



## WWF Global Network Position

# DAMS

As freshwater ecosystems are showing devastating declines in biodiversity, and construction of dams is once again accelerating, WWF expresses its opposition to unsustainable dams that do not adhere to internationally recognized principles and criteria for good practice. WWF advocates for (1) no dams to be built in, or affecting, high conservation value areas; (2) full consideration of alternatives before decisions are made to build new dams; and (3) the application of principles, tools and inclusive, transparent processes in order to make the best possible choices regarding the management of existing dams and development of new dams.

### WWF believes that:

**Water is fundamental to life on earth.** Healthy freshwater ecosystems provide resources and services our societies rely on: food, water, energy, economic activity and cultural value. Ultimately our well-being depends on how we manage our rivers and water resources. WWF strives for a water secure world for people and nature, where flowing rivers nourish resilient and healthy freshwater ecosystems that sustainably provide ecosystem services for human development.

**Freshwater ecosystems are under threat.** Nearly 60,000<sup>1</sup> large dams have caused considerable environmental and social damage. Together with associated activities such as irrigated agriculture and municipal and industrial uses, these dams have been a major contributor to the dramatic global decline in freshwater biodiversity<sup>2</sup>, mainly through flow alteration and severed connectivity. Also, countless small dams severely fragment

<sup>1</sup> The 2014 edition of the [World Register of Large Dams](#) includes 58,266 dams. Basic requirement is a structural dam height above foundation not less than 15 metres.

<sup>2</sup> WWF 2014 Living Planet Report

river systems with potentially significant cumulative impact. As demand for services provided by dams grows, especially for irrigation and hydropower, the pressure on freshwater ecosystems is increasingly acute. The impacts of climate change exacerbate this situation.

**Bad practice should not continue.** Many dams in many places are still planned and operated based on feeble economic assumptions and in disregard of fundamental sustainability principles. It is the role of public policy, government planning and regulatory bodies to ensure that dams are fulfilling the broader objectives of society, including the protection of the natural environment.

**Dams can sustain important functions for human development,** including water supply, irrigation, renewable electricity generation and flood and drought management, and stimulate economic development. As the world population continues to grow, decisions on dams are increasingly taken in the context of development, and WWF recognizes that additional smart and sustainable water infrastructure will need to be built. Nevertheless, we are deeply concerned at the rapid acceleration of construction of dams and other water infrastructure, at all scales, without due consideration of social and environmental impacts.

**Society can reduce demand for new dams.** It is imperative that needs for dams are assessed against the whole range of available solutions. A change toward responsible water and energy use can reduce the need for new dams in several ways. Governments should prioritize measures to reduce demand for the services provided by dams, invest in natural and low impact infrastructure measures, and upgrade and improve existing dams. Adoption of detrimental policies must be avoided.

**Good practice exists, and should be applied.** Inclusive and transparent decision-making on policies, plans and projects, as well as good governance are required. A wealth of knowledge and tools is available for choice and justification, and for siting, design and operations of projects. Smart and sustainable societal choices rely on comprehensive options and needs assessments, river basin planning and management, appropriate legal frameworks, and recognition and enhancement of ecosystem services. Choices over trade-offs will have to be made in order to maintain vital freshwater systems and processes on which communities depend. By ensuring environmental flows, and connectivity, significant reduction of damage to ecosystems can be achieved and degraded rivers can be revitalized.

## WWF recommends that:

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In order to ensure that dams are not built in, or affect, areas of high conservation value, that they are built only after full consideration of alternatives, where there is stakeholder support and in the least harmful locations, and that benefits from existing dams are improved, WWF recommends concerted action for

**A. *improvement of strategic decision making processes on dams and locations and their associated infrastructure,***

and

**B. *improvement of planning, finance, building and operations of individual projects and developments.***

## A. Decision making processes on dams:

**... should consider the full array of available options.** There are usually multiple options to supply the water, food and energy services that people need. Priority should be given to avoidance of environmental damage by demand side management and improved resource efficiency, to improvements of existing dams and assets, and to alternative options. Planning new infrastructure should be a last resort.

