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*Peddling Yesterday's Technology: Aid for Large Hydro Dams Must be Stopped*

Thank you ladies and gentlemen for this opportunity to speak today to the World Commission on Dams. The mandate of the World Commission on Dams is to review the effectiveness of big dams and to set new international guidelines for dam building so past mistakes can be avoided. Given this mandate, I believe that the purpose of this commission is to tell the world the truth about big dams. That is why I have traveled from Canada to Vietnam to talk to you today.

Let me start by saying what I think many of you already understand but dare not admit. The era of building big dams is over. There is no public policy reason for aid agencies to support large hydro development in this region. Big hydro dams are out-of-date and uncompetitive with the alternative methods of generating electricity. Anyone who says that large hydro dams can make economic sense with a little bit of fixing and new international guidelines is promoting a fiction. I think this commission is part of it. In the real world of electricity generation today, big dams are yesterday's technology. Those of us who are following utility reform around the world know it, and I think members of this commission, who sit in the boardrooms of the world's largest utilities and dam-building companies, know it too. Whether we're talking about China, Thailand, Canada, Europe, or the United States, the writing is on the wall. Big hydro dams, along with nuclear power stations, and big coal plants, are being replaced with decentralized, high-efficiency generating technologies. Where competition and private power production exists, these new technologies are the investment of choice. Ask any private investor or lender if they are willing to risk their capital on big hydro dams. Their answer is "No." Not only is the private sector refusing to build new big hydro dams, existing dams are starting to be dismantled because citizens know that the economic value of a free-flowing river can be far greater than the power produced from a dam.

But if big hydro dams are uneconomic and obsolete, why are dams still under construction in some countries you ask? The only thing that keeps big dams under construction and on the drawing boards are state subsidies, state monopolies, and the socialization of private risk.

Big hydro dams continue to be built whenever dam proponents have access to the deep pockets of taxpayers. Without taxpayers to subsidize the capital costs of big dams, without taxpayers to internalize private sector risk, without monopolies to keep competitors out, without public oversight, without market discipline, and without the power to expropriate riverine communities' resources with impunity, few, if any, big hydro dams would be under construction today. Few would ever have been built in the past. Consumers and taxpayers are starting to understand this and they are demanding changes. Dam builders, as a result, are losing their special powers and protection. The dam industry is struggling for its own survival.

Let me explain my point with examples.

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I'll start with the biggest, most expensive, and most socially destructive dam in the world today. China's Three Gorges dam now under construction on the Yangtze river. At the official cost estimate of \$30 billion (all my figures are in U.S. dollars), Three Gorges' power will cost approximately 8.4 cents per kilowatt-hour. At that price, the Three Gorges Project Development Corporation will have difficulty finding customers. Under more likely circumstances, Three Gorges' power will be even more expensive as technical problems and operating conflicts plague the dam, crippling its output. Then there's the additional \$30 billion the government has to invest in upgrading the country's decrepit transmission system so it can handle the dam's output. Assuming consumers aren't charged for transmission costs (and discounting environmental and cultural wreckage), Three Gorges' power will cost more than nuclear power and at least two to three times more than power from gas-fired combined cycle plants. This will encourage China's large power consumers to leave the state-run grid for cheaper independent power producers, or install their own power plants, leaving Three Gorges' excessive costs for remaining consumers, mostly small farms and urban residents, who are already angry about the high cost of electricity.

Recovering the cost of Three Gorges is going to be a real challenge. In the old days, the government could simply have forced consumers to pay for Three Gorges, but not any more. The central government no longer has the authority to dictate to provincial and municipal power companies from whom they will buy their electricity. What's more, the central government has encouraged cities and industries to team up with private investors and install their own high-efficiency power and heating systems, rather than relying on drought-prone hydro dams or polluting coal plants. This decentralization is very good news for electricity consumers and the environment.

The city of Langzhou, for example, one of the 10 worst polluted cities in the world, according to the World Health Organization, is shutting down its coal plants and replacing them with gas-fired combined cycle plants that are smog-free and acid rain-free and produce 60 percent less carbon dioxide than the cleanest coal plant. Hangzhou city just announced plans to build a modern 100-MW cogeneration plant that will provide all city residents with heating and electricity, allow the closure of dozens of inefficient coal-fired boilers, and drastically reduce pollution. Near Shanghai, ABB of Switzerland has installed combined cycle plants for several large industries and, in the next five years, ABB expects the demand for combined cycle plants in China to take off once gas supply infrastructure is adequate. And lest any of you think combined cycle plants will add to the threat of global warming, think again. The fastest, cheapest way to reduce China's CO<sub>2</sub> emissions, according to energy experts in China and the United States, is to switch from coal to natural gas or other clean fuels, and to invest in high-efficiency cogeneration technologies that actually burn less fuel than conventional plants while producing more electricity and heat. Experts also believe investments in gas-fired combined cycle plants will pave the way to further investments in even cleaner fuels and renewable energy technologies. If China were to invest the \$30 billion Three Gorges budget in gas-fired combined cycle plants, they could displace two to six times more coal-burning annually than Three Gorges and reduce CO<sub>2</sub> emissions caused by heat and power generation by 60 percent.

