should seek to include all components of a project's hydroelectric infrastructure, such as dam walls and dikes, transmission lines, diversion canals, river transport infrastructure such as navigation locks, road improvements, easement areas, worker encampments, and others, and should avoid de-coupling these components from each other during assessment.

Public Participation

A successful SEA also includes a stakeholder analysis framework that assures participation in all stages of the project cycle, a policy matrix of the efficacy of relevant regulations, the integral assessment of environmental and social risks, and an assessment of enacting-agency institutional capacity, particularly in terms of risk management or mitigation systems.

Relevant Policies:

- The OECD Applying Strategic Environmental Assessment: Good Practice Guidance for Development Cooperation
- The European Directive (2001/42/EC) on the Assessment of the Effects of Certain Plans and Programmes on the Environment, known as the SEA Directive came into effect in 2004 and applies to all 25 member states of the European Union. It requires an environmental assessment for certain plans and programs at various levels (national, regional and local) that are likely to have significant effects on the environment.
- A similar provision is contained in the SEA Protocol on Strategic Environmental Assessments (Espoo Convention, UNECE Convention on EIA in a trans-boundary Context), agreed to in Kyiv in May, 2003.⁵⁹ The Protocol includes a separate article encouraging the use of SEA in the context of policies and legislation. It will become effective once ratified by at least 16 countries.

FURTHER READING:

- Read the MRC's Mekong Mainstream SEA: <http://www.mrcmekong.org/assets/Publications/Consultations/SEA-Hydropower/SEA-FR-summary-13oct.pdf>
- Read the OECD's "Applying Strategic Environmental Assessment": <http://www.oecd.org/dac/environment-development/37353858.pdf>
- Explore resources from the Stockholm Environment Institute: www.sei-international.org
- Read the European Commission's resource page on SEA: <http://ec.europa.eu/environment/eia/sea-support.htm>
- Read the UNEP report "Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach": <http://www.unep.ch/etu/publications/textONUBr.pdf>
- Visit the World Bank's page of materials on SEA: <http://www.worldbank.org/en/topic/environment/brief/strategic-environmental-assessment>

IDEAS FOR ACTION:

- Contact your water resources board and demand the creation of a Strategic Environmental Assessment process in your river basin, and that you be included as a stakeholder.

Cumulative Impact Assessment

A number of specific assessment approaches should be used in the creation of a strategic environmental assessment. One of the most helpful is known as **Cumulative Impact Assessment (CIA)** or, alternatively, a **Cumulative Effects Assessment (CEA)**.

A Cumulative Impact Assessment is a multi-stakeholder process that assesses the cumulative and indirect impacts as well as impact interactions of the proposed dam or set of dams, as well as existing and planned projects from other sectors, on ecosystems, communities, and identified Valuable Ecosystem Components (VECs) within a specific spatial and temporal boundary. A cumulative impacts assessment should be completed only after a River Basin Plan has been completed, as river basin plans assess the carrying capacities of diverse valuable ecosystem components.

CIA is highly relevant to dams. It may produce an outcome in which the project developer has satisfactorily assessed the cumulative impacts of one or multiple dams on river basin resources, such as water availability, water quality, soil, vegetation, animal species, or others, and uses of these resources, before any project is approved. It analyzes how project-level impacts accumulate with the impacts from other projects upstream, downstream, and throughout the entire basin. CIA entails thorough analyses of both direct and indirect impacts caused by a dam, other dams, other projects from different sectors, and from any associated facilities.

CIA must be multi-stakeholder in their nature at all stages of development of the assessment. All parties

associated with planning and conducting such studies need to be in agreement regarding the selected VECs and the methods to be utilized. For dams, a CIA is ideally implemented at multiple spatial scales, including individual, multiple, and trans-boundary river basins, and at multiple temporal scales, including individual project, multiple project, and inventory-level timelines (e.g. 5, 10, 30, and 50-year study periods).

What are Types of Impacts Considered in a CIA? Indirect Impacts:⁶¹

Impacts on the environment, which are not a direct result of the project, often produced away from or as a result of a complex pathway. Sometimes referred to as second or third level impacts, or secondary impacts. For example, indirect impacts are caused when a dam affects rate of water flow into a downstream wetland, impacting the ecology of the wetland.

Cumulative Impacts:

Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project. Cumulative impacts are caused by dams when, for example, additional dams are added to a dam cascade, causing incremental changes in a river's soil regime.

Impact Interactions:

The reactions between impacts whether between the impacts of just one project or between the impacts of other projects in the areas. Impact interactions occur, for example, when reductions in fisheries populations due to construction of a dam occur in tandem with stream pollution from a nearby mining operation.

What are Valuable Ecosystem Components?

The term Valuable Ecosystem Component (VEC) has been defined as “the environmental element of an ecosystem that is identified as having scientific, social, cultural, economic, historical, archaeological or aesthetic importance. The value of an ecosystem component may be determined on the basis of cultural ideals or scientific concern.

Valued ecosystem components that have the potential to interact with project components should be included in the assessment of environmental effects.”⁶⁰

To select VECs, the following factors are usually considered:

- Abundance at the site and local and regional study areas
- Ecological importance
- Native species
- Exposure
- Sensitivity
- Ecological sustainability
- Human health
- Socioeconomic importance
- Conservation status
- Data availability
- Importance to society in terms of cultural heritage



A Lao Theung woman in Ban Huay Song panning for gold in the Mekong River near Kaeng Luang.
Photo by Suthep Krilsanavarin.

The Six Steps of a Cumulative Impact Assessment

Typically, a cumulative impact assessment⁶² is a six-step, iterative process:

Step 1 – Identify the incremental effects of the proposed project, policy, plan, or program on selected VECs within the environs of the project location. The VECs can be selected based on information related to current or anticipated future degraded or stressed conditions, the occurrence of protected species or habitats, and the presence or anticipated presence of other human activities that would (adversely) affect the same VEC.

Step 2 – Identify other past, present, and reasonably foreseeable future actions within the spatial and temporal boundaries that have been, are, or could contribute to cumulative effects (stresses) on the VECs or their indicators. Based on this knowledge, identify appropriate spatial and temporal study boundaries for each VEC.

Step 3 – For the selected VECs, assemble appropriate information on their indicators, and describe and assess their historical to current conditions. The historical information should coincide with the selected past temporal boundary (or historical reference point). Further, and depending upon the availability of information, any identified trends in the conditions of the VECs and their indicators should be determined and analyzed. Further, comparisons to numerical standards or policies, or to identified thresholds of significance, should also be presented for each VEC.

Step 4 – “Connect” the proposed project (or plan, program or policy) and other actions in the CEA study area to the selected VECs and their indicators. Numerous types of tools could be used to establish either descriptive or quantitative connections, such as questionnaires, indicators, conceptual models, matrices and networks, and scenarios. Quantitative examples include matrices and networks, Geographic Information Systems (GIS), habitat suitability modeling, and other modeling.

Step 5 – Assess the significance of the cumulative effects on each VEC over the time horizon for the study. Such significance determinations should begin with the incremental effects (the direct and indirect effects) of the proposed action on specific VECs. The focus is on the VEC, not on the action.

Step 6 – For VECs or their indicators that are expected to be subject to negative incremental impacts from the proposed project and for which the cumulative effects are significant, develop appropriate action-specific “mitigation measures” for such impacts. Further, if significant cumulative effects are anticipated on any VEC or its indicators, consideration should be given to multi-stakeholder collaboration to develop joint cumulative effects management measures, either locally or regionally, or both.

Case Study: Cumulative Impacts in the Environmental Impact Assessment of the Rusumo Falls Hydropower Project

The Rusumo Falls Hydropower Project, part of the Nile Basin Initiative/Nile Equatorial Lakes Subsidiary Action Program (NELSAP), would generate 80 MW for a power pool connecting Burundi, Rwanda and Northwest Tanzania. The dam design includes a 15-meter high dam on the Kagera River, and a 313 square kilometer run-of-river reservoir that will create 15 kilometers of "permanent shallow inundation" upstream from the dam site, located on the Rwanda-Tanzania border. The Rusumo Falls HPP is one dam of a larger cascade of dams planned for the Kagera basin watershed. Upstream, on the Nyaborongo River, Nyaborongo Dams I and II are planned. Downstream, the 53 MW Kabono Dam is planned on the Kagera River in Tanzania. Each dam is planned with a run-of-the-river design.

The Rusumo Falls HPP triggers eight of the environmental and social safeguards policies of the World Bank, the principal project financier. According to the Bank's safeguards information sheet, expected impacts include the flooding of approximately 5,280 hectares of agricultural lands and 20 hectares of built-up lands along the Kagera and Ruvubu Rivers and around Lake Rweru.

Upstream, Rusumo Falls HPP would significantly flood wetlands marsh habitat around and upstream from Lake Rweru, some of which may be designated wetlands of international significance under the Ramsar Convention. Downstream, Rusumo Falls HPP may alter the flow regime of the Akagera National Park in Rwanda. The transmission line associated with the project, funded by the African Development Bank, may also impact natural habitats. According to the World Bank, close to US\$32 million has been allocated for mitigation projects, including resettlement and local area development programs. The total number of project-affected people is expected to be between 5,200 to 6,700 households, or roughly 30,000 to 40,000 people.

Although there is no national or regional requirement for cumulative impact assessment in Tanzanian, Rwandan, or Burundian law, cumulative impacts were considered in the environmental impact assessment for Rusumo Falls HPP, written by Artemis, a French project management and engineering firm.

Unfortunately, the scope of the cumulative impacts assessment is mostly concerned with interactions relative to other projects in the basin, including dams, transmission lines, a railway project, and a border post project. For example, the CIA section describes how the upstream Nyaborongo I and II dams may limit water availability for the Rusumo Falls HPP, and how it in turn might limit the water available for the downstream Kakono Dam.

In contrast, there is only passing mention of the effects of cumulative impacts on Valuable Ecosystem Components, including water quality, sedimentation, and socioeconomic patterns. In most cases, the environmental impact assessment concludes that no cumulative impacts are to be expected for these components, because the run-of-the-river design eliminates the possibility they would occur.

In fact, run-of-river dam cascades are some of the most typical candidates to present cumulative impacts on VECs. Indeed, the Rusumo Falls HPP EIA makes little mention of how the dam will add incremental cumulative impacts to species that act as indicators for biodiversity, nor how sedimentation effects will shift the overall balance of water quality, in the basin. Without scientific baseline studies and analyses of incremental effects, this section of the Rusumo Falls HPP EIA is not a good example of a cumulative impacts assessment.