**... should be responsible, accountable and follow principles of good governance.** Policies, plans and projects for dams and water infrastructure in general should be considered through transparent multi-criteria approaches involving all stakeholders, in particular members of affected communities with special attention to indigenous peoples and vulnerable groups. Careful consideration of all parties' input and issues will help develop consensus and lead to productive dialogue and understanding about risks and impacts and desired avoidance, protection, enhancement and mitigation measures. Governments should establish strong legal and institutional frameworks to ensure that strategic environmental and social assessments, planning and implementation follow best practices as formulated in the World Commission on Dams principles. Given the high stakes of these often large-scale projects, public and corporate governance should aim at high levels of integrity and accountability.

**... should seek out the opportunities offered by natural infrastructure solutions.** Demand and investment for new "hard infrastructure" can be minimized through services contributed by "natural infrastructure" e.g. floodplains for storage, flood and drought management, wetland restoration and watershed management for water retention upstream and resilience to climate change.

**... should follow a precautionary approach.** Dams have a lifespan of centuries, their investments are locked in for long periods of time and social and environmental impacts are considerable. Planning should be guided by precautionary principles, considering hydrological, social and political uncertainties arising from climate change, economic projections and societal choices, and allow for adaptive management based on monitoring outcomes.

**... should be based on sound strategic environmental and social assessments,** utilizing the best available knowledge and scientific analysis, considering hydrological uncertainty and adaptability, including current and future climate change scenarios, cumulative impacts of multiple water uses and users, and recognition of environmental requirements and services. Such assessments are to be conducted at appropriate river basin or regional scales in an inclusive, transparent manner. This is a prerequisite for choice and justification, and for appropriate siting, design and operations of projects.

**... should include assessments of important environmental assets.** Freshwater ecosystems of high ecological importance should receive a permanent level of protection from dams and their upstream and downstream impacts. These can be areas, rivers or river stretches of high conservation value in terms of biodiversity or ecosystem services, or as refugia against future pressures, such as climate change. Siting of dams on the main stem or major tributaries that are of high ecological importance should be avoided. Typical no-go areas are protected areas of international, national and regional recognition (e.g. Ramsar sites, World Heritage sites) and indigenous territories. Many no-go areas do not have formal protection status, therefore governments should ensure their identification and protection. Assessment of environmental assets must take account of connectivity within the river system as well as between areas of high conservation value.

## B. Individual projects and developments:

### **... should follow the mitigation hierarchy for dealing with impacts and risks.**

Environmental and social impacts and risks must be avoided and minimized through appropriate choice of locations, design, construction and operations. Remaining impacts and risks that cannot be avoided and minimized should be mitigated. Compensation and offsetting<sup>3</sup> apply to the residual impacts and risks only after the potential for avoidance, minimization and mitigation is fully utilized.

**... should be scrutinized against a long-term horizon.** Reality is that many projects proceed based on short-term or stationary hydrological and climatic assumptions, feeble economic assumptions, opportunities for individual gain, or a political bias-to-build, violating the basics of sustainability.

Proposed dams whose environmental and social costs outweigh the benefits of their services should not be built. Existing dams whose environmental and social costs outweigh the benefits of their services should be identified and scrutinized for improvement or removal, e.g. at relicensing. Decommissioning and removal of obsolete dams can be viable options for the restoration of river ecosystems.

**... should prioritize environmental flows.** Recognizing flows as the master variable of river basin health, WWF calls for all new and existing dams to be designed and operated with environmental flows, defined as “the quantity, timing, and quality of water flows required to sustain freshwater and estuarine/marine ecosystems and the human livelihoods and well-being that depend on these ecosystems”<sup>4</sup>. In practice, environmental flows will mimic characteristics of natural flow variability of water and sediments. WWF also calls for all new and existing dams to be designed and operated to maintain and restore connectivity.

**... should be managed for continuous improvement.** Owners, operators and regulators should identify dams whose environmental and social performance can be improved as technologies, science and knowledge progress. Rehabilitation, re-operation and retrofitting of existing dams is increasingly feasible, extending reservoir life, improving services and benefits, and reducing the need for new dams.

