

Dams Contribute Significantly to Climate Change, WCD Finds

by Aviva Imhof

The World Commission on Dams has found that dams are a significant contributor to climate change, and that many hydro-power schemes release more greenhouse gases into the atmosphere than large coal-fired power stations. The WCD estimates that gross emissions from reservoirs, as a result of rotting vegetation, may account for between 1% and 28% of the global warming potential of greenhouse gas (GHG) emissions. The WCD states that "all reservoirs emit GHGs" and that "in some circumstances the gross emissions can be considerable, and possibly greater than the thermal alternatives."

The WCD found that decomposing vegetation in the reservoir emits carbon dioxide and methane. Stagnant water produces the worst emissions because the decaying vegetation generates methane, a greenhouse gas that is 20 times more potent than carbon dioxide. In a new discovery, the WCD found that organic matter washed into a reservoir from upstream generates much of these gases. Thus, emissions may continue for the

lifetime of the reservoir, long after all vegetation in the reservoir has decomposed. The WCD says that a period of 100 years is appropriate for the initial calculation of the lifecycle emissions from reservoirs.

"Current understanding of emissions suggests that shallow, warm tropical dams are more likely to be major GHG emitters than deep cold boreal dams," the WCD states. "To date, no experience exists with minimizing, mitigating, or compensating these impacts."

The Balbina reservoir in Brazil, which in places is only four meters deep, is expected to produce three million tons of carbon dioxide annually over its first 20 years. A coal-fired power station of the same capacity would produce 0.35 million tons of CO₂ a year.

In addition, the WCD states that other land use changes induced by displacement of people, resource extraction and other activities associated with construction of the dam may form part of the net contribution to greenhouse gas emissions.

The WCD's findings are especially significant in light of the recent failure by the world's top polluting governments to agree

on a strategy for meeting the targets for reducing GHGs set in Kyoto in 1997.

The United States, Australia, Japan and Canada were pushing to allow for pollution increases above 1997 targets through the use of Clean Development Mechanism credits. The key disagreement, which ultimately led to the breakdown of the talks, was over whether forests could be used as carbon sinks to offset greenhouse gas emissions. However, another outstanding issue is whether industrialized countries can get credits for funding dams and nuclear power stations in Southern countries. Countries made no agreements, except to convene another meeting next May.

"From the WCD's findings, it would appear that dams are a significant contributor to global warming and should not be considered a clean, carbon-free alternative. In any event, dams have other local and regional impacts that make them inappropriate as a so-called 'clean development' project," said Richard Sherman, Coordinator for the South African Climate Action Network in Johannesburg. ■

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WCD Report Confirms Social, Economic, Environmental Harm From Dams

Critics Demand Dam-Building Moratorium, Reparations for Past Damage

by Lori Pottinger

The long-awaited final report of the World Commission on Dams, unveiled at a ceremony in London on November 16, has provided a boost to anti-dam campaigners around the world. The report “vindicates much of what dam critics have long argued,” said Patrick McCully, campaigns director of International Rivers Network. “If the builders and funders of dams follow the recommendations of the WCD, the era of destructive dams should come to an end.”

Hundreds of dam activists the world over marked the occasion of the report’s launch by challenging public funding agencies, including the World Bank and export credit agencies, to halt all support for dams until the commission’s recommendations are fully implemented (see page 2). The groups are also demanding reparations for social and environmental damage caused by dams.

“It is time for the iron triangle of governments, dam industry and funders to cease building dams until they have incorporated the WCD’s recommendations into their policies and practices,” said Liane Greeff of the South African NGO Environmental Monitoring Group.

The South Africa-based WCD, established in 1998 by the World Bank and IUCN in consultation with outside stakeholders, is an independent body to review the development effectiveness of large dams and make recommendations for planning water and energy projects. It was formed because of pressure from NGOs to analyze the global record of large dams, and acknowledgement from the dam industry that dams were becoming increasingly difficult to build in face of public opposition. As WCD Chair Kader Asmal said at the launch, “Over the last century we collectively bought, on average, one large dam



WCD Chair Kader Asmal and Nelson Mandela at the London launch.

Photo: WCD

per day, and there have been few, if any, comprehensive, independent analyses as to why dams came about, how dams perform over time, whether we are getting a fair return from our \$2 trillion investment.”

The commission’s mandate included developing a framework for assessing options, and developing internationally acceptable criteria and guidelines for the planning, design, construction, operation, monitoring, and decommissioning of dams. Through research, field visits and public outreach, it studied 1,000 dams in varying degrees of detail. The WCD’s 12 commissioners came from a wide spectrum of backgrounds – ranging from Göran Lindahl, CEO of engineering giant ABB, to Medha Patkar, leading activist with India’s Save the Narmada Movement.

Despite this built-in difference in perspective, the WCD ended up with consensus on

its final report (see p. 7 for a dissenting note by Medha Patkar). As the *Financial Times* (Nov. 16) noted, “For such a controversial subject, it is remarkable that the World Commission on Dams came to any conclusions at all. That it managed to agree on the costs and benefits of dam projects should serve as a model for rational debate on other highly contentious development issues.”

But in the end, the final report left many in the dam industry feeling betrayed.

“The overall tone [of the report] is negative concerning the role of dams, generalizing adverse impacts and understating the well-known social and economic benefits,” stated the International Hydropower Association in November 16 press release. “We feel that some statements are based on inadequately researched data – for example, the

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International Rivers Network is an affiliate organization of Friends of the Earth International.

A CALL TO ACTION**“From Commission to Action”**

The WCD's findings and recommendations are particularly relevant for multilateral and bilateral financial institutions. Below is a "Call to Action" endorsed by more than 135 nongovernmental organizations from dozens of countries. At press time, there had been no response from the institutions.

Public financial institutions have long been major promoters of large dams, and have played an active role in the WCD process. The World Bank sponsored the April 1997 Gland workshop, where the decision to create an independent World Commission on Dams was taken. The Bank was consulted on the Commission's proceedings and reports throughout the process. Representatives of the World Bank, the three major regional development banks and the export credit or aid agencies of Germany, Japan, Norway, Sweden, Switzerland and the US are also members of the WCD Forum. Much of the WCD's funding came from multilateral and bilateral agencies.

The WCD report notes that "overseas development financing agencies, particularly the multilateral and bilateral agencies, have played an important role in funding and securing large dam projects." The World Bank started funding large dams in the 1950s. At the peak of lending in 1980-1984, multilateral and bilateral financial institutions committed more than \$4.5 billion annually to the funding of large dams. Collectively, these institutions have committed more than \$125 billion to the funding of such dams. As the WCD report notes: "Although the proportion of investment in dams directly financed by bilaterals and multilaterals was perhaps less than 15 percent, these institutions played a key strategic role globally in spreading the technology, lending legitimacy to emerging dam projects, training future engineers and government agencies, and leading financing arrangements."

In the case of developing countries, the selection of alternatives for meeting water, flood control and electric power needs was, and is, frequently constrained because, as the WCD report explains, financial institutions have a preference for "large dams rather than non-structural alternatives." At the same time, the report notes the failure of financing agencies "to fulfill commitments made, observe statutory regulations and abide by internal guidelines." The situation is particularly grave for the export credit agencies (ECAs). As the report points out, "ECAs generally lack policies on environmental and social issues and do not necessarily adhere to internationally accepted standards and guidelines. Experiences from the Three Gorges dam in China, Ilisu dam in Turkey, Maheshwar dam in India and San Roque dam in the Philippines underline the need for ECAs to examine closely the social and environmental impacts of the projects they support." (See pages 8-11 for case studies on some of these projects.)

A Call to Action

We note and appreciate that the WCD report vindicates many concerns raised by NGO campaigns. Given the role of financial institutions in funding large dams and in the WCD process, and based on the WCD report's recommendations, we call on all public financial institutions, including the World Bank, the regional development banks, the export credit agencies and bilateral aid agencies, to take the following actions:

- public financial institutions should immediately and comprehensively adopt the recommendations of the World Commission on Dams, and should integrate them into their relevant policies, in particular those on water and energy development, environmental impact assessment, resettlement, and public participation. In particular, as recommended by the WCD, no project should proceed without the free, prior and informed consent of indigenous peoples, and without the demonstrable public acceptance of all those who would be affected by the project.
- All public financial institutions should immediately establish independent, transparent and participatory reviews of all their planned and ongoing dam projects. While such reviews are taking place, project preparation and construction should be halted. Such reviews should establish whether the respective dams comply, at a minimum, with the recommendations of the WCD. If they do not, projects should be modified accordingly or stopped altogether.
- All institutions which share in the responsibility for the unresolved negative impacts of dams should immediately initiate a process to establish and fund mechanisms to provide reparations to affected communities that have suffered social, cultural and economic harm as a result of dam projects.
- All public financial institutions should place a moratorium on funding the planning or construction of new dams until they can demonstrate that they have complied with the above measures.

