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## Speed read

- Hydroelectric dams provide carbon-free energy as well as a show of power
- But they cause environmental harm and displace communities
- Energy production should be labelled ‘renewable’ if it serves local needs

A revival in huge hydro projects may cut carbon emissions, but proponents’ use of the term ‘renewable’ is misplaced.

Hydroelectric dams are the quintessential expression of human control of nature. As well as power, they create reservoirs of clean water (<http://www.scidev.net/global/environment/water/>), which to some are both pleasing to the eye and a place for tranquil recreation. They promise control of flooding, provide a steady supply of water for irrigation and, with time, a source of fresh fish. They are an economist’s as well as an engineer’s dream, and, coupled with dynamic images of the cranes, bulldozers and swarms of men in hard hats associated with their construction, they are an instant marketing opportunity for politicians eager to demonstrate their commitment to progress.

Some argue that hydroelectric power has green credentials because it makes use of water — a free abundant and inherently benign medium. It takes advantage of gravity, transforming energy (<http://www.scidev.net/global/environment/energy/>) from flowing water into electricity in a process that is at once clean and carbon free. With growing global concerns over carbon emissions, it is no surprise that hydroelectric

projects should have a certain allure for governments wrestling with their countries' energy needs.

Yet this squeaky clean image has become tarnished over time, with criticism over the impact of these structures on the environment and the lives of people displaced by their construction. As large dams have come under ever-increasing scrutiny, so their popularity with governments has steadily declined over the past two decades.

But this trend has recently been reversed. Massive hydroelectric projects are once again coming into vogue, with a boom in construction across the planet, from Brazil to China. Watching one of our audio slideshows on the Belo Monte Dam in Brazil (<http://www.scidev.net/global/environment/multimedia/brazil-s-dammed-rainforest.html>) cannot but elicit concern. The stark, if hauntingly beautiful, images of the Xingu rainforest, which is being destroyed in the wake of the controversial project, rekindle an uneasy awareness: that large-scale hydroelectric projects do not easily fit into the clean energy paradigm. So, should they enjoy the positive connotations of the word 'renewable'?

### **How 'clean' is hydro?**

Part of this unease is rooted in a sense that the displacement of thousands of people and the logging of huge areas, the gouging out and crushing of rocks — in short, the systematic alteration of an ancient landscape with unpredictable final consequences — is not exactly 'clean', either environmentally or, indeed, morally.

The other part of the unease reflects the uses to which the energy from large-scale hydro projects will be put.

For some developing economies, there is an argument for exploring the careful and judicious use of hydropower to meet a particular region's energy needs, especially when these complement its water needs. Listen to Mallika Aryal's interview with Jeremy Bird (<http://www.scidev.net/global/food-security/multimedia/q-a-exploring-south-asian-food-water-and-energy-links.html>), director-general of the International Water Management Institute, for a succinct account of why water management and energy production are so inextricably linked.

Where energy production is borne out of necessity and serves local needs, I find the idea that hydropower can be described as 'renewable' reasonably acceptable, notwithstanding the controversies that always seem to surround such projects. There is more here than a simple question of semantics, or the technical meaning of words. The words we use also reflect a moral orientation. In my view, the crucial and central ingredient of the concept of 'renewable' should be a clear and overt recognition of this moral orientation, without any lingering taste of guilt.

When hydropower energy generation moves from being a necessity that answers pressing energy needs to being a commodity to trade, and where it has a massive impact on the local ecosystem, questions need to be raised about whether it should enjoy the positive, feel-good connotations of the term 'renewable'.

### **Relying on green credentials**

I have an uneasy feeling that there is a growing reliance in some quarters on the green credentials of hydroelectric power to support its development — where it is not being produced for local needs and where it has a massive impact on local ecosystems and human lives.

Malaysia, for example — which last month hosted the ASEAN Renewable Energy Week — seems to have started to tap into the soothing qualities of the word 'renewable', most recently to assuage critics of a proposed dam on the Baram River in Sarawak on the island of Borneo.

The Baram hydroelectric dam project is planned as part of the so-called Sarawak Corridor of Renewable Energy, which will involve building a

cascade of dams along the river. But the electricity it is set to produce will not be for local use, but for export, including to neighbouring Brunei Darussalam.

Critics of the dam also draw attention to the loss of biodiversity (<http://www.scidev.net/global/environment/biodiversity/>), forest and cultivated land that construction will cause. They suggest that ‘mini-hydros’ (<http://www.scidev.net/global/news/micro-hydros-can-power-rural-afghanistan-nepal.html>) on smaller tributaries are a more acceptable alternative as they interfere less with the river ecosystem and generate power for local use rather than as a commodity for export.

Large dams on mighty rivers such as the Xingu and the Baram profoundly alter ecosystems in ways which are unpredictable and potentially disastrous, as well as altering the lives and livelihoods of thousands of people.

So what would a sustainable (<http://www.scidev.net/global/governance/sustainability/>) approach be to making use of such an ecosystem? The Baram and the Xingu already bathe and feed the areas surrounding them through natural river flow and will continue to do so as long as they are not choked midstream. Perhaps such rivers should simply be left in peace — and, in such contexts, perhaps we need to be more cautious in our use of the word ‘renewable’.

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