FURTHER READING:

Read the following for more indications on how to do a CIA:

- The Canadian Environmental Assessment Agency's Cumulative Effects Assessment Practitioners Guide (1999): <https://www.ceaa-acee.gc.ca/default.asp?lang=En&n=43952694-1>
- The U.S. NEPA Analysis Guidance Manual (2007): <http://aec.army.mil/Portals/3/nepa/nepa-agm.pdf>
- The European Commission's Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (1999): <http://ec.europa.eu/environment/cia/cia-studies-and-reports/guidel.pdf>
- Read the Rusumo Falls Hydropower Project EIA, written by Artemis:
<http://documents.worldbank.org/curated/en/2013/02/17398776/rwanda-regional-rusumo-falls-hydroelectric-project-environmental-assessment-vol-1-4-main-report>

IDEAS FOR ACTION:

- Demand the relevant planning body – for example, a river basin committee, the Ministry of the Environment, or the Ministry of Energy – include a CIA in basin assessments as well as for any project-level environmental impact assessments. Demand that a participatory management plan be created as well.
- Develop your own community-based assessment of impacts on VECs you or your community deem to be important. These could include any cultural, social, environmental, or other resources that will be impacted by a dam or series of dams, including water availability in your community. Publish this assessment in local media to draw attention.

Climate Change Assessment

Another useful approach for Strategic Environmental Assessments is conducting assessments of the effects of climate change on river hydrology. Climate change is altering the hydrological flows that form the basis of river basin ecosystems, livelihoods, resources, and users. Increasing variability in precipitation, temperature and hydrology places greater tension on the ability to preserve downstream ecosystem services, including fish and wildlife, forests, and the communities that depend on them for survival. Increased floods and droughts will lead to dams under-performing (in the case of droughts) or greater floods downstream and dam safety risks (as projects have not been built to withstand bigger inflows).

Yet, current hydrological studies are done based on past records, ignoring the possibility that past trends may change in the future due to climate change. This concept is referred to as Non-Stationarity. In other words, past hydrological records are no longer a reliable indicator of possible future weather patterns. Only by incorporating climate change into hydrological modeling can planners more comprehensively understand how future precipitation is likely to affect the availability of water for a dam project.

Climate Variability

A Climate Change Assessment (CCA) projects the probable future availability of a given resource after the effects of climate change are factored into how the availability of the resource may change. These factors may include precipitation, temperature, groundwater storage, and others.

In the climate change assessment, developers should incorporate analyses of the effects of consecutive flood and drought occurrences on the reduction of hydrological flows. They should have access to accurate regional climate models for use in these assessments. Assessment results should directly inform options and needs analyses identified within IRPs for electricity resources, in the creation of Strategic Environmental Assessments and project feasibility studies, as well as in project-level environmental and social impact assessments (ESIAs).

Emissions

Dam infrastructure can also emit greenhouse gases, including reservoir emissions, spillway emissions, emissions associated with project construction, and others. For these reasons, all greenhouse gas emissions



Severe flash floods swept through the Northern Indian state of Uttarakhand in June 2013 as a result of climate change, destroying several hydropower projects including the Vishnuprayag Dam, shown here. Photo courtesy of Matu Jansangthan.

to be released by a project and its associated facilities should be previously modeled by the developer and made public as an Emissions Assessment. In addition, the developer should create and implement a greenhouse gas mitigation plan, and should monitor, measure, and evaluate project-related greenhouse gas emissions during all project stages. Should also incorporate these emissions into national greenhouse gas emission inventories.

Both climate variability assessments and emissions assessments should be insisted, upon for projects applying for carbon credits, and any emissions from projects should be deducted from the emission reduction claims made by the project developer in their relative project submission to the carbon trading regulator, such as the UNFCCC.

FURTHER READING:

- International Rivers' Guide to Healthy Rivers and Climate Resilience⁶³
- The Stockholm Institute's Water Evaluation and Planning (WEAP) model⁶⁴
- The GHG Protocol's Financial Sector Guidance and Corporate Value Chain (Scope 3) Standard⁶⁵
- The IHA/UNESCO Reservoir Emissions Assessment Tool⁶⁶
- The IFC Carbon Emissions Estimation Tool (CEET)⁶⁷
- The Agence Française de Developpment (AFD) Bilan Carbone emissions tool⁶⁸

IDEAS FOR ACTION:

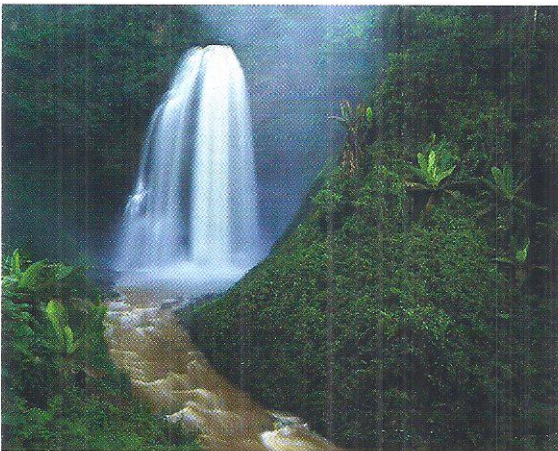
- Demand that dam planners develop and publish the results of climate variability and emissions assessment for any dam or series of dams planned in your basin.
- Demand that dam planners avoid reservoir emissions for any planned dam by reducing the amount of nutrient flow into the reservoir.

Environmental Flows Assessment

Basin Plans and Strategic Environmental Assessments should include benchmarks for **environmental flows** for rivers. Environmental flows may be defined as the naturally-occurring flows within a river system that has not been intervened upon by human activity. However, they are usually defined as the flow regime that has been specifically determined in order to maintain ecosystems and their specific socially- or culturally-defined benefits, after the system has been perturbed and flows regulated by competing water uses.⁶⁹

Examples of environmental flows parameters that may be maintained after river system intervention include:

- Floodplain inundation cycles. A floodplain is an area near a river or a stream that floods when the water level reaches flood stage.
- Soil deposition cycles. Soil deposition is one of the principal functions that free-flowing rivers perform.
- Migration patterns of fish, amphibians, and wildlife. Rivers are the central corridors for the migration of fish, freshwater amphibians, and wildlife; and thus, are central to maintaining the world's biodiversity.
- Flows sustaining riparian vegetation and forests. Rivers sustain the riparian vegetation and forests that make up terrestrial ecosystems. They are the veins which deposit needed minerals and nutrients into the growth of life across the planet. As a result, free-flowing rivers play a



The Kisiizi Falls flows into the Kisiizi River in Uganda. Photo courtesy of the National Association of Professional Environmentalists (NAPE).

Typical Factors and Steps in a BBM Analysis Include:

Natural Flow Characteristics:

- degree of perenniality
- magnitude of base-flows in the dry and wet season
- magnitude, timing and duration of floods in the wet season;
- small pulses of higher flow, or freshes, that occur in the drier months

Steps:

Flow features that are considered most important for maintaining or achieving the desired future condition of the river, and thus should not be eradicated during development of the river's water resources, are determined. The first building block, or low flow (base flow) component, defines the required perenniality or non-perenniality of the river, as well as the timing of wet and dry seasons. Subsequent building blocks add essential higher flows.

In general, establishing environmental flows involves regular meetings with the diversity of basin water users. A workshop may be prepared that links environmental and engineering concerns over water allocation. This workshop can produce a report that assesses environmental flows scenarios, and creates an implementation plan.

This report can include components such as the following: a delineation of the study area; a selection of river sections; an assessment of habitat integrity; an assessment of social uses of riverine resources; an assessment of ecological importance and sensitivities; definition of ecological management classes; assessments of the hydrology, hydraulics, geomorphology, water quality, vegetation, aquatic invertebrates, fish, and groundwater characteristics of the study sites.

central role in maintaining terrestrial carbon sinks and forest resources.

- Flows for sustaining socio-cultural and religious links of the society with the river. In many countries, river flow has a special cultural and religious significance to a majority of population. Many times, this population may not reside on river banks or visit the river, but its flow at a certain level, especially on certain days, holds immense importance.

The tool used to create benchmarks for healthy rivers is called an **Environmental Flows Assessment (EFA)**. An EFA produces a description of a modified flow regime for a regulated river, designed to aid maintenance of valued features of the riverine ecosystem. The assessment is river-specific, as each catchment has its own hydrological character, and each river may have a different blend of valued features that needs to be protected.

An important distinction exists between “bottom-up” and “top-down” environmental flows assessments.

- A bottom-up assessment creates a baseline amount of flows that answers the following question: *What flows are needed for various ecological and social purposes?*
- A top-down assessment creates a baseline of flows that answers this question: *How much can the flow regime be modified without causing too large an effect on ecosystem services?*

The **Building Block Methodology (BBM)** was developed as one bottom-up assessment methodology to establish baseline environmental flows necessary for ecological and social purposes. It was developed first in South Africa and Australia in the 1990s. Environmental flow allocation for maintaining river ecosystems was entrenched in South Africa’s new National Water Act (No. 36 of 1998) as the ecological Reserve. This is one of the two components of the Reserve, the other being an allocation for basic human needs.

Case Study: Assessing Environmental Flow Requirements for the Marromeu Complex in the Zambezi Delta

Dr. Richard Belfuss and Dr. Cate Brown applied the DRIFT model to the Marromeu Complex, a Ramsar Wetlands Site in the Zambezi Delta⁷³ in Mozambique.

The study compared the requirements within and between users with respect to the different flow changes assessed, constructed the relationships between flow and various combinations of users in the Zambezi Delta in order to elucidate the flow requirements for the Delta, evaluated the flow changes against modeled hydropower losses and/or gains to provide an indication of the possible tradeoffs between Delta users and hydropower generation and to evaluate these against the specialist’s assessments as to whether or not past changes to the delta are realistically reversible, and summarized the various outputs to provide a recommended way forward.

The study concluded that “there is no ‘minimum flow requirement’ for the Zambezi River delta. Rather, perceived benefits increase in the delta with an increase in magnitude and duration of the annual flood, provided it occurs sometime in the normal flooding period of December to February. Benefits to the delta users, however, offset by costs in terms of hydropower loss. Thus, in order for improvement in the delta to be achieved some trade off will need to be made, and it seems likely that that trade-off will involve a reduction in hydropower generation. There is a strong and consistent requirement for water in the delta from most users, and a strong and consistent message that reinstating at least some of the historic flow patterns will result in significant improvement in many of the areas that have been shown to be of concern.”

Evolution of the building-block methodology led to the creation of the DRIFT model. The DRIFT model is a holistic approach to determining environmental flows baseline requirements. The BBM model, the DRIFT model, and a few other models are described below.