Of course, China still has its proponents of massive public spending on old-style megaprojects (i.e., big hydro dams, nuclear power stations, and coal-fired plants). But because the government doesn't have the money to build multi-billion power plants, and because its dam-building ministry has been

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embroiled in corruption and mismanagement scandals, the government has pushed ahead with restructuring its electricity industry to promote private investment, recognizing that the private sector can expand electricity supplies faster than any state bureaucracy can.

The losers in China's new age of decentralized and private power production will be the big hydro dams.

Let's look at the example of Ertan, China's largest hydro dam next to Three Gorges. Financed by the World Bank, Ertan can't sell its power. The largest prospective customer, Chongqing municipality, has refused to buy one-third of Ertan's output, as it had agreed to do in 1995. The reason: Chongqing's leaders believe that the price of Ertan power, about six cents per kilowatt-hour (excluding transmission costs), is too high. Chongqing can get cheaper power locally. The Ertan corporation lost \$120 million last year and is expected to lose more this year when the last turbines are installed.

We think the Three Gorges dam will face the same problem Ertan faces. The Three Gorges Project Corporation claims that finding a market for Three Gorges' power will be no problem once the transmission system is upgraded because then it will be possible to deliver the dam's output to consumers in the distant coastal region. But by that time, more industries, cities, and towns will have taken advantage of the new decentralized electricity market, either making their own investments in power plants locally or buying power from independent suppliers. By then, the new rules for electricity pricing should also be in effect: consumers will be obliged to pay for electricity generation and transmission costs, thus making Three Gorges' power even more uncompetitive with local suppliers.

Let me put this in the plainest language possible. In all likelihood, the Three Gorges project corporation will be saddled with a \$30-billion dam and no customers for its power. Its investment costs will become "stranded" that is, no longer recoverable as ratepayers opt for cheaper suppliers.

Stranded costs are not just a Chinese problem. Utilities in North America face huge stranded costs, wherever they have made uneconomic investments in large central power stations (i.e., large hydro, coal, and nuclear). In the United States alone, analysts estimate that stranded costs in the electricity sector could be as much as \$200 billion, and that many utilities will go bankrupt in the transition to decentralized, competitive markets.

In Asia and elsewhere, the world in which big hydro dams thrived is unraveling – public monopolies are being dismantled, the private sector is rejecting big dams in favour of investments in less-risky power projects, governments are refusing to subsidize big dams, and citizens everywhere are demanding that dam builders internalize their costs or, in other words, take financial responsibility for their actions. Big dams are surviving only where institutions like the World Bank and the Asian Development Bank, and the governments they finance, continue to socialize private risk, and trample on the rights of hundreds of thousands of people in riverine communities.

Take the case of Nam Theun 2 dam in Lao PDR. Here's a 900-MW hydro dam that has been in the planning stages for over a decade, still with no customers for its power and no investors in sight. It is

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designed solely to export electricity to Thailand but its only prospective buyer, Thailand's electricity generating authority, EGAT, doesn't need new power. And, even if it did, there is a lineup of private power companies at home that could deliver cleaner, cheaper, and more reliable electricity than Nam Theun 2 can. As with China's Three Gorges dam, the price of Nam Theun 2 power is more expensive than the competition's. At a capital cost of \$1.5 billion, World Bank consultants calculate that Nam Theun 2 would need to sell its output for at least 5.7cents per kilowatt-hour to be economically viable. EGAT, meanwhile, can buy power from private power producers for about four cents per kilowatt-hour, and that price is expected to drop further when more small power producers are licensed and allowed to negotiate their own contracts with customers.

The Lao government is trying to negotiate a selling price acceptable to EGAT but the Thai utility is in no position to take on a long-term obligation to buy Nam Theun 2 power, and the government's international partners know it. EGAT has a huge surplus of generating capacity, it is losing its largest customers to cheaper power producers, and it is struggling to cover its costs arising from some bad investment decisions, including hydro dams, and an oversized gas-fired plant. Nam Theun 2 is therefore much too risky for any private investors.

The only financing institution pushing Nam Theun 2 is the World Bank. The bank has been promoting this mega-dam as "the best option" for Lao PDR for over a decade, engaging the entire Lao bureaucracy in its planning. So for the bank to pull out of Nam Theun 2 would be a disastrous blow to its client government, which has pinned the country's economic development on this one uncompetitive dam that would drown hundreds of square kilometres of forests and destroy dozens of forest-based communities in the process.

To see this dam built, the World Bank will stop at nothing. It is, for example, offering to guarantee commercial loans for the dam. It has also externalized all social and environmental costs in order to cajole potential investors. For example, potential private investors would be relieved of all environmental costs and liabilities. Schemes to resettle people out of the project area – including studies to see how affected people adapt or perish without access to their traditional resources – would be paid for not by the dam owners, but by the World Bank, the Lao government, other aid agencies, and international conservation organizations.