Large Dams Fail WCD's "Core Values"

by Patrick McCully

"Dams have made an important and significant contribution to human development," states the Executive Summary of the World Commission on Dams' final report, "and the benefits derived from them have been considerable." This is probably the most sweeping pro-dam statement in the report, and has been widely quoted in the media since the Commission's launch.

But this statement is clearly not justified by the Commission's findings. Indeed, the overall tone of both the 11-page Executive Summary and the separately published 40-page "Overview" of the 320-page report is less critical of dams than the report itself: presumably this was a political compromise necessary for the pro-dam Commissioners to have signed the report.

The WCD defines five "core values" which inform its understanding of the "shared values, objectives and goals of development." These are equity, efficiency, participatory decision-making, sustainability and accountability.

If dams have "made an important and significant contribution to human development" as the Executive Summary claims, then they should surely have promoted these "core values," both within the communities directly affected by projects and within society in general. But it is clear from the report that large dams have hindered more than helped the promotion of these commendable values.

Equity

On the first "core value" of equity, the report states that "the poor, other vulnerable groups and future generations are likely to bear a disproportionate share of the social and environmental costs of large dam projects without gaining a commensurate share of the economic benefits." The Executive Summary says that "lack of equity in the distribution of benefits has called into question the value of many dams in meeting water and energy development needs." It is hard to conclude from these statements that large dams have, overall, promoted equity.

Efficiency

The evidence gathered by the WCD indicates that dams have generally fallen short of their performance targets on electricity production, irrigation, water supply and flood control. While the benefits of dams have been exaggerated, their costs have

been seriously underestimated. The average construction cost overrun for the 81 large dams on which the WCD had data was a massive 56%.

The WCD had great difficulty finding reliable statistics on the economic returns from dams. They were, however, able to analyze the results of a limited number of project evaluation reports carried out by the World Bank, Asian Development Bank (ADB) and African Development Bank (AfDB). According to these evaluations, large dams have been at best only marginally economically viable. For 14 irrigation dams funded by the World Bank and ADB, the economic rate of return (ERR) at evaluation averaged 10.5%, just over the 10% which is typically judged as the acceptable return on a project in a developing country. This compares with an average ERR estimated when the projects were approved of just over 15%.

Hydropower dams also performed poorly in economic terms, with 9 out of 20 multi-lateral bank-funded projects having returns below 10%. Single-purpose water supply dams fared even worse: three out of four water supply dams funded by the World Bank and ADB had ERRs "well below" the break-even point.

The WCD was unable to find any convincing evaluations of the economic performance of flood control projects, but the Commission notes that while dams have reduced flood damage in some cases, they have increased it in others. Where dams have eradicated normal floods, there have been high costs to farmers, fisherpeople and others dependent on floodplain resources.

The report states that multipurpose projects tend to fall even further behind their economic targets than single purpose projects. The WCD surmises that this is because of conflicts between the different purposes of the project (for example, between needing to store water for irrigation, but release it for power generation).

While these project evaluations do not exactly make dams look economically attractive, the true picture is probably even uglier.



Lesotho's Katse Dam fails the WCD's core values.

Photo: Barry Nelson

The WCD notes that the development bank evaluations are undertaken at project completion or just a few years afterward. They thus incorporate the effects of cost overruns and initial operating results, but not the long-term underperformance that the WCD has identified. Furthermore, the evaluations rarely consider the costs of any of the often huge impacts of the projects. As the Executive Summary notes: "Since the environmental and social costs of large dams have been poorly accounted for in economic terms, the true profitability of these schemes remains elusive." In sum, there is no reason to believe that large dams have proved an economically efficient method of providing benefits to society.

Participatory Decision-Making

Here the report is unequivocal about the failure of dam promoters. The Executive Summary states that "the WCD Global Review documents a frequent failure to recognize affected people and empower them to participate in the process." It also notes the corrupting influence of vested interests, which excludes those without political or economic power from the decision-making process, stating that "the selection of large dams often served as a focal point for the interests and aspirations of politicians, centralized government agencies, international aid donors and the dam-building industry."

Sustainability

Dams fail on the WCD's fourth core value both in narrow technical terms and in the broader environmental sense. Technically, the chief reason why large dams are general-

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Highlights from the Report

The following are selected extracts from the WCD report. The full report can be downloaded from www.dams.org (it is also available in hard copy). A much longer edited extract is available at www.irm.org/wcd. Extracts prepared by Steve Rothert.

Ch. 1: Water, Development and Large Dams

Dams at maximum contribute to at most around 16% of world food production. Ground water irrigation typically has higher yields, for a given amount of water, than surface water irrigation because of better control of the resource at farm level.

Unsustainable irrigation practices have affected more than a fifth of the world's irrigated area in arid and semi-arid regions. As a result, soil salinity and waterlogging either make agriculture impossible, or limit yields.

Riverine ecosystem impacts

Large dams have fragmented and transformed the world's rivers, modifying 46% of primary watersheds. Among the many factors leading to the degradation of watershed ecosystems, dams are the main physical threat, fragmenting and transforming aquatic and terrestrial ecosystems with a range of effects that vary in duration, scale and degree of reversibility.

Social consequences of large dams

While many have benefited from the services large dams provide, their construction and operation have led to many significant, negative social and human impacts. The adversely affected populations include directly displaced families, host communities where families are resettled, and riverine communities, especially those downstream of dams. More broadly, whole societies have lost access to natural resources and cultural heritage that were submerged by reservoirs. The construction of large dams has led to the displacement of some 40 to 80 million people worldwide.

Ch. 2: Technical, Financial and Economic Performance

Cost performance data in the WCD Knowledge base suggest that large dam projects often incur substantial capital cost overruns. The average cost overrun of the 81 large dam projects included in the WCD Cross-Check Survey was 56%.

Capital costs of large dam projects

The average cost overrun was 63% for the 45 multi-purpose projects – three times that of the single-purpose hydropower dams in the sample... Interestingly, performance was worst in the sub regions of Latin America, Europe, Central Asia, and South Asia, with cost overruns averaging 53%, 69%, 108%, and 138% respectively.

The evidence gathered by WCD strongly confirms the view that there is a systematic bias towards underestimation of the capital costs of large dams.

Project implementation schedules

The WCD Knowledge Base suggests a marked tendency towards schedule delays for large dam projects. Of the 99 projects included in the analysis of project schedule performance in the Cross-Check Survey, only half the projects came in on schedule.

Irrigation Dams

In sum, the assessment of large dam irrigation schemes reveals ... such schemes have all too often fallen short of physical targets and failed to recover their costs in cases where that was the intention indicated in the project document. Further, in many cases the economic justification for the approval of the project has not been borne out by actual experience in implementation and operation due to cost overruns and shortfalls in net benefits of agricultural production.

Approximately one-fifth of the large dam projects with an irrigation component in the Cross-Check Survey reported impacts from waterlogging. Data from 11 major irrigation countries indicate that approximately 20% of irrigated land is affected by salinity.

Hydropower Dams

The bulk of projects have delivered power within a close range of pre-project targets but with an overall tendency to fall short of targets. Hydropower projects – as with other large dams – have incurred cost overruns and schedule delays.

Water Supply Dams

Water supply dams in the WCD Knowledge Base have generally fallen short of intended timing and targets for bulk water delivery and have exhibited poor financial cost recovery and economic performance.

Flood Control Dams

Evidence in the Knowledge Base confirms that while dams have provided important flood control benefits, some dams have increased the vulnerability of riverine communities to floods. Further, emphasis on flood management as opposed to flood control has raised concern over the cost and effectiveness of large dams and related structural measures as long-term responses to floods.

Between 1960 and 1985, the United States Federal government spent \$38 billion on flood control, mostly on structural responses such as large dams. Yet average annual flood damage, adjusted for inflation, continued to increase – more than doubling.

Ch. 3: Ecosystems and Large Dams: Environmental Performance

A useful indicator of the scale of human intervention in this regard is a recent estimate that dams, inter-basin transfers, and water withdrawals for irrigation have fragmented 60% of the world's rivers.

The current state of knowledge indicates that large dams have many, mostly negative, impacts on ecosystems. In many cases dams have led to the irreversible loss of species populations and ecosystems. To date efforts to counter the ecosystem impacts of large dams have had only limited success.

Greenhouse Gas Emissions

Gross emissions from reservoirs may account for between 1% and 28% of the global warming potential of GHG emissions. In some circumstances the gross emissions can be considerable, and possibly greater than the thermal alternatives.

Downstream Aquatic Ecosystems

Impounding rivers invariably results in increased degradation of coastal deltas due to reduction in sediment input.

As a physical barrier the dam disrupts the movement of species, leading to changes in upstream and downstream species composition and even species loss.

Impeding the passage of migratory fish species was the most frequently observed ecosystem impact, recorded at over 60% of the projects for which responses on environmental issues were given.

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Detailed studies in North America indicate that dam construction is one of the major causes for freshwater species extinction.