Some E-Flows Methodologies and Models:⁷⁰

- *The Building Block Methodology (BBM)* focuses on “holistic methodology that addresses the health (structure and functioning) of all components of the riverine ecosystem, rather than focusing on selected species as do many similarly resource-intensive international methodologies.”
- *The Downstream Response to Imposed Flow Transformation (DRIFT)* model is a “methodology for assessing the flow requirements for maintenance of rivers that are subject to water developments. It has six important attributes. First, it provides an holistic approach to EF assessments, in that it addresses all parts of the intra-annual and inter-annual flow regime, and all living and non-living parts of the river ecosystem from source to sea. Second, it is a scenario-based approach, combining data, experience from a multi-disciplinary team of specialist river scientists, and any other local knowledge on the river of concern, to provide predictions of how the river could change with flow manipulations. Third, it further predicts the social and economic impacts of these river changes on common-property subsistence users of the river’s resources. Fourth, its outputs comply with the requirements of the South African Department of Water Affairs and Forestry for use in its management of aquatic ecosystems (Resource Directed Measures – RDM). Fifth, all the data and knowledge used in compilation of the scenarios are stored in a database that can be used to create any number of scenarios and that also acts as a resource in its own right on flow-related responses of rivers. Finally, it is grounded in a growing range of custom-built software that allows much of the application of DRIFT to be automated.”
- *The Ecological Limits of Hydrologic Alteration (ELOHA)* model is “a scientifically robust and flexible framework for assessing and managing environmental flows across large regions, when lack of time and resources preclude evaluating individual rivers.”⁷¹
- *The In-stream Flow Incremental Methodology (IFIM)* “integrates concepts of water-supply planning, analytical hydraulic engineering models, and empirically derived habitat-versus-flow functions to address water-use and instream flow issues and questions concerning life-stage-specific effects on selected species and the general well being of aquatic biological populations.” IFIM includes the Physical Habitat Simulation Model (PHABSIM). “This model incorporates hydrology, stream morphology, and microhabitat preferences to determine relations between streamflow and habitat availability. Habitat availability is measured by an index called the weighted useable area (WUA), which is the wetted area of a stream weighted by its suitability for use by an organism. PHABSIM simulates streamflow habitat relations for various species and life stages and allows quantitative habitat comparisons at different streamflows.”⁷²

FURTHER READING:

- Read more about the BBM methodology at “Environmental Flows Assessments for Rivers: Manual for the Building Block Methodology: Updated Edition,” Freshwater Research Unit, University of Cape Town, 2008: http://www.swrcb.ca.gov/waterrights/water_issues/programs/bay_delta/deltaflow/docs/exhibits/swrcb/swrcb_king2008.pdf
- See Latha Anantha & Parineeta Dandekar, “Towards Restoring Flows into the Earth’s Arteries: A Primer on Environmental Flows,” 2012. International Rivers. http://www.internationalrivers.org/files/attached-files/eflows_primer_062012.pdf

IDEAS FOR ACTION:

- Contact the national and/or state water resources utility board and Ministry of the Environment to demand to participate in the creation of environmental flows and ecological management standards in your watershed.



Fishing boats
going out on
Lake Turkana,
Photo by
Friends of Lake
Turkana

Project Feasibility

The above-mentioned types of assessments establish parameters to measure the feasibility of different dam projects. With these parameters, dam planners are better able to determine which dams should be built and which should not, by creating project feasibility studies. Project feasibility studies analyze the technical, economic, and financial feasibility of any given project, and should fully incorporate all risks and costs identified by strategic-level plans. It is important to assure that feasibility studies internalize a project's entire set of externalized costs, including all social and environmental costs, in order to assure that dam-affected people's rights are protected and standards are being met.

TECHNICAL FEASIBILITY

A dam may be considered technically feasible if its design meets the resource needs of its consumers. For example, if the project is technically capable of exporting electricity or storing water for irrigation purposes. Yet, a project's technical feasibility is intimately tied to its economic and/or financial feasibility. These are described below.

Technical feasibility analysis should draw from all of the information available in the strategic planning assessments described above.

ECONOMIC FEASIBILITY

Any dam must have a positive Economic Internal Rate of Return (EIRR) for it to be economically feasible. An EIRR generally measures the benefit produced by a dam for a government or country, in terms of national security, job creation, industry creation, and other measures that influence Gross Domestic Product (GDP).

Economic feasibility should assess the economic rate of return after all risks and costs have been internalized, including political and governance risks, social and environmental risks, technical risks, and the information cited in the strategic and cross-cutting areas described above.

FINANCIAL FEASIBILITY

Dams also may need a positive Financial Internal Rate of Return (FIRR) in order to be considered feasible. In contrast to the EIRR, the FIRR strictly measures the monetary benefits produced by a project over time, in comparison with the initial investment. In general, private sector developers are more concerned with FIRR, whereas the public sector or government will be more concerned with EIRR.

Financial feasibility should assess the financial rate of return equally after all risks and costs have been internalized, including all credit and financial risks, based on the information cited in the strategic and cross-cutting areas described above.

ENVIRONMENTAL AND SOCIAL FEASIBILITY

Financial institutions and dam developers should also assess the environmental and social feasibility of a project. This should be done prior to the actual environmental and social impact assessment (ESIA) by way of project risk screening. Risk categorization (see box) includes environmental and social factors that can help in screening a project.

What is Risk Categorization?

Feasibility studies ideally involve the classification of the risk of the investment. Usually, Category A risk refers to projects that cause irreversible negative impacts that cannot be mitigated; Category B risk refers to projects that cause severe negative impacts that may be mitigable; and Category C risk refers to projects that cause either no impacts at all or only positive impacts.

Ideally, Category A classification includes all projects that involve displacement and resettlement; that impact indigenous peoples or other vulnerable groups either directly or indirectly; that impact environmentally sensitive locations such as National Parks and other protected areas identified by national or international law; and other sensitive locations of international importance (for example, Ramsar Convention sites, IUCN protected areas and UNESCO World Heritage Sites) or of national or regional importance, such as wetlands, forests with high biodiversity value, areas of archaeological or cultural significance; and any project that includes a dam wall size above 15 meters from the foundation and/or reservoir size equal to or above 3 million m³.⁷⁴

It is important to note that projects are sometimes mis-categorized by financial institutions (for example, as "B" rather than "A"). This can affect which standards are applied to a project. You should watch this and raise concerns about categorization as early as possible.

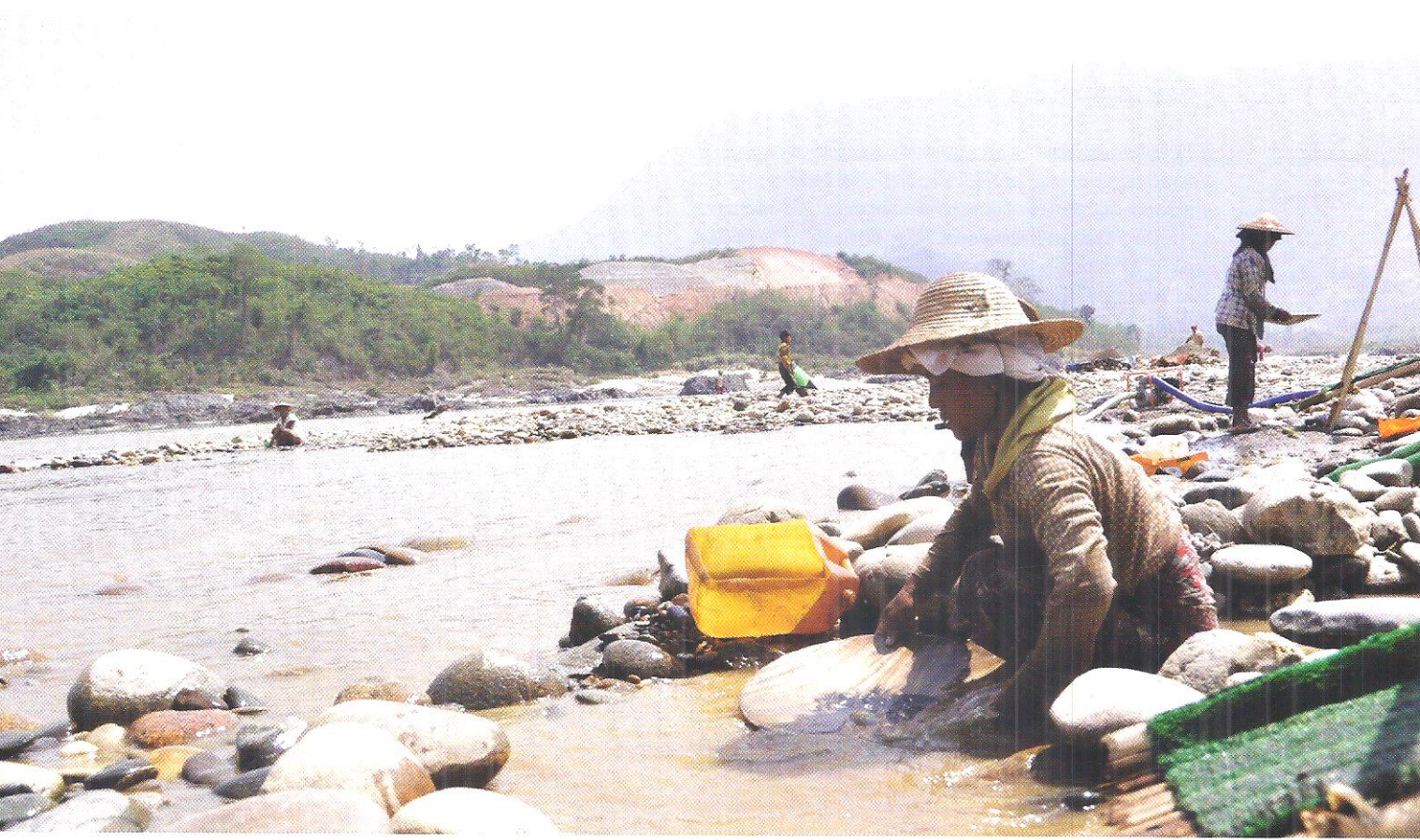
Finally, you should pressure dam financiers to not invest in projects that cause violent, forced, coercive, or involuntary displacement, and that intervene significantly in previously-established no-go zones such as critical natural habitats.

FURTHER READING:

- For information on best practices in project feasibility and risk categorization, see the IFC's Environmental & Social Review Procedures Manual: <http://www.ifc.org/wps/wcm/connect/190d25804886582fb47ef66a6515bb18/ESRP+Manual.pdf?MOD=AJPERES>

IDEAS FOR ACTION:

- Contact the dam financier and request a copy of the project feasibility studies, and of the risk categorization report for the project. If copies are not provided to you, use local or international media to highlight the financier's lack of transparency.



Project Assessment: Once Projects Are Chosen

Once plans and feasibility studies have been completed, dams usually receive project-level assessments that will inform the creation of project-level management plans. If a dam is to be built, it requires high standards of project-level risk assessment. This assessment should be developed using the best available tools at the multiple scales at which risks and impacts will occur.

In this chapter, we will describe how dam impacts are assessed, and a number of the most significant impacts caused by large dams: biodiversity, displacement, and water quality.

A woman sifts the sand for gold on the Irrawaddy River, Myanmar. Photo by International Rivers.

