Briefing

Water

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Policy pointers

Large hydropower dams will become more socially accepted if part of their revenue is shared directly with the local people affected by the projects.

Such benefit-sharing schemes are already working worldwide. The variety of mechanisms ranges from government-held equity in private projects to taxes and royalties that reallocate revenue.

The main challenge for benefit-sharing schemes is governance — ensuring that revenue redistribution is clearly and directly linked to the costs of dams in affected communities.

Mechanisms for revenue sharing are best set out by governments in legislation and supporting regulations; benefits at the local level should then be negotiated and agreed with local communities.

Routing revenue from hydropower dams to deliver local development

In too many cases, people displaced or adversely affected by hydropower dams still see many of the benefits accrued from energy delivered to distant cities or neighbouring countries. Even if they are compensated for their initial livelihood or cultural losses, hardship and bitterness in relocated communities may last the lifetime of the dam, spanning multiple decades and generations. Dam projects usually aim to meet national development goals, but that does not mean they have to settle for development inequity at a local level. Countries across the world are already redistributing revenue from electricity sales, ensuring local communities benefit directly from hydropower throughout the life of a project. With the current wave of large dams under construction, it is time for such benefit-sharing initiatives to become widespread.

Balancing urban and rural development needs

With growing demand for energy to meet urban needs, many large hydropower dams are being built in low- and middle-income countries. These projects transform the resource base for development, both nationally and locally. Most are championed at the national level as a boost for economic development. Besides fuelling trade in cities, large dams can themselves be highly profitable, enticing private developers with returns on capital of 15–20 per cent.

Locally, however, dams historically have had far less to offer. Their physical footprint affects surrounding communities and impacts on land use — for instance, to prevent sedimentation of the reservoir, new limits may be placed on the use of watersheds — and on downstream fisheries and floodplain farming systems.

Large dams raise objections when their costs and benefits are distributed inequitably — particularly when projects sited in rural areas reserve the main benefits for distant towns and cities. Redressing that balance is essential if displaced and affected communities are to share in the development opportunities that large dams offer.

The World Commission on Dams has stressed the "unnecessary" nature of many social impacts and called for affected communities to be the "primary beneficiaries" of large dam projects.[1] We know this is possible, because in the last two decades a number of countries have set up mechanisms to channel some of the revenues from dams back into the communities that have to live with the impacts.

Compensation versus development opportunities

Governments have tried various strategies over the years to mitigate problems with dams.

Benefit sharing can help re-establish livelihoods and support local development

Compensation for lost houses or land may be paired with entirely new resources such as reservoir fisheries, energy for villages (electrification), or irrigation schemes. Many large dam projects, particularly public sector projects, now include improvements in housing, sanitation, health clinics and schools as standard. With this history, today's projects generate a potentially complex set of benefits for local people.

The compensation and upgrades can be significant, but they do not necessarily generate sustainable incomes. The challenge for local communities is that their resource base has changed, and not always for the better if they have lost agricultural or grazing land. Dam construction sites also attract thousands of immigrant workers who stay on, pressurising local resources. When the investment phase ends after ten or twelve years, there are typically no public finances left to address any outstanding issues or to help communities evolve through the phases of resettlement.[2]

Although adequate compensation for lost assets is a necessary step that has been the subject of some focus recently, it does not address the greatest long-term challenges for communities — they need help re-establishing livelihoods and support for local development through the lifetime of the dam project. This is the aim of the newest generation of benefit-sharing programmes.

Box 1. Financing national development strategies in Lesotho and Laos

- From 1991 to 2005, a national development fund in Lesotho received over US$60 million from the Lesotho Highlands Water Project,[4] a system of dams in Lesotho and South Africa that displaced an estimated 27,000 people. The Lesotho Fund for Community Development, established by the World Bank, was intended to finance projects around the country, including community infrastructure, water supply, waste management, school construction, agriculture, public health, conservation and community training centres.[5] World Bank reviews, however, concluded that dam revenues earmarked for development projects were seen as windfalls for politicians and thus were vulnerable to elite capture.
- Another World Bank initiative taps funds from the largest dam in Laos, Nam Theun 2, which started operating in 2010 and resettled 6,200 people. Revenues from exporting hydropower to Thailand are allocated to health, environment, infrastructure and other programmes in line with the National Growth and Poverty Eradication Strategy. The dam operator should pay royalties to the government of US$30 million per year during the payback period for the dam investment, and payments will average US$110 million per year from 2020 to 2034.[6]

Box 2. Financing environmental management in Colombia

Colombia requires large hydropower projects to set aside 6 per cent of gross energy sales for the protection of affected environments and watersheds.[7] Half of these funds goes to regional environmental authorities, while the other half benefits local districts and municipalities. In one example, payments from the Urra power project in 2011 amounted to US$4.85 million.