Reduction in downstream annual flooding affects the natural productivity of riparian areas, floodplains, and deltas. This, together with the associated loss of floodplain habitats, normally has a marked negative impact on fish diversity and productivity.

Substantial losses in downstream fishery production as a result of dam construction are reported from around the world.

The conclusion can be drawn that only a small percentage of ecosystem impacts that occurred were actually mitigated effectively, while the relative significance of these impacts remains unknown.

Ch. 4: People and Large Dams: Social Performance

Analysis of the Knowledge Base, and in particular the WCD Case Studies, indicates that the poor, vulnerable groups and future generations are likely to bear a disproportionate share of the social and environmental costs of large dam projects without gaining a commensurate share of the economic benefits.

Scale of physical displacement

The overall global level of physical displacement could range from 40 to 80 million.

These figures are at best only estimates and certainly do not include the millions displaced due to other aspects of the projects such as canals, powerhouses, project infrastructure, and associated compensatory measures, such as biological reserves and so on. They also refer to physical displacement only and thus do not include communities upstream and downstream of dams that have suffered livelihood displacement.

Under-counting of the displaced

At the planning stage, the numbers of both directly and indirectly affected people have frequently been under-estimated and there has been inadequate understanding of the nature and extent of the negative impacts.

Among projects funded by the World Bank, the actual number of people to be resettled was 47% higher than the estimate made at the time of appraisal.

Experience of affected people with resettlement, mitigation, and compensation

Little or no meaningful participation of affected people in the planning and implementation of dam projects – including resettlement and rehabilitation – has taken place.

Cash compensation is a principal vehicle for delivering resettlement benefits, but it

has often been delayed and, even when paid on time, has usually failed to replace lost livelihoods... Further, there have been many cases illustrating inadequate compensation, unsuitable mitigation, and lack of recourse.

The replacement of agricultural land, basic services, and infrastructure at resettlement sites has often failed to materialise, is inadequate, or is delayed for many years. Absence of livelihood opportunities forces affected people to abandon resettlement sites and migrate.

Indigenous Peoples

Large dams have had serious impacts on the lives, livelihoods, cultures and spiritual existence of indigenous and tribal peoples. Due to neglect and lack of capacity to secure justice because of structural inequities, cultural dissonance, discrimination and economic and political marginalisation, indigenous and tribal peoples have suffered disproportionately from the negative impacts of large dams, while often being excluded from sharing in the benefits.

Downstream Livelihoods

Downstream impacts can extend for many hundreds of kilometres and well beyond the confines of the river channel. ... In general, the downstream riverine communities have lacked social, economic, and political power to seek mitigation, let alone development benefits.

Downstream communities throughout the tropics and subtropics face some of the most drastic impacts of large dams, particularly where the changed hydrological regime of rivers has adversely affected floodplains that supported local livelihoods through flood-recession agriculture, fishing, herding, and the gathering of floodplain forest products and household products.

Gender

Given the gender-blindness of the planning process large dam projects typically build on the imbalance in existing gender relations. For affected communities dams have widened gender disparities either by imposing a disproportionate share of social costs on women or through an inequitably allocation of the benefits generated.

Human Health

Numerous vector-borne diseases are associated with reservoir development in tropical areas. Schistosomiasis (or Bilharzia) spread through snails breeding in still or slow-moving waters was a significant public health problem that emerged from many early projects... Most reservoir and irrigation projects

undertaken in malaria-endemic areas increase malaria transmission and disease.

In recent years, the high incidence of HIV/AIDS in construction and settlement areas is a growing concern.

Equity and Distribution of Costs and Benefits

...Large dams in the WCD Knowledge Base tend to produce benefits that accrue to groups other than those who bear the social and environmental costs. Those who bear the costs are quite often poor, vulnerable (such as indigenous peoples), or unrepresented (such as future generations). Considering present societal commitments to human rights and sustainable development it is clear that dams in the Knowledge Base have led to inequitable outcomes.

Equity

The Case Study dams demonstrate a total lack of connection between groups benefiting from dam projects and those adversely affected, confirming the general finding from the Knowledge Base.

Implications for balance sheet

Those who bear the social and environmental costs and risks of large dams are frequently not the same people who receive the social and economic benefits of the water, electricity, and ancillary services that dams produce.

Ch. 5 Options for Water and Energy Resources Development

Energy and Electricity

There are enormous opportunities for demand-side management in industrial economies. There is also considerable scope for efficiency improvements in expanding economies, where they would moderate the required investment in new supply. In addition, almost 2 billion people, both urban and rural poor, have no access to electricity at all.

The technical potential in countries with a high per capita consumption, such as the United States, may be up to 50%, including modification of consumption and improved conservation behaviour.

Losses between what is sent out from the power station and what is recorded as power consumed on the customer's meter can be as high as 35-40% in some countries – and more in exceptional cases.

With current trends in power sector reform and financing private developers are showing limited interest in large hydropower projects except for uniquely competitive low-cost sites and medium and small high-

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ly unsustainable is that in most cases their capacity to store water is steadily lost as their reservoirs fill with sediment. Declining storage capacity is going to be a massive problem in the 21st century for those countries that have made their economies heavily dependent on large dams in the 20th century. The WCD report states that up to 1% of world reservoir volume is lost from sedimentation annually.

The Commission raises two other technical sustainability issues. One affects the use of dams for supplying irrigation water – the waterlogging and salinization of farmland. The WCD estimates that around a fifth of the world's irrigated land is affected by these twin blights which can seriously reduce yields and eventually render land unproductive. While waterlogging and salinity problems are not exclusive to land irrigated by large dam-and-canal schemes, such projects are far more vulnerable than other types of irrigation because of their inherent problems of low efficiency and mismanagement. "Problems of waterlogging and salinity for irrigation systems," states the WCD, "have reached serious levels globally and have severe, long-term and often permanent impacts on land, agriculture and livelihoods."

The other main technical sustainability issue is safety. The Commission notes that in the US alone some \$40 billion is needed to maintain and improve current dams. This figure does not allow for the huge investments required to upgrade dams and

their spillways to cope with the increasingly severe floods which will result from global warming. "Ensuring the safety of dams will require increasing attention and investment as the stock of dams ages, maintenance costs rise and climate change alters the hydrological regime used as a basis for the design of dam spillways," the report states.

In environmental terms, the WCD's findings make crystal clear that dams are an unsustainable technology. The Executive Summary notes that: "Large dams generally have a range of extensive impacts on rivers, watersheds and aquatic ecosystems – these impacts are more negative than positive and, in many cases, have led to irreversible loss of species and ecosystems." Driving species and ecosystems to extinction cannot be described as sustainable.

Accountability

Again, the report shows clearly that dams fail the development test on this issue. The chapter in the report on "Decision-Making, Planning and Compliance" makes repeated references to the lack of accountability of dam planners, builders and operators to affected people and society in general. Among the "findings and lessons" of this chapter are that:

- *large projects tend to lack public oversight of negotiations between government, lenders and contractors, including limited disclosure and public access to information*

- *in many cases lack of clear monitoring procedures limits public scrutiny and accountability;*
- *there is a lack of sanctions at the international level for non-compliance with international norms regarding water use in shared river basins;*
- *within public international financial institutions, there are few, if any, sanctions for staff members, or countries, for non-compliance;*
- *in some countries, there is a lack of legal opportunities for affected groups to seek recourse, therefore lessening the accountability of the project developers.*

The strong emphasis in the WCD's recommendations of the need to make accountability one of the key features of the dam decision-making process, also indicates the past and current lack of accountability of the dam industry.

A judgement on whether or not large dams have "made an important and significant contribution to human development" must depend on how "development" is defined. "Development" is an amorphous concept which can essentially mean whatever its user wants it to mean: anything from increased industrial production to increased empowerment of poor women. But the WCD have defined their "core values" of development and large dams have failed to promote any of them, so by the WCD's own yardstick dams cannot credibly be described as having "made an important and significant contribution to human development." ■

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estimates of the number of people displaced by dams." The organization also noted that the WCD's guidelines and recommendations could be seen as "interference" by developing countries' governments.

Some in the dam industry immediately pledged to adopt the WCD report, however. The Swedish firm Skanska, for example, announced at the WCD launch that it welcomed the report and would follow its guidelines. "We find the Commission's work to be extremely valuable," says Axel Wenblad, Vice President of Environmental Affairs of Skanska. "It represents a major stride for sustainable development, with open and transparent processes in which all affected parties can participate, particularly those groups that are affected directly."