Environmental and Social Impact Assessment

A Environmental and Social Impact Assessment (ESIA) assesses the project's social and environmental impacts. It clearly describes project alternatives, including the alternative of "no project." The ESIA should fit directly within and meet the conditions of the Strategic Environmental Assessment (SEA) and Energy and Water Resources plans, referenced earlier in this document.

This is where the rubber meets the road for the dam developer and financier. The ESIA must adequately assess all potential risks associated with project construction, implementation, and operation. ESIA's differ from Strategic Environmental Assessments (SEAs) in that ESIA's are of more limited scope, often only including impacts within a smaller project-level area. In contrast, an SEA assesses the social and environmental impacts of a project within a broader spatial and temporal scale, such as a river basin. Projects that have no relation to an SEA often lead to the development of a very limited ESIA, in which broader risks and considerations may be ignored.

To hold a developer accountable to human rights, specific assessments that measure compliance of the developer with international human rights laws and national laws should be carried out as part of the ESIA. These include but are not limited to a Human Rights Impact Assessment, a Gender Impact Assessment, and an Indigenous Peoples' Impact Assessment.

Human Rights Impact Assessment

The rationale for a human rights impact assessment is described in *Section I: Rights Across All Stages*. But what does a human rights impact assessment look like in practice? Below are links to some examples of human rights impact assessment methodologies and outcomes:

- Download and use a Human Rights Impact Assessment Toolkit from Nomogaia:
<http://nomogaia.org/tools/>
- See examples of a Human Rights Impact Assessment, from Nomogaia:
<http://nomogaia.org/work/>
- Read a "Rights and Democracy Guide to Human Rights Impact Assessments" at:
<http://equalit.ie/content/human-rights-impact-assessment-tool>

- Read the IFC's "Guide to Human Rights Impact Assessment and Management":
http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/publications/publications_handbook_hria_wci_1319577931868

Gender Impact Assessment

Similarly, the rationale for a gender impact assessment is described in *Section I: Rights Across All Stages*. Below are some examples of what a gender impact assessment looks like:

- Read Oxfam Australia's "Manual on Gender Impact Assessment and Hydropower":
www.oxfam.org.au/giamanual
- Read the European Commission's "Guide to Gender Impact Assessment": <http://ec.europa.eu/social/BlobServlet?docId=4376&langId=en>
- Read Women Enterprise and Employment in local Development's "Gender Impact Assessment Toolkit": http://urbact.eu/uploads/tx_projectsresultsdocuments/WEED_Gender_Impact_Assessment_Toolkit.pdf

Indigenous Peoples' Impact Assessment

Finally, the rationale for an indigenous peoples' impact assessment is also described in *Section I: Rights Across All Stages*. Below are some examples of policies on how to do indigenous peoples' impact assessments:

- Read the IFC's Performance Standard 7 on Indigenous People:
http://www.ifc.org/wps/wcm/connect/1ee7038049a79139b845faa8c6a8312a/PS7_English_2012.pdf?MOD=AJPERES
- Read the World Bank's OP4.10 Annex B, Indigenous Peoples Plan:
<http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/EXTPOLICIES/EXTOP MANUAL/0,,contentMDK:20564712~menuPK:4564185~pagePK:64709096~piPK:64709108~theSitePK:502184,00.html>

All types of impacts of dam projects are important to assess. A full description of all these areas is beyond the scope of this publication; however, below are descriptions of three significant areas of dam impacts – Biodiversity, Water Quality, and Displacement and Resettlement – and descriptions of useful standards to promote.

Typical Timing and Scope of an ESIA

ESIAs are intended to inform the design of the project, so they need to be completed during the design phase & definitely before construction begins. Ideally, an ESIA should be conducted with public participation. A draft should be made available to the public for comment before it is finalized.

Usually, ESIAs are structured in the following way:⁷⁵

- An executive summary
- A discussion of the policy, legal and administrative framework of the project
- A project description
- Baseline data
- Environmental and social impacts
- An analysis of alternatives
- An Environmental Action Plan (EAP)
- Appendices, including:
 - A list of the preparers of the EIA
 - References of written, published and unpublished material used in the preparation of the EIA
 - A record of interagency and consultation meetings, including consultations for obtaining the informed views of the affected people and local non-governmental organizations. The record specifies any means other than consultations (e.g. surveys) that were used to obtain the views of affected groups and NGOs.
 - Tables presenting the relevant data referred to or summarized in the main text.

However, too frequently, ESIAs are treated as mere formalities, or obstacles in the path to project approval. EIA experts often note that project developers compile ESIAs that present significant gaps in information, due to political pressure to hasten environmental approval. Such ESIAs fail to accurately assess the full risk factors that a project may present to both affected communities, the environment, and project developers and financiers.

For dams, a number of topics are of utmost importance for social and environmental assessment. If these topics are missing from an ESIA, it is an indication that the assessment is poor.

- Displacement of Affected People
- Impacts on Biodiversity
- Impacts on Forests and Vegetation
- Impacts on Aquatic Species
- Sedimentation
- Water Quality
- Water Quantity, Abstraction, Withdrawal
- Cultural Heritage and Property
- Health Impacts
- Gender Impacts and Impacts on Women
- Cumulative, Indirect, and Interactive Impacts
- Trans-boundary Impacts

Grievance Mechanisms and Accountability

The existence of a grievance mechanism is a central tenet of a human rights impact assessment, and is an important part of risk management, stakeholder engagement, and the relations between a dam developer, government, and dam-affected communities. The existence of a grievance mechanism allows dam-affected people to seek access to justice, remedy, and reparations, as recognized and protected by international human rights law.

For a grievance mechanism to operate successfully, project-affected communities must enjoy access to information, information must be made available in culturally-appropriate forms and in the language of the community, and the mechanism must be designed according to community wishes, rather than those of the developer. Grievance mechanisms allow affected people another avenue to hold project developers and financiers accountable to wrongdoings or poor outcomes.

Certain industry players are increasingly turning to the implementation of human rights assessments as an effective way to do sustainable business; dam builders who hear communities' grievances and respect their rights often have improved stakeholder relations. Those communities who track developers' efforts in creating and implementing a grievance mechanism will be able to influence audits of mitigation actions, and may ultimately achieve better outcomes from the developer or operator (see *Section V, Project Impact Management: Once Projects Begin*).

FURTHER READING:

- Read the International Association for Impact Assessment's resources list on ESIA: <http://www.iaia.org/publications-resources/downloadable-publications.aspx>
- Read the IFC's Performance Standard 1 on Assessment and Management of Environmental and Social Risks and Impacts: http://www.ifc.org/wps/wcm/connect/115482804a0255db96fbfd1a5d13d27/PS_English_2012_Full-Documents.pdf?MOD=AJPERES
- Read the EBRD's manual on Environmental and Social Impact Assessment: <http://www.ebrd.com/environment/e-manual/r16eia.html>
- Read the UNECE Convention on Environmental Impact Assessment in a trans-boundary Context: <http://www.unece.org/env/eia/eia.html>

IDEAS FOR ACTION:

- Based on the sample tools listed above, create your own community-based assessment for any of these topic areas. Demand that the dam developer include your community-based assessment in the project ESIA. If it is not included, publish your community-based assessment in local, regional, and international media, to draw attention to discrepancies.

The following sections describe some of the most significant impacts caused by dams, and the institutions and norms that can be utilized to promote best practices in project assessment.

Biodiversity

Dams often have large, and sometimes irreversible impacts on ecosystems and biodiversity. Both aquatic and terrestrial species provide economic, cultural, nutritional, social, recreational and spiritual benefits to human populations. As a result, you should call on dam developers and financiers to adhere to the strongest standards in biodiversity conservation.

Biodiversity conservation generally includes the protection of two types of biodiversity: aquatic biodiversity, which generally refers to species that depend on the environmental flow regimes of rivers, lakes, and wetlands for survival and reproduction, and terrestrial biodiversity, which generally refers to species that depend on land habitats.

A number of international covenants exist that lay out commitments for biodiversity conservation. These are the Convention on Biological Diversity (CBD), the Ramsar Convention, the UNECE Water Convention, and the UN Fish Stocks Agreement.

The Convention on Biological Diversity

The Convention on Biological Diversity (CBD) was opened for signature in 1992 and the United Nations Earth Summit in Rio de Janeiro. The CBD has three objectives: the conservation of biological diversity; the sustainable use of the components of biological diversity; and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources⁷⁶. As of 2013, there are 193 parties to the CBD.

Article 8 of the Convention on Biological Diversity promotes the establishment of in-situ and ex-situ areas of protection for biodiversity conservation. In-situ refers to the conservation of species in the natural habitat in which they are found. Article 9 of the Convention on Biological Diversity promotes the establishment of facilities for the ex-situ conservation of components of biological diversity.

Article 10 of the CBD promotes the sustainable use of biodiversity through integrating “consideration of the conservation and sustainable use of biological resources into national decision-making.”

Article 14 of the CBD promotes the requirement of an environmental impact assessment of proposed projects *“that are likely to have significant adverse effects on biological diversity, with a view to avoiding or minimizing such effects.”*

The Ramsar Convention

The Ramsar Convention or Convention on Wetlands of International Importance promotes national action and international cooperation for the conservation and wise use of wetlands and their resources.⁷⁷ The convention established a List of Wetlands of International Importance, which promotes their conservation. As of 2013, there are 168 contracting parties.

An important facet of the Ramsar Convention is the **conservation of wetlands and compensation for loss of wetlands**. Articles 3 and 4 of the Ramsar Convention promote implementing planning so as to promote the conservation of the wetlands included in the list, and as far as possible the wise use of wetlands in their territory. In the case of loss of wetlands, the articles promote compensation as far as possible for any loss of wetland resources, and in particular the

A Word on Biodiversity Offsets

Often, the impacts caused by dams are justified by project developers and financiers through the creation of biodiversity offsets. Offset refers to a practice of compensation through exchange, and is the last available option in any project-level mitigation hierarchy (see *Section V, Project Impact Management: Once Projects Begin*). In general, a biodiversity offset allows certain biodiversity impacts generated by a dam to occur in one place, in exchange for the protection of other biodiversity assets located in a different place. Offsets are often temporary and governments can change their mind in the future; as a result, offsets should be utilized only as a method of last resort, once all mitigation options have been exhausted.

creation of additional nature reserves for waterfowl and for the protection, either in the same area or elsewhere, of an adequate portion of the original habitat.

