

## Sustainable hydropower in the Amazon

### Background

Latin America has a strong dependence on hydropower, contributing to 80% of electricity generation in Brazil, 60% in Peru, and 40% in Bolivia. Yet a huge untapped potential remains with only 20-30% of the possible resource currently exploited. With the most easily accessible sites already exhausted, developers increasing look toward the Amazon and 140 large dams are at some stage of planning, including projects in some of the Amazon's main tributaries that until recently have never been dammed. Dams provide a major disruption to river connectivity and the ranges of aquatic species, including subsistence and commercial fisheries. Dams alter the natural flow patterns of water, sediments and nutrients and often require the creation of large reservoirs which cause flooding – sometimes to areas of natural, cultural and economic importance – and displacement of original inhabitants. Large investments can also attract people, with important indirect consequences.

### WWF's strategy

WWF recognises the need for clean electricity generation, especially in fast growing economies. However, this must be undertaken in a sustainable way. The unchecked advancement of dams into the Amazon – home to 10% of the world's biodiversity, the world's largest river and 30 million people, including 2.7 million indigenous people – is of significant concern. In response to this threat, WWF has developed a sustainable hydropower strategy for the Amazon centred on four key points:

- Development of tools to support decision making for hydropower development
- Adoption of improved hydropower standards
- Civil society engagement to enhance their capacity and ability to engage with hydropower development processes
- Promote diversification of the energy matrix and increased energy efficiency

Recognising strong developmental forces behind the exploitation of the Amazon's hydro potential, it is critical that WWF's strategy:

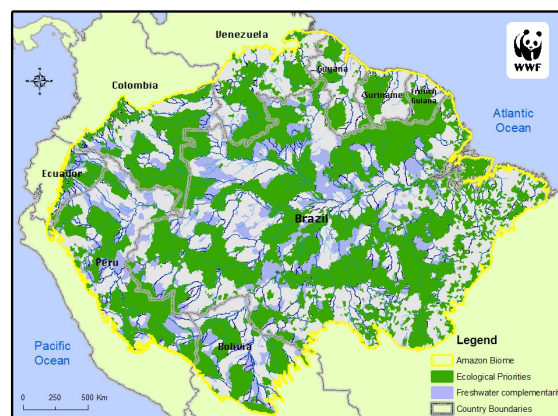
- Is solution-orientated
- Is supported by robust science
- Uses language relevant to governments, developers and financial institutions
- Equally considers economic, social and environmental needs

This is part of a comprehensive strategy, dealing with threats, drivers and solutions, of Living Amazon Initiative.

### The Tools

#### *Hydrological Information System for Amazon River Assessments (HIS-ARA)*

Underpinning WWF's work on hydropower in the Amazon has been the development of an information system and analysis methodology that identifies priority conservation areas and Amazon Rivers that need to remain free-flowing in order for the natural flow regimes of the overall Amazon system to be maintained (as demonstrated in map below). Historically, dams have been developed on a case-by-case basis with little regard for cumulative impacts, and in isolation in relation to other threats and to potentials. Nearly two years in the making, HIS-ARA is a comprehensive approach for the entire Amazon River Basin and incorporates data on ecological systems, aquatic habitat types, existing protected areas and different anthropogenic threats and potential ecosystem impacts. The tool is designed to promote dialogue and negotiation between conservationists, traditional people, business, government and the scientific community.



To provide a deeper and more robust analysis at the river sub-basin level WWF has recently

launched *HydroBAT* - a collection of spatial tools designed to assess the cumulative impact of specific hydropower development proposals. HydroBAT brings together a wider range of actors and incorporates a broader dataset including climate and socio-economic indicators.

#### *Hydropower Sustainability Assessment Protocol (HSAP)*

In June 2011, the International Hydropower Association and its members, formally launched HSAP which provides a method for assessing dams in all phases, from development to operation. WWF had a major role in the development of the protocol which sets out a comprehensive set of economic, social and environmental criteria against which any hydropower project should be assessed. To date over 140 companies have endorsed the Protocol including Odebrecht, one of the regions biggest developers, and Eletrobras – Latin America’s largest power utility company.

#### *Sustainable Energy Vision 2050*

WWF have been strongly engaging with the Brazilian Government on a sustainable energy vision for 2050, including increased investment in alternative renewable energy sources such as biofuels, wind and solar as well as promoting greater energy efficiency through smart systems and regional energy integration.

#### **Successes**

##### *Influencing Inter-American Bank (IDB) investments*

By providing maps of priority conservation areas in the Amazon, WWF were able to influence the IDB’s Decision Support System – leaving the bank better able to assess environmental and social impacts of projects early in the loan process. Already all of the Bank’s high impact projects are being screened using this methodology.

##### *WWF recognised as a regional hydropower expert*

Having presented WWF’s Amazon strategy and tools to literally hundreds of stakeholders within industry, governments and investors, there is an increased appetite to work with WWF, who have firmly established their expertise and enhanced their visibility in the hydropower arena. WWF’s tools are particularly relevant to investors since a more thorough consideration of true costs and benefits can significantly reduce financial and reputational risk.

##### *Agreement reached with Brazilian Government*

Led by WWF-Brazil an agreement was reached with the Secretary of Biodiversity and Forests and the Ministry of the Environment (MMA) in the Tapajos basin, one the Amazon’s major tributaries. As part of the agreement WWF will provide support to a

government assessment of hydropower development in the basin. A systematic conservation plan will be developed, and cumulative impacts of the proposed dams will be assessed via the newly developed HydroBAT toolkit. The Brazilian ministry has since announced that they will follow a similar process in two other basins - the Trombetas and Negro

##### *Inambari dam overturned*

In June 2011, the Peruvian Government announced that the construction of the controversial Inambari Dam had been halted. The 2000 MW dam would have resulted in significant socio-environmental impacts. WWF (led by WWF-Peru) and many local community groups strongly opposed its construction.

#### **Next steps**

While there have been major recent successes, hydropower development remains a major threat to the Amazon. Priority work for WWF’s Amazon sustainable hydropower team include:

- Wider adoption of the HIS-ARA tool by governments and investors to screen strategies and projects at an early stage and taking a basin-wide approach. Increasing diversification of investment sources for Amazon hydropower projects makes this particularly urgent.
- Specific focus on Tapajos basin where threats from hydropower development are most pressing. WWF will work alongside both government and local communities to minimise the socio-environmental impacts of any development.
- Ensure the use of the Hydropower Sustainability Assessment Protocol by industry, investors and governments such that projects consider true costs and benefits up front, mitigate against socio-environmental impacts, provide fair compensation and uphold free-prior and informed consent of local people.
- Continued engagement with national governments on a sustainable energy vision with greater investment in alternative renewable sources and increased energy efficiency through new technology and smart regionally integrated energy systems.

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