Findings and Recommendations

The 404-page final report, "Dams and Development," provides ample evidence that large dams have failed to produce as much elec-

tricity, provide as much water, or prevent as much flood damage as their backers claim. In addition, it confirmed that these massive projects regularly suffer huge cost-overruns and time delays. The report's findings include the following:

- large dams have forced 40-80 million people from their homes and lands, with impacts including extreme economic hardship, community disintegration, and an increase in mental and physical health problems. Indigenous, tribal, and peasant communities have been particularly hard hit. People living downstream of dams have also suffered from increased disease and the loss of natural resources upon which their livelihoods depended;
- dams' impacts on ecosystems are "mostly negative." Large dams have led to the extinction of many fish and other aquatic species, the disappearance of birds in floodplains, huge losses of forest, wetland and farmland, erosion of coastal deltas,

and many other impacts that cannot be mitigated. And contrary to the industry's summation that dams offer "green" energy, the report concludes that most reservoirs emit greenhouse gases, some in fairly high quantities;

- the benefits of large dams have largely gone to the already well-off while poorer sectors of society have borne the costs.

Based on these findings, the commission recommended that:

- no dam should be built without the agreement of the affected people;
- comprehensive and participatory assessments of the needs to be met, and alternatives for meeting these needs should be developed before proceeding with any new project;
- priority should be given to maximizing the efficiency of existing water and energy systems before building any new projects;

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A Viewpoint with a Difference

By Medha Patkar

The following is a "dissenting note" by WCD commissioner Medha Patkar, who plays a leading role in India's anti-dam movement. This comment appears in the final report.

The process of the World Commission on Dams was unprecedented in bringing together so many of those involved in debates and conflicts over large dams. Many peoples' movements and NGOs – the constituency that first proposed a comprehensive and independent review – actively participated. Our final report has synthesised enormous amounts of information and diverse opinions and delivered many important findings and recommendations. I hope it will be a reference for all those concerned about large dams. While signing the report because of its many positive aspects, I still feel I must put forth this opinion on some fundamental issues that are missing or not given the central place they deserve.

The problems of dams are a symptom of the larger failure of the unjust and destructive dominant development model. It is beyond the scope of our report or the brief of the Commission to resolve all the underlying problems of global development. But addressing these issues is essential in any attempt to reach an adequate analysis of the basic systemic changes needed to achieve equitable and sustainable development and to give a pointer towards challenging the forces that lead to the marginalisation of a majority through the imposition of unjust technologies like large dams.

Large dams have, on average, failed to provide their claimed benefits and this poor performance needs to be stated in clear, unequivocal terms. There is no reason for optimism on the feasibility of improving the poor performance of dams and mitigating their impacts. A major question is the feasibility of just rehabilitation with land for land lost by agriculturists and alternative, appropriate sources of livelihood for other displaced people. In large scale displacement, the experience shows a clear failure. Within the value framework the Commission propagates – equity, sustainability, transparency, accountability, participatory decision-making, and efficiency – large dams have not helped attain, but rather hindered, "human development."



Medha Patkar

An inclusive, transparent process of decision-making with equal status to all the stakeholders, equal place for local and national needs and plans, equal significance to social, environmental, technical and financial aspects of planning, would be a great advance, but does not go far enough. Even with rights recognised, risks assessed and stakeholders identified, existing iniquitous power relations would too easily allow developers to dominate and distort such processes. These developers include multilateral institutions like the World Bank that have pushed many large dams despite non-compliance with their own policies. The State, controlled by powerful vested interests, may do the same. Understanding this takes us beyond a faith in negotiations to emphasize certain priorities and primacies.

Communities, especially those who live on and seek livelihood from their natural resource base, such as forest produce gatherers, farmers or fisherpeople, should have the first right to planning, development and management of those resources. Inequities within communities also need to be recognised and addressed. Social and environmental parameters must have a higher weight than the technical and financial aspects in decisions concerning human development. It is necessary to stress the 'principle of subsidiarity', according to which development planning would be based on micro-catchments, working from ridge to river, and from origin to sea.

A full assessment of the options for meeting water and energy needs as the first part of project planning needs to be supported. But only creating a level playing field for options cannot suffice. We should instead

give priority to more equitable, sustainable and effective options to satisfy basic human needs and livelihoods for all before supporting the additional luxuries of the few, unjustified in the face of the many who remain deprived.

The wider context of national and global political and economic trends obviously affect decisions in the water and power sector. These trends include the diminishing role of the State, the growing marginalisation of national laws and institutions, and the trampling of human rights due to the expanding role of private capital and free trade. While there may be a few welcome instances of progress towards enhanced human rights and equity, to say there is a global trend towards these goals would indeed be erroneous.

No undue legitimacy should be granted to corporations and international financing agencies. The sovereignty of both people and the nation-state must not be compromised for anything but the basic values and goals of humankind. It is necessary to give a serious critique of the privatisation of the water and power sectors and the resulting marginalisation of local people and corporate domination over natural resource-based communities.

The issues above are those raised by the peoples' movements whose role and perspectives should be given their due place. Not just with stories of eviction, repression and confrontation, but with their ideologies, strategies, and vision.

Over and above all this, I recognize and share the Commission's achievement of local to global consultation and, more so, a humane, well-intentioned, open and frank dialogue under an able leadership, which needs to be kept alive beyond the short life of this forum. To endorse the process and many of our findings and recommendations, I have signed the report. To reject the underlying assumptions of a development model which has palpably failed and to caution against the massive gulf between a statement of good intent and a change in practice by entrenched vested interests I have asked for this note to be attached.

Whatever is unacceptable, inadequate, or missing in the report should form an agenda for further dialogue and research; but also for struggles for justice with people at the forefront, people more empowered by this report and otherwise to say NO to the perverted development vision, process and projects. ■

Bujagali Falls Dam, Nile River, Uganda

Uganda is one of the world's poorest countries. About 95% of the population does not have access to electricity, and most could not afford it even if they were offered free connections to the national grid. The US-based AES corporation, the world's largest independent power producer, proposes to construct a US\$530-million hydroelectric dam that would drown Bujagali Falls on the Nile River, a culturally significant site that also supports a growing whitewater tourism industry. The project is now being considered for funding from the IFC, the World Bank, the US agency OPIC, and a number of European export credit agencies.

In addition to the fact that this project will not help the poor majority, NGOs and civil

society in Uganda have a number of other concerns about the project. The existing national grid is very inefficient and only a fraction of the nation's population is connected. Allegations of corruption have dogged this project, which was not subject to competitive bidding and has enjoyed undue favoritism from both the Ugandan and US governments. The dam will be built within a few miles of two other dams, and the cumulative impacts on the river are unknown.

Bujagali is also a very risky project for Uganda. Under a "Take or pay" contract, Uganda has committed to buy a set amount of power every year regardless of how much is actually produced. As the project design and projected outputs are based on highly optimistic hydrological

studies of the river, Uganda could end up paying for power that is not produced. Scientists believe East Africa could be hit with increasing and more serious droughts due to global climate change, thus increasing the project's already significant "hydrological risk."

There are alternatives to this dam, but they have been minimized by project proponents. In addition to improving the existing grid (30-40% of electricity generated is lost before it reaches the consumer), Uganda is favorably endowed for solar, microhydro, geothermal and, to a lesser extent, wind. A more decentralized approach to energy supply would also be appropriate for Uganda, as it does not require further expansion of the grid, has fewer impacts, and can be up and running more quickly.

Evaluating Bujagali Against WCD Guidelines

NEEDS ASSESSMENT

WCD Recommendation: The WCD calls for a "needs assessment" to ensure that a project will actually meet local needs: "In countries where a large proportion of the population does not have access to basic services, a key parameter should be the extent to which basic human needs will be met."

Reality: The Bujagali Dam will not bring power to the rural poor. The World Bank itself acknowledges that grid-based electricity generation will not meet basic human needs: "No more than 7% of the total population [in Uganda] can afford unsubsidized electricity... It is unrealistic to think that more than a fraction of the rural population could be reached by a conventional, extend-the-grid approach. A more promising course is to rely instead on 'alternative' approaches to electrification."

INCREASING EFFICIENCY

WCD Recommendation: The WCD calls for studies to assess the scope for "demand-side management (DSM) ... and for decentralized supply options and community-level initiatives." It further states that "a priority should be to improve existing systems before building new supply, [and] that demand-side options should be given the same significance as supply options."

Reality: Uganda has no thorough evaluation of DSM options, and no firm plans to try efficiency and conservation measures before building Bujagali Dam. If the World Bank chooses to support the project, it is likely to catalyze the construction of a cascade of dams on the Nile in Uganda, thus leading it away from the path of decentralized power supply options.

COMPREHENSIVE OPTIONS ASSESSMENT

WCD Recommendation: The WCD states, "Ensure that available alternatives, their relevant consequences and uncertainties are given full consideration." It urges that "a multi-criteria assessment was used to screen and select preferred options from the full range of identified alternatives."

Reality: Although Uganda has excellent renewable energy potential, project proponents have dismissed these in favor of Bujagali. The evaluation of Uganda's energy alternatives was carried out by a dam engineering firm, Acres International, that is already building dams on the Nile. Not surprisingly, the lengthy report had only a few paragraphs on solar. In public meetings conducted by Acres, no information was presented on alternatives.