The UNECE Water Convention

Protection and Use of Trans-boundary Watercourses and International Lakes The UNECE Convention on the Protection and Use of Trans-boundary Watercourses and International Lakes, or the Water Convention, is applicable to European Union member countries. It “obliges Parties to prevent, control and reduce trans-boundary impact, use trans-boundary waters in a reasonable and equitable way and ensure their sustainable management. Parties bordering the same trans-boundary waters shall cooperate by entering into specific agreements and establishing joint bodies. The Convention includes provisions on monitoring, research and development, consultations, warning and alarm systems, mutual assistance, and exchange of information, as well as access to information by the public.” The UNECE Water Convention entered into force on February 6th,

2013. You can check the status of country ratification on its website.⁷⁸

The UN Fish Stocks Agreement

The United Nations Convention on the Law of the Sea Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, or simply, The UN Fish Stocks Agreement, promotes the maintenance of freshwater fisheries. The UN Fish Stocks Agreement “sets out principles for the conservation and management of those fish stocks and establishes that such management must be based on the precautionary approach and the best available scientific information. The Agreement elaborates on the fundamental principle, established in the Convention, that States should cooperate to ensure conservation and promote the objective of the optimum utilization of fisheries resources both within and beyond the exclusive economic zone.” The UN Fish Stocks Agreement has been in force since December 11th, 2001, and as of 2013, has 166 ratifying parties.⁷⁹

Case Study: The Inter-American Development Bank’s “River Offset” for the Reventazón Hydropower Project, Costa Rica

One example of biodiversity offsets related to a dam project is the “river offset” planned for the Reventazón Hydropower Project in Costa Rica. The Reventazón Dam is a 305.5 MW hydropower project partially financed by the Inter-American Development Bank (IADB). The project’s 8-kilometer long reservoir will interrupt the habitat connectivity of the Central American jaguar, cutting through the Barbilla Destierro Biological Sub-corridor, a critical pathway for jaguars along Costa Rica’s Volcánica Central Talamanca Biological Corridor and for the Mesoamerican Biological Corridor as a whole.

In addition, the Reventazón Dam, together with the already existing Cachi Dam, will create cumulative

impacts on three migratory fish species, reducing their ability to reproduce.

In order to mitigate the project’s impacts on biodiversity, the dam’s action plans foresee the creation of a “river habitat offset.” This offset seeks to permanently protect the Parismina River, which joins with the Reventazón on the coastal plain, by prohibiting any artificial modifications on the Parismina, including dams that would block migrations. Accordingly, the Parismina’s natural flow pattern and its biological integrity will be preserved or restored where required.

FURTHER READING:

- Read the text of the Convention on Biological Diversity: <http://www.cbd.int/convention/text/>
- See who has ratified the Ramsar Convention at the UNESCO site:
<http://www.unesco.org/eri/la/convention.asp?KO=15398&language=E&order=alpha>
- Access the UN Fish Stocks Agreement:
http://www.un.org/depts/los/convention_agreements/convention_overview_fish_stocks.htm
- Read about The Inter-American Development Bank's Biodiversity Platform:
<http://www.iadb.org/biodiversity>

IDEAS FOR ACTION:

- Based on the resources listed above, create your own community-based biodiversity assessment. Demand that the dam developer include your community-based assessment in the project ESIA. If it is not included, publish your community-based assessment in local, regional, and international media, to draw attention to discrepancies.

Water Quality

Dams often lead to poor water quality, upstream, inside the reservoir, and downstream from the impoundment. Here is a summary of the kinds of water quality problems that arise when a river is dammed, which need to be assessed and mitigated.

Temperature

Water released from deep in a reservoir behind a high dam is usually cooler in summer and warmer in winter than river water, while water from outlets near the top of a reservoir will tend to be warmer than river water all year round. Warming or cooling the natural river affects the amount of dissolved oxygen and suspended solids it contains and influences the chemical reactions which take place in it. Altering natural seasonal changes in temperature can also disrupt the life-cycles of aquatic creatures – breeding, hatching and the metamorphosing of larvae, for example, often depend on thermal cues.

Relatively warm winter releases from reservoirs in cold climates will inhibit the formation of ice downstream. Reduced ice cover makes hazardous or impossible the use of frozen rivers as winter roads: in northern Scandinavia, for example, dams mean that the Sami people can no longer use many of their traditional winter reindeer herding routes which follow frozen rivers. Cold winter air passing over the relative warmth of some of the huge Russian and Canadian reservoirs can cause long spells of freezing fog.

Sedimentation

In the same way as reservoirs trap river sediment, they also trap most of the nutrients carried by the river. During warm weather, algae are likely to proliferate near the surface of a highly nutrient-enriched, or eutrophic, reservoir. Through photosynthesis the algae consume the reservoir nutrients and produce large amounts of oxygen. Summer releases from the surface layer, or epilimnion, of a reservoir will thus tend to be warm, nutrient-depleted, high in dissolved oxygen, and may be thick with algae. High levels of algae can provide food for fish but also give water an unpleasant smell and taste, clog water supply intakes, coat gravel beds and restrict recreation. Massive algal blooms in shallow, stagnant reservoirs can render water unfit for either household or industrial use.

When algae in a reservoir die they sink to its bottom layer, or hypolimnion, where they decay, a process that consumes the already limited hypolimnion oxygen (there is usually not enough light for photosynthesis at the bottom of a reservoir). The acidity of this oxygen-depleted water often renders it capable

of dissolving minerals, such as iron and manganese, from the lake bed. Warm weather releases from a dam with low-level outlets will thus be cold, oxygen-poor, nutrient-rich and acidic, and may contain damagingly high mineral concentrations. The presence of an adequate level of dissolved oxygen in a river is one of the main indicators of good water quality. Water poor in dissolved oxygen can “suffocate” aquatic organisms and make water unfit to drink. Dissolved oxygen, furthermore, is vital to enable bacteria to break down organic detritus and pollution.

Nutrient Loading

Dams can lead to decreased sedimentation in rivers. As rivers move downstream, sediments carried by the river will accumulate behind a dam wall, and can sink to the bottom where they accumulate. Sediments may contain nutrients such as nitrogen, phosphorus, and others, which change the water quality and pH of a reservoir. This process is called nutrient loading: an increase in nutrient concentration that changes the chemistry and quality of the water.

Nutrient loading can also occur due to existing land use both in the flooded area and in surrounding lands. When a reservoir floods land that contains vegetation that has not been removed, the vegetation will decompose and produce an anoxic environment in the reservoir. Similarly, surrounding intensive land uses, such as plantations or industrial agriculture, increase the deposition of nutrients into a river. In cases where a reservoir is surrounded by large agriculture production, the extra nutrient loading can lead to a highly polluted reservoir.

Reservoir Emissions

During the first years after a reservoir is filled the decomposition of submerged vegetation and soils can drastically deplete the level of oxygen in the water. Rotting organic matter can also lead to releases of huge amounts of the greenhouse gases methane and carbon dioxide. Reservoirs often “mature” within a decade or so, although in the tropics it may take many decades or even centuries for most of the organic matter to decompose. Thorough clearing of vegetation in the submergence zone before the reservoir is filled can reduce this problem, but because it is difficult and prohibitively expensive, especially for large reservoirs, this is only ever partially done at best. Also, vegetation clearing does not necessarily remove GHG emissions, since vegetation can still enter the reservoir through runoff. Eutrophication from upstream fertilizer runoff can also increase reservoir biological productivity and decay.

Reservoir Flooding at the Brokopondo Dam, Suriname

Some of the most notorious examples of the large-scale flooding of forest have occurred in South America. Brokopondo Dam in Suriname submerged 1,500 square kilometers of rainforest – 1% of the country. The decomposition of the organic matter in its shallow reservoir severely deoxygenated the water and caused massive emissions of hydrogen sulphide, a corrosive and foul-smelling gas. Workers at the dam had to wear masks for two years after the reservoir started to fill in 1964. The cost of repairing damage done to Brokopondo's turbines by the acidic, deoxygenated water was estimated in 1977 to have totaled \$4 million, more than seven per cent of the total project cost. Studies carried out in 1967 showed that oxygen levels in the river only began to recover around 110 km downstream of the dam, depriving many riverside communities of drinking water and fish.

Reservoir Flooding at the Tucuruí and Balbina Dams, Brazil

Despite a legal requirement to clear vegetation from all areas to be submerged, the Brazilian electricity utility Eletronorte cleared less than a fifth of the 2,250 square kilometers of rainforest inundated by Tucuruí and only a token 2% of the 3,150 square kilometers of forest inundated by Balbina Dam. Clearing all of the Tucuruí reservoir would have increased the project's cost by an estimated \$440 million. Because Balbina's turbine intakes are at the very bottom of the 50 meter high dam, the Uatumã River, a north-bank tributary of the Amazon, is receiving almost totally deoxygenated water from the reservoir.

Liquid Effluents

Hydropower turbines and other machinery involved in a dam require oils in order to maintain viscosity and lubrication. These oils are often leached into the river downstream, and can contaminate both water quality and soil quality.

Wastewater can also be produced at dam construction and operation sites. Wastewater treatment plants should be built at the dam site.

Invasive Species

Nutrient-enriched tropical reservoirs are particularly prone to colonization by aquatic plants. Mats of floating plants can impede fishing boats and nets, block out light for other organisms, clog turbines and provide an excellent habitat for disease vectors such as mosquitoes and the snails which host the schistosomiasis parasite. Through transpiration, aquatic plants can also lower reservoir levels: losses of water from evaporation and transpiration in weed-covered reservoirs can be up to six times higher than those from evaporation in open waters.

Reservoir operators' most dreaded weed is the water hyacinth (*Eichhornia crassipes*), a native of Amazonia which is now found throughout the tropics. Water hyacinths can proliferate at an extraordinary rate in eutrophic reservoirs, largely stymying efforts to eradicate them by physically removing the plants or by spraying them with herbicides (which brings its own problems).

Mercury Methylation

Scientists have only relatively recently become aware of what now appears to be a pervasive reservoir contamination problem, the accumulation of high levels of mercury in fish. Mercury is naturally present in a harmless inorganic form in many soils. Bacteria feeding on the decomposing matter under a new reservoir, however, transform this inorganic mercury into methyl mercury, a central nervous system toxin. The methyl mercury is absorbed by plankton and other creatures at the bottom at the aquatic food chain. As the methyl mercury passes up the food chain it becomes increasingly concentrated in the bodies of the animals eating contaminated prey. Through this process of bioaccumulation, levels of methyl mercury in the

Invasive Species in Reservoirs

Two years after Brokopondo began to fill, over half its reservoir was covered with water hyacinth. The plant was partially brought under control by a long-term program of aerial spraying with the carcinogenic herbicide 2,4-D which also poisoned many other plants and animals. African reservoirs have also suffered serious infestations of water hyacinths and other plants. At one point a fifth of the surface of Kariba Reservoir – more than 1,000 square kilometers – was smothered by aquatic plants.

Methyl Mercury in the La Grande Dam Reservoir, Quebec

The best researched case of reservoir methylmercury is at the La Grande hydroelectric complex in Quebec, part of the huge James Bay Project. Ten years after the La Grande 2 Reservoir was first impounded, mercury levels in pike and walleye had risen to six times their pre-reservoir level and showed no signs of leveling off. As these fish are a major part of the traditional diet of the local Cree native people, mercury levels in their bodies have risen dangerously. By 1984, six years after La Grande 2 Dam was completed, 64% of the Cree living on the La Grande estuary had blood mercury levels far exceeding the World Health Organization tolerance limit.

tissues of large predatory fish at the top of the reservoir food chain can be several times higher than in the small organisms at the bottom of the chain.