## **WWF will work with governments, international organizations, local communities, business and the academic community to:**

**... achieve a water secure world for people and nature, where flowing rivers nourish resilient and healthy freshwater ecosystems that sustainably provide ecosystem services for human development.<sup>5</sup>**

**... identify and prioritize important or critical natural assets and high conservation value river systems to receive protection from dam development.** WWF will use its strong scientific, local, regional and global capacities, partners and networks to contribute to the identification and prioritization of environmental freshwater assets, including their ecosystem services and depending terrestrial ecosystems, and to work to protect these from harm.

**... promote strategic planning processes.** WWF will continue to promote and to strive for improved environmental outcomes of policies and plans for water, energy and agriculture. We work through cooperation and dialogue, build local capacity and partnerships, develop standards and decision making tools, and conduct monitoring and assessments.

<sup>3</sup> WWF Position on Biodiversity Offsets

<sup>4</sup> The Brisbane Declaration, 2007

<sup>5</sup> WWF Freshwater Strategy 2015-2020

**... oppose dams and related policies, plans or regulations that violate internationally accepted sustainability principles.** Furthermore, WWF will oppose degradation, downsizing and degazetting of existing protected areas, and the violation of human rights, especially of indigenous and other vulnerable groups.

**... address existing dams to minimize impacts and to maximize benefits, and to reduce the demand for new dams.** WWF will continue to advocate for improvement of operational management for environmental benefits at existing dams, through related policies, plans or regulations. This can include implementation of environmental flows, re-operation, retrofitting, restoration of ecosystem connectivity, and decommissioning of hazardous or obsolete dams.

**... recognize good environmental sustainability practice.** We expect hydropower projects – both existing and planned – to perform at international good sustainability standards and criteria as defined by the World Commission on Dams and the Hydropower Sustainability Assessment Protocol.

**... support the achievement of best practice by improving standards and regulations, benchmarks, safeguard policies and lending criteria.** WWF supports the application of strategic basin hydropower planning<sup>6</sup>, water stewardship approaches and standards<sup>7</sup>, and water risks assessments<sup>8</sup>. WWF supports the wide-spread application of the Hydropower Sustainability Assessment Protocol<sup>9</sup>, and its integrity and independence. WWF will undertake periodic assessments of such practices and protocols to enhance their effectiveness.

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<sup>6</sup> For example [Rapid Basin-wide Hydropower Sustainability Assessment Tool \(RSAT\)](#) or the [Guiding Principles on Sustainable Hydropower](#) by the International Commission for Protection of Danube River

<sup>7</sup> For example [Alliance for Water Stewardship Standard](#)

<sup>8</sup> [Water Risk Filter](#)

<sup>9</sup> [www.hydrosustainability.org](http://www.hydrosustainability.org)

## Related links, background and supplementary reading

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### WWF Publications

WWF (2009) [Keeping Rivers Alive. A primer on environmental flows](#)

WWF (2010) [The implementation challenge](#)

WWF (2013) [The 7 sins of dam building](#)

### Background reading

World Commission on Dams (2000) [Dams and Development: A New Framework for Decision Making](#)

(2007) [Brisbane Declaration on Environmental Flows](#)

United Nations (2006) [United Nations Declaration on the Rights of Indigenous Peoples](#)

UN Watercourses Convention [Online user's guide](#)

### Tools

International Hydropower Association [Hydropower Sustainability Assessment Protocol](#)

USAID, ADB, MRC & WWF (2010) [Rapid Basin-wide Hydropower Sustainability Assessment Tool](#)

Alliance for Water Stewardship (2014) [Alliance for Water Stewardship Standard](#)

International Commission for Protection of Danube River (2013) [Guiding Principles on Sustainable Hydropower](#)

WWF [Water Risk Filter](#)

### WWF Positions and Policies

WWF (2012) [Biodiversity Offsets Policy](#)

WWF (2013) [Position on renewable energy](#)

WWF (2008) [Indigenous Peoples and Conservation: WWF Statement of Principles](#)

FOR MORE INFORMATION

[www.panda.org/freshwater](http://www.panda.org/freshwater)