CUMULATIVE IMPACTS

WCD Recommendation: The WCD states, "cumulative impacts of projects should be analyzed," and "environmental impacts from past projects should be evaluated and incorporated into the needs assessment."

Reality: The Bujagali Dam will be the third dam in one short stretch of the Nile. Neither of the two previous projects had environmental impact studies. A recent article in the Ugandan newspaper *New Vision* states, "Doctor John Baliwa of the Fisheries Research Programme said that mats of water hyacinth could accumulate behind the numerous dams and kill fish in the area. He said many sites had been planned along the Victoria Nile, which is an extensive fishery resource with an estimated potential of 10,000 metric tons of fish per year."

RISK

WCD Recommendation: The WCD is also clear that risk must be fairly analyzed and publicly discussed. "[Risks] must be identified, articulated and addressed explicitly. Most important, involuntary risk bearers must be provided with the legal right to engage with risk takers in a transparent process to ensure that risks and benefits are negotiated on a more equitable basis." It goes on, "Determining what is an acceptable level of risk should be undertaken through a collective political process."

Reality: This project has big risks for Uganda's taxpayers, and yet public discourse on the terms of the government's agreement with AES has been minimal. The key document that lays out risks – the power purchase agreement – has been kept secret. It reportedly forces Uganda to buy all of the project's projected power output even if there is not enough demand, and even if the dam is unable to generate the power due to drought. There is also significant risk to dam-affected people to whom promises have been made by AES that may not be kept. There are no mechanisms in place to hold them to their promises, which in this case have been substantial.

Ilisu Dam, Tigris River, Turkey

The Ilisu Hydroelectric Power Project on the Tigris River is the largest planned dam project in Turkey. The dam will create a reservoir of 313 square kilometers, will flood more than 90 villages and the ancient town of Hasankeyf. The project will affect up to 78,000 people, mainly ethnic Kurds. The project will cost at least US\$1.6 billion. The Ilisu consortium has applied for funding to the official export credit agencies of seven countries, including Switzerland, England, Germany and the US. An international

coalition of NGOs is campaigning to stop the dam.

The Turkish government did not grant permission to the WCD to study any dams on the Tigris or Euphrates rivers. The Ilisu project violates all of the strategic priorities of the WCD; some key shortcomings are described below. The dam's failure to meet WCD recommendations also sends a clear message to export credit agencies to withdraw from funding the project.



Photo: Kurdish Human Rights Project

A Kurdish boy in front of the ancient bridge in Hasankeyf, which will be drowned if the dam is built.

Evaluating Ilisu Against WCD Guidelines

COMPREHENSIVE OPTIONS ASSESSMENT

WCD Recommendation: The WCD states, "Comprehensive options assessment must precede selection of any specific development plan, whether it includes a dam or an alternative" and that the options considered should include "institutional changes that could influence consumption patterns, reduce demand and affect the viability of supply options; [and] subsidies that can distort comparison of alternatives."

Reality: A January 2000 report of the International Energy Agency concludes that in Turkey, "energy efficiency is considered the cheapest energy source [and] potential gains to be achieved by increased energy efficiency are substantial." Indeed, improving the efficiency of Turkey's transmission system would be much cheaper than building the Ilisu Dam. Yet no comprehensive options assessment for Ilisu has ever been carried out.

ADDRESSING EXISTING DAMS

WCD Recommendation: "Outstanding social problems associated with existing large dams are identified and assessed; processes and mechanisms are developed with affected communities to redress them." The report also describes the need for reparations on past projects.

Reality: The Ilisu project is part of the gigantic Southeast Anatolia Project (GAP), which comprises more than 20 dams on the Euphrates and Tigris. The existing dams have displaced hundreds of thousands of people. Most of those evicted have not received any compensation or rehabilitation. In a report commissioned by the Swiss Export Risk Guarantee, World Bank expert Ayse Kudat points out that "there are still a large number of people affected by previously constructed dams who are still waiting to be resettled, sometimes for many years," and that "in the past 30 years resettlement was [only] provided for about 100 families annually."

GAINING PUBLIC ACCEPTANCE

WCD Recommendation: The WCD says that "public acceptance is essential for equitable and sustainable water and energy resources development projects," and recommends that "access to information, legal and other support [must be] available to all stakeholders." It further calls for "demonstrable public acceptance of all key decisions" and recommends that entitlements be recognized and benefits shared for any dam project to go ahead.

Reality: The Ilisu area has been devastated by armed conflict, and remains under emergency rule. Freedom of expression does not exist, and the affected Kurdish communities cannot voice their opposition to the project. In the context of Southeast Anatolia, implementing measures recommended by the WCD is totally illusionary. So far, the project has been planned without any meaningful consultation or participation of the affected communities.

SUSTAINING RIVERS AND LIVELIHOODS

WCD Recommendation: The WCD states that "a basin-wide understanding of the ecosystem's functions, values and requirements, and how community livelihoods depend on and influence them, is required before development options are made."

Reality: On the Turkish part of the Tigris alone, at least nine dams have been constructed or have reached the feasibility stage. Yet no assessment of the cumulative social and environmental impacts of these dams has ever been carried out, and so far, there is no environmental impact assessment for Ilisu that measures up to international standards. The project sponsors agree that the reservoir will reduce water quality in the Tigris, and spread malaria in the region.

SHARING RIVERS FOR PEACE, DEVELOPMENT AND SECURITY

WCD Recommendation: The WCD report recommends that "where a government agency plans or facilitates the construction of a dam on a shared river in contravention of the principle of good faith negotiations between riparians, external financing bodies withdraw their support for projects and programmes promoted by that agency."

Reality: The planned Ilisu dam threatens to disrupt the flow of the Tigris to Iraq and Syria. Turkey refuses to consult these riparian countries on the impacts of Ilisu and other dams. Astrid Epiney, professor of international law at Freiburg University (Switzerland), concluded in a detailed legal opinion that building the Ilisu Dam would violate international environmental law on several counts.

Nam Theun 2 Dam, Theun River, Laos

The 50-meter-high Nam Theun 2 Dam, planned for the fourth largest tributary of the Mekong, is the largest and most controversial hydropower project planned for Laos. Situated only 50 km upstream from the already completed Nam Theun-Hinboun Dam, the \$1.2 billion “build-own-transfer” scheme is being developed by Transfield Holdings of Australia, Electricité de France, and two Thai companies in association with the Lao government. Almost all of the dam’s 921 MW of capacity would be exported to Thailand. The project is currently stalled awaiting a decision from the World Bank on whether to grant financial assistance to the project, among other things.

The project would flood approximately 450 square kilometers of the Nakai Plateau, an area of rich biological diversity. Although the project’s future is in question, significant environmental destruction has already occurred. Since 1990, a military-run logging company has logged more

than one million cubic meters of timber on the plateau to clear the reservoir area.

The dam’s proponents, including the World Bank, claim that the Nakai Plateau is so degraded that it is not worth saving, and that the dam should be built to provide revenue which the Lao government can use to conserve the remaining watershed area. This argument is untenable. Nam Theun 2 is clearly not a rural development, poverty alleviation or environmental conservation project – it is a huge dam built for revenue generation, and it will have a serious impact on the environment and livelihoods of people living in three important river basins in central Laos. It also ignores the fact that conservation of the watershed area was being considered for grant funding from both the Global Environment Facility and the Dutch government until it became clear that the Bank was seriously considering backing Nam Theun 2 and flooding some 40 percent of the Plateau.

Approximately 4,500 people will be resettled by the project. Reports from the area suggest that “consultation” has consisted largely of telling local people that the dam will be built and that they will benefit from it. A much greater number of families will be affected by the dam’s construction without being directly displaced. Up to 40,000 people living along the banks of the Xe Bangfai could be significantly affected due to increased flooding and reduction in fish species. Thousands more people living upstream may also be affected. Many of these impacts cannot be mitigated.

While publicly stating that it is not committed either way on the project, the World Bank has been heavily promoting Nam Theun 2 since it financed its feasibility study in 1989. Due to the perceived risks of investing in Laos, the developers are unable to attract financing unless the World Bank offers guarantees.

Evaluating Nam Theun 2 Against WCD Guidelines

COMPREHENSIVE OPTIONS ASSESSMENT

WCD Recommendation: “A multi-criteria assessment was used to screen and select preferred options from the full range of identified alternatives. The screening of options covered all policy, program and project alternatives.”

Reality: The World Bank has promoted the dam as an income generator for Laos, yet no comprehensive assessment of alternatives for generating foreign exchange has ever been completed. There has never been any analysis of how the resources of the area could be managed to balance watershed protection and enhance livelihoods while avoiding the serious negative impacts expected from Nam Theun 2.

GAINING PUBLIC ACCEPTANCE

WCD Recommendation: “Stakeholders participate in the project design and the negotiation of outcomes that affect them. Indigenous and tribal peoples gave their free, prior, and informed consent. Effective participation in a stakeholder forum must be facilitated through timely access to information and legal and other necessary support.”