Evaporative water losses

Because they greatly multiply the surface area of water exposed to the rays of the sun, dams in hot climates can lead to the evaporation of huge amounts of water which is mainly lost to the river downstream. In the region of 170 cubic kilometers of water evaporates from the world's reservoirs every year, more than seven per cent of the total amount of freshwater consumed by all human activities. The annual average of 11.2 cubic kilometers of water evaporated from Nasser Reservoir behind the High Aswan Dam is around 10% of the water stored in the reservoir and is roughly equal to the total withdrawals of water for residential and commercial use throughout Africa.

Relevant Policies:

- The United States' National Guidance on Water Quality Standards for Wetlands: The United States' Water Quality Standards Regulation (40 CFR 131.11(a)(1)) requires U.S. states to adopt criteria sufficient to protect designated uses. These criteria may include general statements (narrative) and specific numerical values (i.e., concentrations of contaminants and water quality characteristics). At a minimum, the U.S. Environmental Protection Agency expects states to apply aesthetic narrative criteria (the "free forms") and appropriate numeric criteria to wetlands and adopt narrative biological criteria for wetlands. Most state water quality standards already contain many criteria for various water types and designated use classes, including narrative criteria, and numeric criteria to protect human health and freshwater and saltwater aquatic life, that may be applicable to wetlands.
- ISO 13.060: Water quality: ISO 13.060 consists of ten policies that describe technical standards in areas such as toxicity, biodegradability, protection against pollution, related installations and equipment. Specific areas in these policies include: water of natural resources; drinking water; chemicals for purification of water, see; drinking water supply systems; water for industrial use including water for commercial use and fish breeding; sewage water disposal and treatment; drainage systems; sampling; examination of water for chemical substances; physical properties of water; biological properties of water; and others.
- The IFC's Environment, Health, and Safety Guideline on Wastewater and Ambient Water Quality: The guideline covers matters related to surface water, sewage systems, industrial wastewater, emissions from wastewater treatment, and others.

Salinity in the Colorado River, United States

The massive amounts of evaporation from the reservoirs behind Hoover and the other dams on the Colorado – one third of the river's flow is evaporated from reservoirs – is one of the reasons why the salinity of the river has risen to damaging and costly levels. High salt concentrations are poisonous to aquatic organisms and they corrode pipes and machinery: the increased Colorado River salinity costs Southern California's water users millions of dollars each year.

Soils are often naturally saline in arid areas like the US West and are made even saltier when irrigated. Irrigation water percolates through the soils, picking up salts, then returns to the river. On rivers like the Colorado the same water may be used for irrigation 18 times over. Reservoir evaporation concentrates further the level of salt in the river. The salinity of the water at Imperial Dam, just north of the Mexican border, increased from an average of 785 parts per million (ppm) between 1941 and 1969, to over 900 ppm in 1990. It is predicted to exceed 1,200 ppm after the year 2000. The US standard for drinking water is 500 ppm.

In the early 1960s, a surge in salt levels caused a dramatic decline in yields on fields irrigated with Colorado water in Mexicali, one of Mexico's most productive agricultural regions. Mexico City made a formal protest to Washington, DC, and finally in 1974 the two countries signed an agreement under which the salinity of the Colorado River at the Mexican border must not exceed 1024 ppm. The Bureau of Reclamation's "salinity control program," initiated after the treaty with Mexico, had cost taxpayers \$660 million by 1993. The centerpiece of the program is a money-sucking, technological non-fix – one of the world's largest and most expensive desalination plants. The plant, built at Yuma, Arizona, cost \$256 million. It began operation in May 1992, but was closed again in January 1993 after floods destroyed some of the drains bringing it saline water. "In a region covered with water-reclamation projects of fabulous expense and questionable usefulness," wrote Martin Van Der Werf in the Arizona Republic, "the Yuma plant may be the biggest laughingstock of all."

FURTHER READING:

- Read the United States' Water Quality Standards Handbook:
<http://water.epa.gov/scitech/swguidance/standards/handbook/index.cfm>
- Access the ISO Standards Catalogue on Water Quality:
http://www.iso.org/iso/iso_catalogue/catalogue_ics/catalogue_ics_browse.htm?ICS1=13&ICS2=60
- Read the IFC's Environment, Health, and Safety Guideline on Wastewater and Ambient Water Quality:
<http://www.ifc.org/wps/wcm/connect/026dcb004886583db4e6f66a6515bb18/1-3%2BWastewater%2Band%2BAmbient%2BWater%2BQuality.pdf?MOD=AJPERES>

IDEAS FOR ACTION:

- Based on the resources listed above, create your own community-based water quality assessment. Demand that the dam developer include your community-based assessment in the project ESIA. If it is not included, publish your community-based assessment in local, regional, and international media, to draw attention to discrepancies.

Displacement, Resettlement and Benefit Sharing

Dams can change the livelihoods of those people affected by them in radically negative ways, literally uprooting families from their homes and established methods of economic survival. The effects of displacement are often magnified among traditional and indigenous communities, who have long-established land-based cultures and relationships. Downstream communities have traditionally been left out of the equation, and this is not acceptable.

A number of rights are prescribed to protect affected communities against displacement and during the process of resettlement. These include:

The Right to Place-Based Livelihoods

As stated earlier, the Right to Housing and the Right to Culture are universal human rights promoted in international law. This means that affected people have the right to place-based livelihoods. A place-based livelihood may be defined as the intimate relation of a population to its territory, land, and resources found there.

The right to place-based livelihoods is expressed as a right of Indigenous Peoples by Article 10 of

UNDRIP, which states: “Indigenous peoples shall not be forcibly removed from their lands or territories. No relocation shall take place without the free, prior and informed consent of the indigenous peoples concerned and after agreement on just and fair compensation and, where possible, with the option of return.”⁸⁰ Articles 11–14 may also be interpreted as relating to indigenous peoples’ cultural relations to territory and land.

Access to Information, Consultation and Active Participation in Decision-Making

Any affected community that will be displaced and/or resettled has the right to complete access to information, consultation, and active participation in decision-making, as outlined earlier in this document.

Forced Evictions and the Right to Adequate Housing

The UN Basic Principles and Guidelines on Development-based Evictions and Displacement⁸¹ broadly defines the obligation of States and project-related stakeholders to refrain from, and protect against, forced evictions from home(s) and land. This obligation arises from several international legal instruments that protect the human right to

Case Study: Displacement and Resettlement at the Three Gorges Dam, China

China’s Three Gorges Dam is one of the largest infrastructure projects ever created. Reflecting its size, its impacts on the livelihoods of affected people have been immense. Before construction began, one of the largest resettlement programs in the history of humankind was undertaken. All in all, it is estimated that at least 1.3 million people were involuntarily displaced and resettled due to the Three Gorges Dam.

The resettlement program was plagued with problems. There was falsification of information in the assessment. Criticism of resettlement programs was banned, and the participation of affected people in the creation and management of the programs was not allowed. Resettled people often cited coercion by the program managers, and poor compensation. Overall, critics say that improvement of livelihoods did not materialize through the resettlement programs, while there is a dearth of suitable arable land for those resettled.

Today, geological hazards produced by the reservoir levels still endanger resettled communities and have forced many to be resettled a second or third time.

For more information, see:

- <http://www.unhcr.org/refworld/country,,HRW,,CHN,4562d8cf2,3ae6a7d310,0.html>
- http://www.hrichina.org/sites/default/files/oldsite/fs/downloadables/pdf/downloadable-resources/three_gorges_98.pdf
- <http://www.internationalrivers.org/files/attached-files/3gcolor.pdf>
- <http://www.internationalrivers.org/node/7642>

adequate housing and other related human rights, as defined by the Universal Declaration of Human Rights, Article 25.

General Comments 4 on The Right to Adequate Housing and 7 on The Right to Adequate Housing: Forced Evictions (art.11 (1), of the Committee on Economic, Social and Cultural Rights (CESCR), protect project-affected communities' rights to adequate housing as defined by the Universal Declaration of Human Rights, Article 25.

Livelihood Improvement and Benefit Sharing

Benefit sharing may take multiple forms. In general, dam developers should fully restore lost livelihoods and ensure that affected people are "better off" than before. Dam-affected people should record the economic, social, cultural, religious, environmental, and any other values that they enjoy and feel they will lose as a result of the dam, in order to identify and illustrate what "better off" means to them. This information may conflict with what is recognized by the dam developer; as a result, documentation is important.

In the case that dam-affected communities are removed from land, they should have the right to obtain **land-for-land compensation** – meaning that the land they receive is equal to or better in both quality and quantity to the land previously owned or occupied.

Such benefits should be prepared in a **benefit-sharing plan**, which details how the developer will restore or improve the lost livelihoods of dam-affected people. Common areas to pay attention to include land-for-land compensation; access to in-kind or improved labor opportunities; improved health and education services; access to employment and job training, and guaranteed access to energy and electricity.

Affected communities should also have the right to negotiate **legally-enforceable contracts**, rather than make informal agreements, related to their process of resettlement, compensation, and benefit-sharing.

Finally, affected communities should have the right to **participate in the supervision, monitoring, and evaluation** of resettlement programs.

Relevant Policies:

- UN Basic Principles and Guidelines on Development-based Evictions and Displacement. These principles are non-binding, but are a restatement of binding international law.
- General Comments 4 on The Right to Adequate Housing and 7 on The right to adequate housing: forced evictions (art.11 (1) of the Committee on Economic, Social and Cultural Rights (CESCR)
- IFC Performance Standard 5 – Land Acquisition and Involuntary Resettlement

FURTHER READING:

- Read and use the Housing and Land Rights Network's eviction impact assessment tool: <http://www.hlrn.org/spage.php?id=p2s=#.UcwSWj5gb6k>.

IDEAS FOR ACTION:

- Contact the national office of the UN Human Settlements Programme (UN-Habitat) in your country. <http://www.unhabitat.org/categories.asp?catid=22>
- Based on the resources listed above, create your own community-based displacement and resettlement assessment. Demand that the dam developer include your community-based assessment in the project ESIA. If it is not included, publish your community-based assessment in local, regional, and international media, to draw attention to discrepancies.



A flood recession farmer in the Zambezi Basin, in Zimbabwe. Photo by International Rivers.

Project Impact Management: Once Projects Begin

Preparation of Mitigation Action Plans

Once risks and impacts are assessed in the ESIA, dam developers must create mitigation action plans that detail how the developer will mitigate the negative social and environmental impacts of a project. Affected communities have the right to participate in defining the scope and outcomes of mitigation action plans, while their implementation should be transparent and enforceable through independent monitoring by civil society and other third parties.