Sharing electricity revenues

Schemes in many countries have started tapping into the unique reward from hydropower dams: in contrast to irrigation or flood-control dams, they generate significant revenue streams through electricity sales. While reimbursement of capital financing is normally planned over 25-30 years, the dams may continue producing energy and revenue for significantly longer. Income covers running and maintenance costs, reimbursement of capital and, for privately developed projects, profit for the developer. All this is regulated by the power purchase and concession agreements that govern the project — agreements that can also repurpose revenue to address local environmental and social impacts.

Sharing monetary benefits can take many forms (for example, equity sharing, special taxes, royalties, or preferential tariffs for local communities affected by hydropower projects), though revenue sharing is perhaps the most common and practical form. In some countries, the World Bank has fed a portion of hydropower revenues into funds that deliver investments in national development, with varying degrees of success (see Box 1). A concern with such funds is that they are not always designed to directly support affected communities. Rather, they disperse funding into development projects across the country. This pattern is especially common in countries where mountainous water resources are abundant and energy-hungry neighbours will pay for electricity imports. The World Bank has promoted such hydropower projects as a potential 'cash cow' to fund national development programmes.

Elsewhere, nations acting on the 'polluter pays' principle have tapped dam incomes to help internalise the costs of environmental

management linked to hydropower (see Box 2). These schemes are more focused on reducing local and downstream impacts.

Other schemes redistribute revenue to the development budgets of local governments around the dam site (see Box 3). Their mechanisms are extremely varied: in Nepal, a law fixes the royalties to be paid for different kinds of projects; in Norway, a complex mixture of tax on revenues, tax on energy production and equity holdings by municipalities creates financial flows from hydropower projects to all levels of government; and in Mali and Burkina Faso, taxes on all infrastructure — not just dams — generate significant revenues for local municipalities. These revenues support local government annual spending plans, which do not distinguish between affected and unaffected citizens.

Responding to community grievances

Some of the most noteworthy benefit-sharing schemes have been 'retrofitted' onto existing hydropower policies to respond to the historical grievances of communities affected by dams (see Box 4). The governing boards of these funds tend to have strong representation from the communities (or their elected representatives, such as members of parliament), and their purpose is specifically directed at resolving outstanding local development issues and supporting investments in affected communities. Such schemes may also be driven by broader changes in laws and institutions.

Governance challenges

If the aim is to neutralise harm and controversy and to pursue sustainable development with dams as part of a government infrastructure strategy, the governance of revenue redistribution must clearly balance the local costs of hydropower with tangible local benefits. Where funds are paid directly into national or local government budgets, the risk is that they will be absorbed and applied as general expenditure. Affected communities may constitute only a small part of the municipal population, and funds diluted in this way will fail to directly meet their needs. In the case of Sélingué (Box 3), only one of four affected municipalities receives the funds — the one where the dam is physically located.

Such indirect and incomplete schemes leave inequities unresolved. Dams and their impacts will become more acceptable where there is a direct link between affected people and the investment of hydropower benefits in their communities.

IIED is actively involved in designing such a fund at Kandadji dam in Niger through the Global Water Initiative, financed by the Howard G Buffett Foundation.[3] This project gives affected communities a central role in identifying the necessary investments for their own development.

Box 3. Redistributing dam revenues through taxation and royalties

- Norway gets 99 per cent of its electricity from hydropower projects,[8] most of them publicly owned. Hydropower operators are taxed on their profits and taxed for each kilowatt-hour generated, with revenues shared between the national government, the county and the municipalities affected by dams.
- Since 1992, Nepal has collected royalties from hydropower projects and redistributed some of the funds at the municipal and regional levels.[9] The 2001 Hydropower Development Policy defined a royalty system in which 50 per cent of the payments feed the national treasury, 38 per cent form a regional share that benefits multiple districts around the dam, and 12 per cent go directly to the dam's district development committee.[10,11] Different royalties are assessed depending on whether a dam provides electricity for domestic consumption or for export.
- In Mali, the 1981 Sélingué dam relocated over 12,000 people and affected roughly 30 villages.[12] Since 1996, decentralisation policies have transferred 80 per cent of the dam's infrastructure taxes to three municipal, county and regional authorities in Baya, Yanfolila and Sikasso. The largest share, US$170,000 per year, accrues to the Baya municipality.[12,13]