Reality: Project proponents point to a 1997 public participation program in Laos as proof that Nam Theun has gained public acceptance. However, in a submission to the WCD, Shalmali Guttal from FOCUS on the Global South states that the decision to construct the dam had been taken well before this process. “Substantive input of affected communities and the public at large was solicited primarily within the parameters of developing resettlement options and mitigation measures, which came in the later part of the project development process.” Information was not accessible to directly affected communities or even government officials because of a tremendous knowledge gap between the foreign experts on the one hand, and the local people on the other. “There were almost no authentic opportunities in the consultations for the Lao public to challenge the information presented or question the overall viability of the project.”

RISK

WCD Recommendation: Risk must be fairly analyzed and publicly discussed. “[Risks] must be identified, articulated and addressed explicitly. Most important, involuntary risk bearers must be provided with the legal right to engage with risk takers in a transparent process to ensure that risks and benefits are negotiated on a more equitable basis.” It goes on, “Determining what is an acceptable level of risk should be undertaken through a collective political process.”

Reality: The risks for the thousands of people who are expected to lose their fisheries and other livelihoods has never been assessed as part of the project’s risk assessment. These “involuntary risk takers” have been provided no opportunity to participate in decisions affecting their lives.

ADDRESSING EXISTING DAMS

WCD Recommendation: The report states, “Outstanding social and environmental issues associated with existing large dams are identified and assessed; processes and mechanisms are developed with affected communities to remedy them.” It also states that “cumulative impacts of projects should be analyzed,” and “environmental impacts from past projects should be evaluated and incorporated into the needs assessment.”

Reality: The Nam Theun Hinboun Dam, 50 km downstream of the proposed site of the Nam Theun 2, was funded by the Asian Development Bank and completed in 1998. Theun-Hinboun has had a severe impact on the livelihoods of more than 25,000 people living downstream and upstream of the dam, including reduced fish catches, the destruction of vegetable gardens and dry-season drinking water sources, loss of fish nets and increased difficulties with transportation. Despite sustained lobbying by NGOs and numerous promises from the ADB, adequate compensation has still not been provided to affected communities.

San Roque Dam, Agno River, Philippines

The Agno River has always been regarded as sacred by the indigenous Ibaloi people of Benguet. Known as their “cultural heartland,” the river valley has been home to the Ibaloi for at least five centuries. The San Roque Dam, currently under construction in Central Luzon, will destroy the Agno River, thereby destroying the lives and livelihoods of the Ibaloi.

The 200-meter-high dam is expected to generate 345 MW of power, irrigate 87,000 hectares, control floods and improve water quality downstream. Most of the 35,000 indigenous Ibaloi, Kankanaey and Kalanguya people living upstream are fiercely opposed to the San Roque Dam, and say it will destroy their communities and livelihoods. They are concerned

that high rates of sedimentation from mining and other land use in the watershed will lead to increased flooding upstream of the reservoir, inundating their homes and burial sites and negatively impacting water quality.

Already, more than 600 families have been evicted to make way for the dam. Many are struggling to survive in cramped quarters in a resettlement site, without any land to sustain them. The lives of another 200 families are being disrupted by excavation for the dam. They, too, will be forced from their lands. JBIC policies state that those resettled must have a guaranteed means of livelihood. The people affected by San Roque do not.

The dam is being developed as a Build-Operate-Transfer project, awarded to the San

Roque Power Corporation (SRPC), a 100% foreign owned consortium. Loans for the \$1.19 billion project have come from the Japanese Export Credit Agency the Japan Bank for International Cooperation (JBIC), and a consortium of Japanese private banks.

The WCD recommends an “open and participatory review of ongoing and planned projects to ascertain the extent to which project formulation can be adapted to accommodate the principles outlined in this report.” San Roque Dam does not comply with most of the principles in the WCD report. Communities are demanding that JBIC and the Philippine government immediately cancel the project and restore the livelihoods of those who have already been displaced.

Evaluating San Roque Against WCD Guidelines

ADDRESSING EXISTING DAMS

WCD Recommendation: “Provisions were made for resolving outstanding social and environmental impacts of existing dams. . . Outstanding social issues are assessed; processes and mechanisms are developed with affected communities to remedy them.

Reality: San Roque Dam is the third dam to be constructed along the Agno River. After nearly 40 years, some 1,800 Ibalois displaced by upstream dams have not received compensation. Many have witnessed their lands being consumed by increasing sediment loans backed up behind the dams. They fear the same will happen if the San Roque Dam is built.

INDIGENOUS PEOPLE

WCD Recommendation: “Indigenous peoples and tribal peoples gave their free, prior and informed consent to the project as designed.”

Reality: The Ibaloi, Kankanaey and Kalanguya people living upstream of the dam have not given their prior and informed consent to the project.

RESETTLEMENT AND COMPENSATION

WCD Recommendation: The report states, “Stakeholders negotiated agreements for compensation, mitigation, resettlement, development, and monitoring measures affecting them including draft contracts, where necessary”; and, “A clear agreement with the affected people on the sequence and stages of resettlement will be required before construction on any project preparatory work begins. . . The negotiated agreements need to be translated into signed contracts between the developer and affected communities and individuals, with clear targets for assessing compliance.”

Reality: Three fact-finding missions to the project’s resettlement site have revealed widespread despair and dissatisfaction among resettled communities. From the beginning, people were lied to and shut out of the planning process. People were coerced into signing documents agreeing to resettlement and compensation. Many could not understand the contracts since they were written in English, which they do not understand. Most have not received even the pitiful compensation they were promised, and the amounts received are insufficient to sustain their families. NPC promised to give the relocated families priority employment at the construction site, yet only around 10 percent have received jobs. Promises of livelihood-restoration projects have not been honored.

PRECAUTIONARY APPROACH

WCD Recommendation: “Impact Assessments should be guided by the precautionary approach. This requires States and water development proponents to exercise caution when information is uncertain, unreliable, or inadequate and when the negative impacts of actions on the environment, human livelihoods, or health are potentially irreversible.”

Reality: An independent panel of experts found serious deficiencies in the project’s environmental impact assessment (EIA). They found that the reservoir could fill with sediment much faster than the EIA predicts, thus shortening the lifespan of the project. The accumulation of toxic sediments could poison the water in the reservoir and downstream. The dam could be more prone to failure from earthquakes than the EIA predicts, and could exacerbate – rather than alleviate – flooding. While project proponents commissioned additional studies on sedimentation and seismicity in response to these reviews, these studies were performed after construction had commenced, calling into question their relevance.

RISK

WCD Recommendation: Risk must be fairly analyzed and publicly discussed. “[Risks] must be identified, articulated and addressed explicitly. Most important, involuntary risk bearers must be provided with the legal right to engage with risk takers in a transparent process to ensure that risks and benefits are negotiated on a more equitable basis.” It goes on, “Determining what is an acceptable level of risk should be undertaken through a collective political process.”

Reality: The NPC has agreed to pay US\$10 million per month to project owners regardless of whether there is sufficient water available to generate power. The Power Purchase Agreement forces NPC to buy the dam’s power even if it doesn’t need it. Under this arrangement, the Philippine government and people carry a large proportion of the project risk and liabilities, including hydrological risk (such as drought-induced power shortages) and market risk, by guaranteeing power purchases even if capacity is not needed. The PPA also frees the developer from responsibility for social and environmental risks and costs. Yet the PPA remains a confidential document that was subjected to no public scrutiny at any stage during the negotiation process. The Philippine Senate is currently conducting an investigation into the legality of the PPA.

Guatemalan Dam Massacre Survivors Seek Reparations from Financiers

WCD Report Expected to Help Their Case

by Karen Levy

The new report by the World Commission on Dams includes significant evidence of ongoing social problems, broken promises and human rights abuses associated with involuntary resettlement and environmental impacts from dams. While the Commission cannot adjudicate on specific cases, its recommendations on how to redress past problems associated with existing dams may be useful in the ongoing effort to get reparations for those harmed by the Chixoy Dam tragedy.

Cristobal Osorio vividly remembers the day his wife and infant child were murdered. On March 13, 1982, just hours after Osorio left his riverside village of Rio Negro to visit a nearby town, army soldiers and civilian militia killed 177 women and children, including Osorio's wife and child, who was slashed in half with a machete. It was one of four massacres committed over eight months in the village, which claimed the lives of 440 Maya-Achi residents.

Today, many villagers attribute the murders to their opposition to displacement by the Chixoy hydroelectric dam. The 300-megawatt dam was financed with \$117 million in loans from the World Bank and \$175 million from the Inter-American Development Bank.

"They killed us just for claiming our rights to our land," said Osorio, who lost 22 members of his family. "We said we didn't want to leave, and that is why so many people died."