Mitigation plans should include actions based on the ESIA, including those types of assessments listed in the previous sections, including, but not limited to:

- A Human Rights Impact Action Plan
- An Indigenous Peoples' Action Plan
- A Gender Impact Action Plan
- A Resettlement Action Plan
- A Biodiversity Action Plan
- A Water Quality and Quantity Impact Action Plan

Mitigation action plans usually follow a *mitigation hierarchy*, which may be defined as a decision pyramid meant to produce the best possible social and environmental outcome given the range and scope of a project's potential impacts. The pyramid usually includes four possible decisions: avoid, reduce, restore, and offset, which roughly correspond to the severity of the potential impact or impacts.

The World Bank and the IFC use the following mitigation hierarchy:

- **Avoid:** Measures taken to avoid creating impacts from the outset, such as careful spatial or temporal placement of elements of infrastructure, in order to completely avoid impacts on certain components. This results in a change to the "business as usual" approach. Avoidance measures include the prohibition of projects that would lead to significant loss or degradation of critical natural habitats, and conditions the conversion of

natural habitat on strict alternatives analysis, the maintenance of minimum downstream environmental flows (both water quality and quantity), and the identification of "no go" basins.

- **Minimize/Reduce:** Measures taken to reduce the duration, intensity, and/or extent of impacts that cannot be completely avoided, as far as is practically feasible.
- **Rehabilitate/Restore:** Measures taken to rehabilitate degraded ecosystems or components or restore cleared ecosystems or components following exposure to impacts that cannot be completely avoided and/or minimized.
- **Offset:** Measures taken to compensate for any residual significant, adverse impacts that cannot be avoided, minimized, and/or rehabilitated and restored, in order to achieve no net loss or a net gain of biodiversity. Offsets can take the form of positive management interventions such as restoration of degraded habitat, arrested degradation or averted risk, protecting areas where there is imminent or projected loss of biodiversity.

The Hydropower Sustainability Assessment Protocol uses a slightly different mitigation hierarchy, in which "Mitigate" replaces the terms "Rehabilitate/Restore," and the term "Compensate" replaces the term "Offset."

The Mitigation Hierarchy should form the basis of each topic-specific Action Plans that the dam developer must create and implement across all further stages of the project cycle: construction, implementation, and operation.

Timely Public Disclosure of and Consultation over the ESIA and Action Plans

As a common rule, ESIA and action plans should be disclosed to the public, and consultations over the content of the ESIA and action plans should be held well in advance of any decision to license, auction, or finance a dam. In the best cases, ESIA have been made available 120 days before any project decision is made. Commonly, this is reduced to 60 days, 30 days, or even none at all, before the decision to go forward with a project is made. Even worse, many developers may have decided to go forward with a project before the ESIA is even created; as a result, the information found in an ESIA may even go so far as to substantiate a project by ignoring or hiding its impacts and risks.

Implementation of Mitigation Action Plans

Project implementation is where many of the impacts of dams will be felt in an ongoing way. The mitigation plans should be formulated based on the risks and rights identified earlier in this document, as part of the ESIA process. Throughout project construction and operation, these mitigation plans must be implemented, monitored, and evaluated.

Measuring and Auditing Outcomes

However, it is not enough to receive a promise from the developer or financier that mitigation plans are ongoing. It is the dam developer's responsibility to illustrate internal accountability to the commitments it has made. Concurrently, it is your right to hold the developer publicly accountable to its commitments, in order to make sure that there are no gaps between discourses and outcomes.

Assuring corporate responsibility and public rights is best implemented by way of audits. Dam builders

will be auditing their performance against mitigation plans as a regular part of their business cycle. As a result, investing in strong programs to monitor progress, commitments, and levels of compliance can help achieve better outcomes for dam-affected communities.

During negotiations over a dam, then, you should demand that mitigation actions be rigorously and regularly audited by independent, third-party actors, rather than the dam developer or financier. Simultaneously, you should design and implemented your own, community-controlled and managed audits of mitigation activities.

Typical Construction Activities

The construction activities of a dam leading up to its operation consist of various stages, though ultimately these depend on the type of dam being built, and its final chosen design. Broadly, the stages of dam construction could be characterized as the following:

- Site preparation: roadwork, easement areas, electricity tunnels, worker encampments, and others each have their own impact. Dynamiting may begin at this moment.
- Construction of the coffer dam
- Diversion of the river
- Impoundment
- Installation
- Rerouting

Typical Operation Activities

Once all construction activities on a dam have finished, operation begins when the dam begins serving its purpose(s). For example, when turbines start generating electricity, or when stored water is pumped for irrigation purposes, it is clear that operation has begun. Often, the dam developer must obtain an Operation License from the national environmental authority in order to begin operation.

Though a dam has begun operation, all is not lost. Mitigation plans must continue to be implemented throughout the operational life of the dams, and you should continue to promote the highest standards and respect for your rights. A few of the common issues that regularly occur throughout dam operation include:

Environmental Assessments vs. Environmental Audits

Some project developers or financiers may choose to perform a social and environmental audit, rather than a full ESIA, to assess project impacts. In practice, environmental audits are usually accepted by financial institutions for dam projects that are categorized as Risk Category B ("significant impacts that may be mitigated"), or for existing projects that are undergoing rehabilitation or expansion.

The Hydropower Sustainability Assessment Protocol (HSAP) has been used as an auditing tool to assess dams that are operational or under construction, and as a screening tool to assess dams that are not yet built. However, the HSAP should not be used in place of an ESIA. The HSAP does not include all topics that dam assessments should cover; for example, human rights, gender impacts, and cumulative impacts are not given much attention in the HSAP. In contrast, a good ESIA will assess all potential social and environmental impacts related to the project, in explicit connection to strategic plans related to the region, including strategic environmental assessments, basin plans, and water and energy resources plans, and will create relevant mitigation action plans.

- Accumulation of sediment and necessity of regular sediment removal
- Incremental cumulative impacts on VECs
- Effects of climate change on operational efficacy
- Dam safety concerns such as geological activity
- Sudden floods or glacial lake outbursts
- Lack of implementation of mitigation plans
- Compensation for resettled families does not materialize

FURTHER READING:

- Read the IFC's Guide to Human Rights Impact Assessment and Management: http://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Guide+to+Human+Rights+Impact+Assessment+and+Management/Guide+to+HRIAM/MITIGATION/
- Read the IFC's Guide to Preparing a Resettlement Action Plan: <http://www.ifc.org/wps/wcm/connect/22ad720048855b25880cda6a6515bb18/ResettlementHandbook.PDF?MOD=AJPERES>

IDEAS FOR ACTION:

- Negotiate for independent, third-party audits of mitigation implementation in any agreements that you are party to with the dam developer, builder, and financier. Simultaneously, create your own, community-controlled and managed audit so you can hold parties accountable to any discrepancies.



The Elwha River after removal and demolition of the Elwha Dam in 2013, in Washington State, U.S. Photo courtesy of Wikipedia.

Project Reassessment and Removal: Once Projects End

As their useful lifetime passes, dams can leave legacies of damaging impacts on affected communities and the environment. However, standards exist that can address such legacies. This chapter describes a few practices, policies, and examples.

Relicensing and Reoperation

Relicensing is an opportunity for you to fight once again for the social and environmental standards mentioned above. No relicensing of a dam should occur before there is a reassessment of how well the dam complies with IRP and IWRM plans, SEA requirements including CIAs, EFAs, and climate risk assessments. In addition, new project-level risk assessments and management plans specific to the

extended operational period of the dam should be created and implemented.

Relicensing and reoperation is also a time for you to promote the rehabilitation of existing dams over the construction of new dams, as part of the iterative process of approving an Integrated Resources Plan for the electricity sector.

Dam Removal

Many dams have reached the end of their productive lives or are no longer needed. Because of the age of these dams, over time the risk for catastrophic failure increases. In addition, many of these dams block migrating fish runs, and prevent important sediments from reaching estuaries.

As a result, often, a dam's lifetime costs have begun to outweigh its benefits. It is this moment when an opportunity exists to push for dam decommissioning. To decommission a dam means to plan to remove a dam from a river, returning the river to a more natural flow at the location where it had been impounded.

However, it is not as easy as simply destroying the dam and letting the river flow once again. Dam decommissioning is a process with its own steps, and requires detailed planning. The same cross-cutting rights mentioned earlier in this guide that are applicable to dam planning and operation also apply for dam removal.

Decommissioning and Impact Management Plans

In order to remove a dam, a decommissioning plan must first be in place. This plan should detail

the stages of the decommissioning. In order to decommission a dam, the water stored in a reservoir behind the dam (whether traditional storage of run-of-the-river storage) must be gradually released, or emptied, downstream. A timeline should be created for this gradual release of river flow, which will form the basis of the management of social and environmental impacts that happen as a result of the decommissioning.

Methods of decommissioning include the following:

- **Complete removal** is often accomplished by first temporarily diverting the river, then using heavy equipment to dismantle the dam. This method can accomplish dam removal in a matter of days.
- **Breaching of dams** allows the river to flow around existing dam structures. Heavy machinery is typically used to breach earthen portions of dams located in relatively wide river corridors. Breaching is recommended for partial dam removal, and represents a relatively inexpensive decommissioning option for larger structures, when feasible.

Case Study: Dam Removal on the Elwha River

In the State of Washington, U.S., over 80% of the Elwha River watershed is located in the Olympic National Park. The 105-foot tall Elwha Dam, built in 1912 by Canadian financier George Glines for the purpose of powering timber mills, led to the destruction of large populations of Elwha River sockeye salmon and ten other native fish species. No fish passages were constructed, and the food security of Elwha River basin indigenous communities was heavily impacted. Over its lifetime, the Elwha Dam had accumulated 5 million cubic yards of sediment, disrupting the water quality and nutrient balance of the basin.

Through public pressure by dam-affected communities, indigenous people, and advocates, the U.S. Congress approved an act to restore the Elwha River watershed in 1992. Removal of the Elwha Dam was to be the largest dam removal ever in the United States at the time.

Rapid removal of the Elwha Dam would have caused fast flows and large sediment volumes to cut a deep

channel in the river bed that had never existed before, and would have caused devastating effects on the remaining habitats downstream from the dams and along beaches at the coast. As a result, a sediment erosion model was created that called for gradual drawdown of the reservoir after dam removal. Gradual dam removal and reservoir drawdown would result in gradually decreasing release of sediment loads downstream. The Elwha Dam reservoir would drain gradually over a two-year time period, allowing a more reasonable portion of the accumulated sediment to remain in the river bed underneath the old reservoir.

An Environmental Impact Statement and management plan were produced, and approved through consultation with basin stakeholders. Gradual removal of the Elwha Dam began in 2011, and full demolition of the dam was completed in 2013.