Elsewhere in the Mekong region, the Asian Development Bank and the World Bank are promoting a lineup of big hydro dams using the same methods of cost and risk externalization. As the ADB concluded in its evaluation of ADB-financed hydro schemes last year: "If compliance with evolving policies is required, additional contingency funding may be needed so the Project's economic viability is not affected."

Even with all environmental costs externalized, big dams proposed in this region have capital costs ranging from \$1,200 to more than \$2,500 per installed kilowatt, and that doesn't include transmission costs. A gas-fired combined cycle plant, on the other hand, costs anywhere from \$600 to \$900 per installed kilowatt, without flooding people off their land, and destroying their forests and fisheries.

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Clearly, allowing dam builders to profit while others are forced to pay for the costs and risks of their scheme is an economically inefficient and disastrous strategy for development.

So how should society decide what kinds of electricity investment decisions are the best ones? Well, society shouldn't decide. That's the problem: planners, the World Bank, the Asian Development Bank, governments, and conservation organizations, have been making these hydro dam investment decisions and dressing them up as if they are in society's best interest. They never were. To use the words of a Chinese critic of that country's dam building record, "those who have suffered are not the beneficiaries while those who have benefitted are not the sufferers." The best insurance against careless decision-making is to empower those who have to live with a decisions' consequences – whether environmental, financial, or cultural – with the rights and tools to make a decision in their interest and in the interest of their communities.

The time has come to get governments out of dam building, to stop the socialization of risk, and to force all energy investors to internalize the costs of their investment. This means that people's riparian rights (and customary rights to land, forests, and fisheries) must be respected. If they are, hopeful dam developers will be obliged to make fair deals for the resources they consume. They will be obliged to convince those whose land will be flooded, whose fisheries will be destroyed, whose communities will be displaced, to agree (or not) and compensate them accordingly. Citizens need effective laws that recognize their ownership and uphold their rights as resource owners (individual and collective). Only then can citizens force developers to win the approval of all potential victims rather than the onus being on potential victims to defend themselves against environmental aggressors.

With strong property rights, rights holders would have the right to say "no" to a developer, to stop a project (i.e., by getting an injunction from the court) before or after a project has been approved. They would also have the right to sue developers for damages to their health, property, resources, and livelihoods.

But citizens and electricity consumers need more than this to protect themselves. The monopolies that have caused so much economic and environmental damage must be removed. Aid agencies and governments must stop protecting developers from the real costs and risks of their schemes; after all, if private investors won't accept these costs and risks why should taxpayers and the rural poor have to?

Governments must respect the rule of law so consumers and investors' rights are protected. Governments must end the practice of virtually unlimited utility borrowing against the public purse and concentrate on becoming effective regulators rather than investors. They must establish open and accountable regulatory frameworks to ensure that costs and risks are not arbitrarily inflicted on any parties and to ensure that those affected by investments are afforded due process. Most importantly, governments must limit their powers of expropriation, which have allowed dam builders to wreck people's lives, flood their land, and destroy resources with impunity.

We see no role for aid agencies in developing countries' electricity sectors. This commission has the

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mounting evidence of their dreadful record before you and yet these institutions remain myopic and obtuse in their support of big dams. They should stop promoting hydro dams and remove themselves from the electricity business. When no one receives special favours from either governments or aid agencies, better investment decisions will be assured.

The only way that future dams will get built is if they are kept on life support by aid institutions and compliant governments that can ignore economic reality and overrule the environmental rights of hundreds of thousands of innocent citizens on this continent and others. Citizens, ratepayers, and taxpayers will not tolerate such contempt for their rights and the financial recklessness that has bankrupted utilities, created poverty in rural areas, and destroyed the resources upon which citizens depend. Aid agencies and governments should end their support for this obsolete industry. END

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## **Author's Background**

### **Gráinne Ryder, Policy Director, Probe International, CANADA**

I am a water resources engineer by training and hold a masters' degree in environmental studies. I've designed and supervised construction of small irrigation dams and studied traditional irrigation systems when I was a CUSO volunteer in Thailand in the early 1980s. I have spent the last 15 years working to reform the policies of aid agencies and the practices of Canadian dam builders, working with Canada's Probe International, and as a co-founder of TERRA, a Bangkok-based citizens' group investigating the impact of Thailand's development policies and foreign aid on neighbouring countries. I have edited a book on the problems with the Canadian feasibility study for China's Three Gorges dam. I have traveled along Mekong and Salween waterways, talked with the farming and fishing communities threatened by big hydro development, and I have edited a book in praise of rural Mekong communities and their undammed "liquid assets," entitled *The Mekong Currency*.

Probe International has been investigating the activities of Canadian dam builders and aid institutions overseas for the past two decades, responding to requests from Third World citizens' groups to help them fight destructive aid-financed dams, mines, and forestry programs. Probe International is a division of Energy Probe Research Foundation, a leading environmental and utility reform advocacy group that has argued for breaking up electricity monopolies in Canada since the early 1980s and is helping to set the rules for Ontario's new electricity market.

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