The plight of Rio Negro survivors has been studied closely by the World Commission on Dams, and one survivor made an emotional presentation at the WCD's Latin America public hearings. "The egregious social injustices that [Rio Negro residents] have suffered formed an important part of our deliberations around the impact of large dams," said Deborah Moore, a WCD commissioner.

The WCD calls for reparations to help rectify past wrongs, such as those suffered because of Chixoy. The report defines reparations as "actions or processes that remedy, repair, make amends, or compensate for past failures and damages."

The WCD states that the imbalances between dam-affected people and dam bene-



Photo: Karen Levy

Cristobal Osorio Sanchez points to the massacre scene depicted on the monument to victims of the Chixoy violence.

ficiaries must be remedied. "An appropriate legal and policy environment, accompanied by clear political will to act, can ensure that the poor and vulnerable groups who in the past were marginalised by large dam projects can begin to share in the benefits generated by such projects," the report states. "This means that the inequitable distribution noted in the past in sharing risks and allocating benefits is not inevitable."

The Rio Negro conflict began after the community refused to move to cramped houses and poor land at the resettlement site provided by Guatemala's power utility, the National Electrification Institute. In 1980, a police officer drowned after being chased away by villagers. The army then accused them of murder and of being supporters of the leftist guerrilla movement.

Today, 18 years after surviving what a UN Truth Commission has described as genocide, Osorio presides over a committee of 150 Rio Negro families who lost their ancestral lands to the dam. The committee is based in Pacux, the "model village" where survivors were relocated by the government. Rio Negro, which is an eight-hour walk away, is now under water.

Adding Insult to Injury

The massacre was not the only harm to communities affected by the dam. The project – which was not subject to an environmental

impact statement – has also left the watershed's ecosystem damaged and less able to support communities through farming, fishing and other means.

Villagers report altered fish populations, increased rates of malaria and dengue fever, and eroding hillsides. Downstream communities complained about the dam's water releases coming so suddenly that women and children have been swept away as they were washing clothes or playing by the riverside. People flooded out of upstream communities described how fields, fruit trees, animals, houses and archaeological sites were all flooded by the reservoir.

Several human rights organizations have aided the committee, arguing that international human rights treaties support reparation claims of compensation for lost land, lives and culture. They hope to file a lawsuit, first in Guatemala and then with the Inter-American Commission on Human Rights of the Organization of American States.

There are precedents for reparations. In the past, compensation has been awarded for human rights abuses to victims of the Holocaust, the dictatorship of Chile's Gen. Augusto Pinochet, and the apartheid government of South Africa, among others.

The Rio Negro survivors say they will be the first victims moved by a large dam project to file for reparations under international

continued opposite

Chixoy continued from page 12

human rights treaties. The survivors believe they should also receive compensation from the World Bank and the Inter-American Development Bank, for their role in funding the dam.

They fault the lending institutions for financing the project during the nation's brutal 36-year civil war, which killed about 200,000 people. The war began in earnest in the late 1970s after Marxist guerrillas started organizing poor Mayan communities.

The National Electrification Institute built the 360-foot-high dam from 1976-83. The dam currently supplies 26 percent of Guatemala's electricity.

The dam opened near the end of the fiercest stage of the army's bloody campaign to stifle indigenous support for leftist guerrillas. At that time, hundreds of Mayan villages were wiped out, forcing about 50,000 residents to flee to refugee camps in Mexico.

Annie Bird, an activist for Rights Action, a human rights organization in Washington, DC, is working with the Pacux community

to help them gain compensation. Bird argues that because the World Bank has traditionally played an active role in the planning and implementation of projects it finances, it should assume its share of the social costs.

"The project continued to be funded even in the midst of the violence, which points to either gross negligence or collusion by the banks," she said.

IRN has also helped the reparations campaign, having hosted Chixoy-affected spokespersons, and attended meetings in Washington, DC to press their case with the World Bank.

Bank's Blind Eye

In 1996, the World Bank sent a mission to Guatemala to investigate. Afterward, World Bank President James Wolfensohn described the resettlement of Rio Negro residents as "totally inadequate by our new World Bank standards," but he said the bank had no knowledge of the violence that paved the way for the dam's construction.

Bank critics, however, find such claims disingenuous. They say the massacre was well-known in Guatemala and that World Bank personnel spent three months a year supervising the project.

"With people on site in Guatemala, it would be hard not to know," said Harold Naiser, a member of the UN truth commission that investigated human rights abuses committed during the conflict.

Moreover, critics say the Bank shares responsibility since its resettlement policy promises the displaced that they will enjoy at minimum their former living standards. Before the dam, Rio Negro residents were subsistence farmers who cultivated corn, beans, squash, sorghum and chiles along the fertile riverbank. They also ate wild fruit, and fish were plentiful. "The river was the base of life for the community," said Osorio.

At Pacux, the government provided housing, electricity, a school, a church, a health clinic and roads. All promises were made orally and no legal written agreement exists with the community.

Villagers say that the National Electrification Institute has only provided the minimum compensation for lost crops and livestock the soldiers and militiamen carried off. Moreover, some of the institute-built houses are falling apart and the health clinic is currently closed because of a lack of funds to pay a doctor or buy medicine.

In addition to the lives lost, the community lost 3,556 acres of cropland to the dam. At Pacux, villagers were awarded 316 acres of unarable land located in steep ravines. Last year, they were finally given an additional 790 acres of fertile land located eight hours away by bus. But only a few residents can afford to go there bimonthly or furnish seed money to begin planting.

The land situation has forced many to make seasonal migrations to work on coffee and sugar plantations for several months each year. There, they are subject to low wages, poor working conditions and health problems.

Bank Admits Policy Lapses

World Bank social development specialist Mario Marroquin, who is based in Guatemala City, admits that the Bank did not properly supervise the National Electrification Institute's resettlement policy. "We perhaps were not rigorous with our own policies," he said.

Nevertheless, he believes further reparations will be detrimental: "Whereas my NGO counterparts are stressing a culture of dependency and victimization, we should be supporting normalization for Pacux."

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Pak Mun Communities Ripe for Reparations

Communities affected by Pak Mun Dam in Thailand have been engaged in a struggle for reparations since the World Bank-funded dam was completed in 1994. They are demanding that the World Bank and the Thai government remove the dam and restore the river, thereby allowing the fisheries to recover.

As a direct result of the dam, more than 25,000 people have been affected by drastic reductions in fish populations upstream of the dam site, and other changes to their livelihoods. Six thousand families have received some compensation for loss of fisheries during the three-year construction period, but it is not enough.

The Pak Mun Dam was one of eight projects studied in detail by the WCD. The WCD found that the dam has failed to meet its projected benefits and has had substantial impacts on fisheries. Researchers found that the dam, which is supposed to generate 136 megawatts of electricity, barely generates 20 MW in high-demand months. The WCD estimated that the actual fish catch in the reservoir and upstream is 60-80 percent less than in the pre-dam era, resulting in an economic loss to villagers of about US\$1.4 million per annum. The WCD concluded, "If all the benefits and costs were adequately assessed, it is unlikely that the project would have been built in the current context."

Yet the World Bank continues to deny the impacts of Pak Mun. In an unauthored set of comments submitted to the WCD in June, the World Bank maintains that the lack of baseline data collected prior to project construction has "resulted in exaggerated and ever-increasing claims for compensation. This has also resulted in current (in our view unsubstantiated) claims that the Pak Mun project has been directly responsible for a permanent and substantial loss of fish species and fish catches." The memorandum also claims that the project "may have been beneficial" for fish, and that the dam's impact on aquatic diversity "may be relatively low."

Villagers are outraged by the Bank's failure to admit its past mistakes. In March 1999, 5,000 villagers established a protest village directly adjacent to the dam; they remained there until last month. On November 19, five days before the WCD's Bangkok launch, 200 men forcibly evicted people from the protest village and set fire to their makeshift wooden shelters, destroying the camp. Villagers have vowed to continue their fight for justice and reparations.

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- environmental assessment should not be merely a formality;
- periodic participatory reviews should be done for existing dams to assess such issues as dam safety; and
- mechanisms should be developed to provide reparations for those who are suffering the impacts of dams, and to restore damaged ecosystems.

Among the dozens of ongoing and planned projects which are clearly in breach of the WCD guidelines are China's Three Gorges Dam, the dams on India's Narmada river, the Ilisu Dam in Turkey, San Roque in the Philippines, Bujagali in Uganda, Ralco in Chile, and dams in the Brazilian Amazon and Southeast Asia's Mekong watershed (see selected case studies elsewhere in this issue).

"Speaking as someone whose farm is to be flooded by a dam, the key recommendations of the WCD are that no dam should be built without the agreement of the directly affected people, and that reparations are needed for those who have suffered because of past dams," says Sadi Baron, Coordinator of Brazil's Movement of Dam Affected People (MAB).