■ In the case of some concrete dams, **controlled explosives** are used to demolish dams. Explosives have been used to remove dams in the United States. Occasionally, a combination of explosives and heavy machinery are required, especially with larger projects.

■ **Raising the gates** may work with some barrage-type dams with radial gates. This re-creates more natural river conditions without the immediate cost of removal.

Each method creates its own social and environmental impacts. An environmental and social impact assessment of dam removal must be created through a transparent and participatory basin stakeholder process. A management plan for the mitigation of dam removal impacts should be created as a result of the environmental and social impact assessment. The same standards described earlier in this guide apply for this process.

FURTHER READING:

- Access the U.S. National Park Service's resources page on Restoration of the Elwha Watershed:
<http://www.nps.gov/olym/naturescience/elwha-restoration-docs.htm>
- Read the 1992 Elwha River Ecosystem and Fisheries Restoration Act (Public Law 102-495):
<http://www.nps.gov/olym/naturescience/loader.cfm?csModule=security/getfile&PageID=136258>
- Read an info-graphic about dam removal from the Hydropower Reform Coalition:
<http://www.dameffects.org/index.html>
- Read International Rivers' "River Revival – Dam Removal: the Global View" (2001)
<http://www.internationalrivers.org/files/attached-files/damremovalbrochure.pdf>

IDEAS FOR ACTION:

- Advocate for dam removal in your local community, and raise the issue with local lawyers and Congressional representatives. Organize a public hearing on dam decommissioning and call for a feasibility study.

Legacy and Reparations

Dams often leave legacies of large social, environmental, or other impacts. Such legacies can leave lasting negative imprints on the lives of dam-affected communities, and on the environment. For example, when repressive regimes develop a dam project through militarization, violent repression of opponents, or coercive activities that violate the human rights of individuals and/or families, the social costs brought about by such a dam will often outweigh any reported benefits.

It is important that the legacies of past dam impacts be addressed. One way to do this is to ask for the establishment of a Truth and Reconciliation Council. Another way to address the legacies of past dams is to demand reparations for violations, and redress for unheard grievances. In both cases, monitoring and documentation of the impacts of dam planning, implementation, and operation are needed in order to substantiate any claim. You may have grievances over violations of any of the rights listed above, or any impacts caused. Remember to record pertinent details that could be used to support a demand for reparations.

The Right to Remedy and Reparation

The UN Office of the High Commission on Human Rights has defined the right to remedy and reparation through the following statement:

“Adequate, effective and prompt reparation is intended to promote justice by redressing gross violations of international human rights law or serious violations of international humanitarian law. Reparation should be proportional to the gravity of the violations and the harm suffered. In accordance with its domestic laws and international legal obligations, a State shall provide reparation to victims for acts or omissions which can be attributed to the State and constitute gross violations of international human rights law or serious violations of international humanitarian law. In cases where a person, a legal person, or other entity is found liable for reparation to a victim, such party should provide reparation to the victim or compensate the State if the State has already provided reparation to the victim.”

– Section IX(15) of the Basic Principles and Guidelines on the Right to a Remedy and Reparation for Victims of Gross Violations of International Human Rights Law and Serious Violations of International Humanitarian Law

FURTHER READING:

- Read the Basic Principles and Guidelines on the Right to a Remedy and Reparation for Victims of Gross Violations of International Human Rights Law and Serious Violations of International Humanitarian Law: <http://www.unhcr.org/doc.aspx?d=2265>
- Read the Chixoy Dam Reparations Plan: http://www.internationalrivers.org/files/attached-files/plan_de_reparacion1.final_.pdf
- Read the Center for Political Ecology's Chixoy Dam Legacy Issues Study: <http://www.centerforpoliticalecology.org/chixoy.html>

IDEAS FOR ACTION:

- File a lawsuit with a local lawyer, and contact your Congressional representative to demand the creation of a Truth and Reconciliation Council, and to demand reparations and remedies for grievances that you may have.

Case Study: The Legacy of Guatemala's Chixoy Dam

For nearly 36 years, Guatemala suffered a violent internal armed confrontation that profoundly affected almost every sector of society. Over this same period international financial assistance was received to finance the construction of Central America's largest hydroelectric energy development, the Pueblo-Viejo Quixal⁸² project built on the Chixoy River. Some 3,500 residents were forcibly evicted without adequate involvement in resettlement and compensation plans, and without adequate assessment of damages and compensation. In addition, more than 6,000 households in the broader region suffered losses from the construction of the dam and its reservoir. Protests were met with acts of state-sponsored violence. Communities that attempted to negotiate fair compensation were declared guerilla-supporting communities, and the military and civil patrols were used to forcibly remove people from the reservoir site.

The Guatemalan Historical Clarification Commission, established with the Accord of Oslo in 1994, investigated human rights violations and violence connected with armed conflict in the region. In their summary of of exemplary cases, the Guatemalan Truth Commission found that in the case of Rio Negro, state-sponsored violence constituted genocide, and that the massacres in Rio Negro illustrate how "many resistant attitudes to administrative decisions, even though they were peaceful, as occurred in the relation to the construction of the hydroelectric dam, were a priori conceived to be instigated by the guerilla and were resolved through violent repression" (CEH 1999:Volume 1, Annex1, Chapter VI: Exemplary Case No. 10).

Some of the many local consequences resulting from the construction of the Chixoy Dam include problems associated with surviving the violence, the extreme poverty imposed by inadequate or nonexistent compensation for loss of land and other property, cultural assaults due to the loss of sacred sites, and loss of access to communal lands and disruption of trade and social ties due to the transportation difficulties created by the construction of the dam and its reservoir.

Chixoy Dam Reparations Agreement Signed

Over the years Chixoy Dam-affected communities have met to discuss common problems and strategies, and testified before national truth commissions and in international human rights arenas. With help from national and international advocates, dam-affected communities have commissioned and participated in a range of research initiatives to document the impact of the dam and the consequential damages to their communities.

In mid-April 2010, the 33 communities affected by the Chixoy Dam signed an agreement with the Government of Guatemala that promises to repair, to some degree, the damages and losses caused by the construction of the dam for more than 11,000 affected people. This historic event set an important precedent to show governments, dam financiers and dam builders that they will be held accountable for their actions, even if it takes decades of struggle.



Conclusion: Best Practices, Best Outcomes?

An Ashaninka family collects food to share with the community, on the Ene River in the Peruvian Amazon. Photo by International Rivers.

A commitment to standards and rights is not enough; a policy commitment to international standards is only as good as the results the policy produces on the ground. For this reason, it is not always effective for civil society to tell a dam developer “you need to follow a standard because it is enshrined in a UN Convention.” The dam developer may simply respond that they are not directly bound by that convention; that they have committed to follow the pertinent national laws; or that they follow industry best practices by adhering to a guideline or an auditing tool. Indeed, dam builders and funders will often claim that they are following international standards in order to reap the public relations benefits from saying so. In other cases, dam developers may say that a given standard — such as Free, Prior, and Informed Consent — is not practical enough to be implemented within the project cycle.

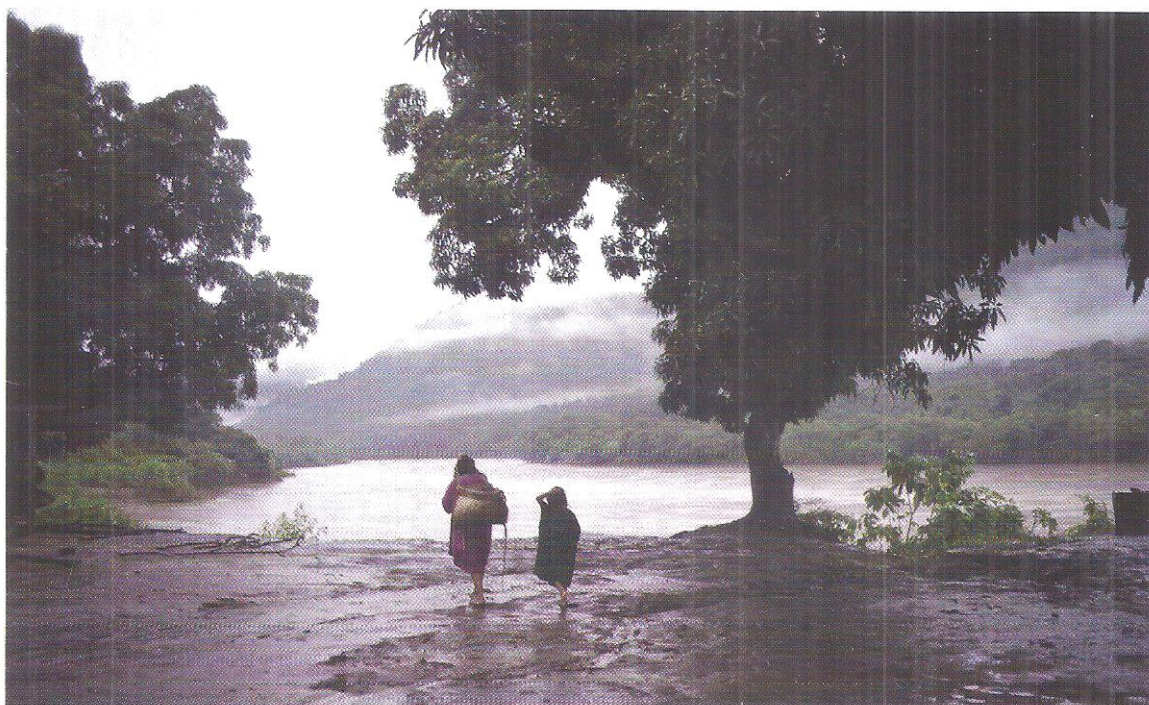
No matter the discourse, following best practices does not necessarily guarantee best outcomes. Dam planners, financiers, and builders must be held accountable to their outcomes above all else.

One method of doing so is to work closely with advocates who can help explain in detail how each right, principle, or standard is interpreted. Using available national and international legal mechanisms alongside the use of dam standards and policies will also help you achieve better results. Meanwhile, direct advocacy with local and regional decision-makers, and communications with local and regional media are effective ways to publicly call for these results.

Dam-affected communities know better than anyone that in some situations, national laws do not represent

a viable means to seek justice. This may be because of corruption in the legal system, prevailing political interests, or a lack of representation. For this reason, it is important to push for national legal reforms, so that the dam standards such as those described above are recognized and protected by your government. Since many challenges faced by dam-affected communities around the world are similar, you should know that allies exist who may provide helpful perspectives and ideas.

By utilizing social and environmental standards to push for better outcomes across all stages of dam building – from planning to construction to mitigation, to decommissioning and reparations – you may be able to change the particular outcomes of a project; you may influence the long-term direction of policies; and you may even transform an industry.



The Ashaninka women of Tsiquireni, near the Ene River, in the Peruvian Amazon. Photo by International Rivers.

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