Box 4. Retrofitting benefit-sharing schemes

- Construction of Ghana's Akosombo dam in the 1960s forced the relocation of 730 villages, home to a total of 80,000 people. Thirty years later, the Volta River Authority Resettlement Trust Fund was established to finance development projects in the 52 resettlement townships where displaced families were moved. The townships share US$500,000 per year, which communities allocate to basic needs such as education, water and sanitation, health, and community infrastructure.[14]
- In North America, dams along the Canadian side of the Columbia River Basin displaced 2,300 people and 60,000 hectares of high-value land were flooded, with cultural heritage and burial sites also submerged. Repeated citizen petitions led to the Canadian and US governments establishing the Columbia Basin Trust,[15] a fund that draws on dam revenues for investments in economic, environmental and social sustainability. Created in 1995, the trust has received US$244 million for projects benefitting basin residents while also benefiting from revenue streams from joint ventures in new hydropower projects.
- In Nigeria, after years of lobbying by communities affected by the Kainji, Jebba and Shiroro dams, benefit-sharing legislation passed in May 2010 allocated 30 per cent of dam operating revenues to the Hydro Power Producing Areas Development Commission. In 2014 the legislature reduced this to 10 per cent, and a managing board has not yet been set up. When functional, the scheme will address development, infrastructure, floods and other environmental hazards around the three dams.[16]

Conclusions

The variety of schemes used around the world shows that there is no one blueprint for benefit sharing. The common thread is that hydropower investments generate significant financial flows.

Different countries have tried a range of regulatory mechanisms to redistribute those financial benefits and to alleviate — sometimes retroactively — the unexpected impacts from dam construction. Regulation helps to ensure a consistent approach is followed, not only by public and private sector hydropower projects, but also by existing and new projects. It is a tool that can empower local communities in their negotiations on project benefits and reduce the risk of unnecessary controversy that would undermine public confidence in sustainable hydropower.

When regulatory measures are informed and governed by affected communities, directly addressing specific impacts, they can help manage the social and environmental risks of large-scale hydropower. Spread more widely, they will support global efforts to make hydropower a sustainable development technology.

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Knowledge Products

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Notes

[1] See World commission on Dams (2000) Dams and development: A new framework for decision making. Earthscan. www.unep.org/dams/WCD/report/WCD_DAMS%20report.pdf / [2] Scudder, T (2005) The future of large dams. Earthscan. / [3] www.gwiwestafrica.org / [4] Egré, D (2007) Revised Final Report – Benefit Sharing Issues. Compendium on Relevant Practices – 2nd stage. United Nations Environment Programme Dams and Development Project / [5] Lesotho Highlands Development Authority (2005). Annual Report 2004/05. / [6] Gray, M (2012) Nam Theun 2 Multipurpose Development Project. Overview and Update. www.worldbank.org/projects/P076445/lao-nam-theun-2-power-project-former-under-pe-p004206-len?lang=en / [7] Urrá SA (2012) Transferencias por venta de energia eléctrica, Ley 99/93. / [8] IJHD (2010) World Atlas & Industry Guide. International Journal on Hydropower and Dams. / [9] Skinner, J et al. (eds) (2009) Sharing the benefits around large dams in West Africa. IIED. http://pubs.iied.org/12555IIED / [10] IUCN/GTZ 2005 / [11] Singh, DB (2010) Balancing energy, food, natural resources and environment in Nepal. An Assessment of 6720 MW Pancheshwar Multipurpose Project. www.worldenergy.org/documents/congresspapers/445.pdf / [12] Bazin, F et al. (eds) (2011) Sharing the water, sharing the benefits: Lessons from six large dams in West Africa. IIED. http://pubs.iied.org/17510IIED / [13] Favreau, F (2012) Etude sur la contribution de l'EDM au développement local autour du Réservoir de Sélingué. IUCN and GWI. / [14] Volta River Authority Resettlement Trust Fund (2005) Annual Report and Audited Accounts for the year 2004 published by the Managing Trustees under the Trust Deed. / [15] United Nations Environment Programme (2007) Dams and Development: Relevant practices for improved decision-making. / [16] Hydroelectric Power Producing Areas Development Commission Act, 2010. http://faolex.fao.org/docs/pdf/nig120404.pdf