The Main Event

The WCD's London launch was attended by hundreds of people from all sides of the debate, including decision-makers from around the world, dam activists, dozens of often glum-faced industry representatives, and hordes of journalists. Nelson Mandela gave the keynote speech. James Wolfensohn, President of the World Bank, also spoke, saying, "This report will help guide our work in the future... The critical test for us will be whether our borrowing countries and project financiers accept the recommendations of the Commission and want to build on them." The World Bank's press release was laden with tables and graphs showing the institution's decline in lending for large dams in recent years.

Mary Robinson, High Commissioner for Human Rights at the United Nations, called the WCD report a "landmark document" and "a road map for moving forward in our shared responsibility to make human rights a reality for all people." She said the document "highlights the growing recognition that, in an age of globalization, greater efforts can and must be made to reconcile the need for economic growth with the need to protect the dignity of individuals, the cultural heritage of communities, and the health of the environment we all share."

If some in the dam industry hope to stir up governments to reject the report as

"interference," Robinson hopes the report will help bring unity and progress. "The Commission [does not] imply that the role of government in ensuring respect for human rights has become less important. But as [its report] has shown so clearly, progress also requires innovative, mutually beneficial partnerships at all levels between governments, civil society, international organizations and all others committed to a world where fundamental rights are guaranteed."

The WCD also held launches in other cities around the world to publicize the new report to a wide swath of society. The commission itself will now disband, after a round of launches and meetings to discuss its findings.

Meanwhile, NGOs working on dam issues are already making use of the recommendations and guidelines on individual proposed dams around the world. Groups in Uganda are pressing the World Bank to review the Bujagali Dam against WCD guidelines, requesting that the project be stopped until it can be shown that it meets the standards laid out in the final report.

Those fighting the Ilisu Dam in Turkey are hopeful that the project will not withstand analysis by donor governments in light of WCD guidelines. "The Ilisu Dam violates all of the WCD's guiding principals," said Peter Bosshard of the Swiss NGO Berne Declaration. Said Chairman Asmal, "We have not made a recommendation specifically about Ilisu ... but it does not take much intelligence to see Ilisu does not meet the guidelines for new dams."

Way Forward

Will the release of the WCD report lead to fewer destructive dams and more sustainable methods of energy and water supply? The commission doesn't recommend a halt to dam construction, and in fact describes the benefits of dams and ways to mitigate their impacts. The optimism many activists feel now may not last if the report is used to justify bad projects.

Arundhati Roy, Booker Prize-winning author from India and supporter of the Save the Narmada Movement, commented, "There are a lot of very important things in the WCD report, though it's obviously a compromise. The problem is that it can be used by the funding agencies to pretend they have an enlightened approach, while the reality remains completely different. The industry is learning our language and then carrying on just the same."

Phil Williams, a hydrologist and former president of IRN, characterized the WCD process as less "truth commission" than "peace process." In an editorial in the London-based *The Guardian*, he wrote: "The commission, evading its main task of adjudicating the 'development effectiveness' of dams, emphasizes that it is poor planning of past dams that has caused unnecessary harm. This contradicts critics' charges that it is the dams themselves, no matter how well planned, that inevitably create unmitigated social and ecologic impacts. Critics also charge that dams are the very antithesis of development for the poor because they enable the expropriation of the resources of a river valley, placing the livelihood of people who depend on rivers at the disposal of those who have the power to exploit them. Environmentalists too will disagree with the commission's view of the impact of dams on river ecosystems – that, with better planning, new dams can be built that will mitigate their adverse impacts or even enhance the river environment."

He concludes, "The real question in the big dams debate is similar to that posed by nuclear power plants: not how to improve their planning, but how to get rid of them."

IRN Executive Director Juliette Majot looked to the future, stating that, while the report's findings should help reduce environmental and social destruction caused by large dams, dam opponents worldwide will still need to campaign to ensure that new large dams are not built, and that reparations are made to people suffering losses from existing projects. "Report findings are only as powerful as the people who use them," she says. "Our challenge is to ensure that this report doesn't disappear and that its guidelines are translated into 'our' kind of action. By that I mean stopping new large dams from going up. Our mission isn't to figure out how to build a dam to provide for water or energy needs; it is how to provide for those needs without building a dam." ■

Where to Get the Report

The entire WCD report can be downloaded as a PDF for free from www.dams.org. The report can also be ordered in hard copy from the WCD web site. IRN has prepared a 30-page edited extract, which is available on www.irn.org/wcd. Also see page 4, this issue, for a much shorter extract.

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head hydropower in hilly and mountainous areas with few other energy resources.

Water Supply

Domestic, municipal, and industrial consumption accounts for less than one-fifth of water use world-wide. Major shortages occur in developing countries where more than 1 billion people have no access to clean water, and supplies are unreliable for many more.

Demand-side measures, such as influencing consumption patterns, are relevant in industrial countries and among high-consumption urban water users in developing countries. New sources of supply are limited, however.

Ch. 6 Decision-making, Planning, Compliance

Decision-making and the Political Economy of Large Dams

Large and spectacular dams have often been seen as symbols of development and nation building, a potent demonstration of man's ability to harness nature's forces and a tangible 'deliverable' for politicians, usually funded from the public purse.

Role of foreign assistance

Both the multilateral and bilateral development banks played a significant facilitating role in getting Asia, Africa and Latin America started in the dam business. The World Bank began financing large dams in the 1950s, committing on average over \$1 billion per year to this purpose. For the period from 1970 to 1985 this amount had risen to \$2 billion per year. Adding in finance by the Asian, Inter-American, and African Development Banks as well as bilateral funding for hydropower suggests total financing for large dams from these sources of more than \$4.5 billion annually at the peak of lending during 1980-84.

Planning and Evaluation

Participation and transparency in decision-making processes involving large dams –

again like most development projects – was neither open nor inclusive through the 1980s.

While participation has increasingly been required in the planning documents of large dams and for various activities, around 50% of projects still do not plan for the public participation of affected people.

Political economy or intellectual barriers often pre-determined what options were considered. At the other end of the spectrum there have been overt and even violent measures such as use of State and police power to protect favoured options.

In many cases it has only been strong concerted civil society movements that have generated sufficient momentum to ensure that constructive negotiations occur, and dam projects are not imposed on displaced communities without consultation.

Ch. 7 Rights, Risks and Negotiated Outcomes

The WCD Global Review showed clearly that large-scale infrastructure projects such as dams can have devastating impacts on the lives and livelihoods of affected communities particularly in the absence of adequate assessments and provisions being agreed to address these impacts.

The global review provided extensive evidence to illustrate that governments, in constructing dams, have often found themselves in conflict with basic principles of good governance which have been articulated in the three international instruments [the Rio principles, UN Declaration on Right to Development, Universal Declaration on Human Rights]. This situation still prevails today.

What Type of Process?

The goal must be a process that gives all key stakeholders a voice and a full opportunity to participate, in decision making, seeks the broadest reasonable consensus, and is transparent in the criteria used for reaching a decision. Such a process is likely to ensure the demonstrable public acceptance that

projects require if they are to achieve development.

Chapter 9 Criteria and Guidelines

This chapter shows how implementing a decision-making process based on the WCD approach will safeguard rights, reduce the risk of conflicts emerging, and lower overall costs.

Stage 1: Needs assessment: validating the needs for water and energy services

A clear statement of water and energy services needs at local, regional, and national levels that reflects decentralised assessments and broader national development goals. An assessment based on participatory methods appropriate to the local context resulting in a clear set of development objectives that guide the subsequent assessment of options.

Stage 2: Selecting alternatives

A mix of alternatives that reflects the needs and meets the development objectives has been selected through a multi-criteria assessment of the full range of policy, programme, and project alternatives and included in a preferred development plan.

Stage 3: Project preparation

Clearance to tender the construction contract is given by the relevant authority and includes conditions for the award of the contract and operations. Mitigating and monitoring measures are formalised into contracts between responsible parties, and compliance arrangements are in place.

Stage 4: Project implementation: confirming compliance before commissioning

Clearance to commission the project is given by the relevant authority after all commitments are met. Relevant elements of performance bond sureties are released. The operating licence is confirmed, including specific requirements for monitoring, periodic review, and adaptive management. ■

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Marroquin says that the Bank made every effort to ensure that the Guatemalan government fulfilled its commitments to the Rio Negro community and that the Bank is not liable for its failures. "The government is the main party responsible for compensating the affected communities," he said.

Naiser, however, says the villagers have little chance of winning a legal judgment against the government in today's court sys-

tem. "Until the power of the military has effectively ended, justice is a vain hope," he said. "There is barely a legal system."

In the meantime, the Rio Negro community hopes that its international lobbying for compensation from the World Bank and the recommendation for reparations by the WCD will eventually pay off.

For communities affected by dams, "it is difficult to narrow it down to compensation,

because what we are talking about is the loss of a way of life," said WCD commissioner Deborah Moore. "The right to remedy is already recognized under existing international law, and that remedies and redress can take many forms – from cessation of the harm, to restitution, compensation, and non-monetary remedies such as access to natural resources, public apologies, or changes in project operations." ■