

Grand Inga, Grand Illusions?

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Grandiose plans are being made to develop the world's largest hydropower project in one of the most politically volatile and corruption-plagued areas of Africa. In February, Reuel Khoza, the chairman of South Africa-based electricity provider Eskom, announced plans to develop the massive Grand Inga hydropower project in the Democratic Republic of Congo (DRC).

"Africa urgently needs energy to lift its people out of poverty and deliver sustainable development. The Congo River offers enormous opportunities for doing this," declared Khoza. Implying the project will create trickle-down benefits to help fight African poverty, he added, "Hydroelectricity from the Congo could generate more than 40,000 megawatts, enough to power Africa's industrialization with the possibility of selling the surplus to southern Europe."

Designed as a series of 52 750MW turbine installations over the Inga Rapids on the Congo River in DRC, Grand Inga's installed capacity would be more than twice that of the huge Three Gorges Dam in China. Financing plans for Grand Inga are just beginning. With a price tag of US\$50 billion, and given DRC's recent rating among the top 15 "most corrupt countries" in Transparency International's latest Corruptions Perception list, concerns are growing that the project will primarily benefit local elites and multinational industrial interests but do little to ease the electricity or development needs of Africa's poor majority. The Inga mega-project (which includes the related Inga 3 project, described below) is one of the highest priorities for the New Partnership for African Development (NEPAD), the Southern Africa Development Community (SADC), and Eskom, Africa's largest power company. Despite its priority position and high profile, very little about the project has been revealed, and virtually no engagement of civil society has been undertaken by any of the major players. There are concerns that closed-door deals for contracts to Inga could be linked

to lucrative mining and logging concessions in DRC and elsewhere. Further deals such as special export zones and free trade agreements may be made to attract industry at the expense of local businesses and taxpayers. While some new business would be industrial expansion, other industries may simply shift existing production, often from other developing countries, to Southern Africa in order to capture lower production costs.

While Eskom continues to raise concerns about a coming energy shortage in Southern Africa within the next three years if no new energy sources are developed, this is not a logical rationale for building Grand Inga. Grand Inga would not be commissioned for over a decade at the earliest, while clearly exceeding the region's predicted domestic energy needs. Its viability will rely on either a massive growth in energy-intensive industries, or the export of its electricity to as far away as Europe – and even then, it is unclear whether the project would make economic sense.

Existing Inga Dams

In addition to the Grand Inga, an estimated \$550 million rehabilitation of two existing dams, Inga I and Inga II, is planned. Inga I (351 MW) was built in 1972 and Inga II (1,424 MW) was built in 1982. Poor maintenance during the civil war left the two dams heavily silted and operating at only about 30% of capacity, according to the US Energy Information Administration and other sources. While the two dams are currently owned and operated by the state-owned utility, Société Nationale d' Electricité (SNEL), it has been rumored they will be privatized as part of their rehabilitation.

German-based Siemens received a World Bank contract in 2003 to participate in the rehabilitation of Inga I and II, and has set up an office in Kinshasa, but no further information is known at this time. A comprehensive rehabilitation agreement is currently being negotiated between several companies, including Eskom, Canadian-based companies MagAlloy and SNC-Lavalin, and Russian Aluminum (Rusal). Power purchase agreements are expected to be linked to the

rehabilitation; MagAlloy has already negotiated to purchase 120MW from Inga II for its magnesium project in nearby Republic of Congo (RoC). Rusal is also considering building an aluminum smelter in RoC, which would become another significant user of Inga electricity. Electricity is already exported from Inga I and II to RoC, Zambia, Zimbabwe, and South Africa.

Stepping Up to Grand Inga

The first development phase will be the Inga 3 dam (3,500 MW), considered a stepping stone to Grand Inga. Including its 3,000 kilometers of transmission lines, this phase is estimated to cost \$5.23 billion. In October 2004, the governments and utility companies of five southern African countries – South Africa, Angola, DRC, Namibia, and Botswana – signed agreements for the Western Power Corridor (Westcor), now a registered consortium in Botswana. Westcor will develop and manage power generation and transmission of the Inga 3 dam under a Build, Own, Operate agreement. Westcor's long-term goal is developing Grand Inga, as well as proposed hydropower dams in Angola and Namibia. Each of the five utilities in the consortium has an equal stake in the company and contributed \$100,000 to fund feasibility studies for the Inga projects and transmission lines. Westcor is attempting to raise additional funds through the World Bank and other development banks, as well as private sources. The World Bank has already made several recent loans for power line upgrades and extensions from the Inga sites to various southern African destinations.

The US Treasury Department plans to finance a technical assistance program for Inga 3 by providing an advisor as part of US diplomatic staff in DRC. According to African Intelligence Online, the Treasury Department's interest stems from opportunities the project might hold for American corporations.

At Whose Expense?

Proclaiming that Grand Inga will "light up Africa," Eskom and NEPAD are selling the idea that Inga will be the foundation for Africa's industrialization, thereby being a key component in alleviating the continent's poverty. But just as likely, its development will provide industrial economic growth for foreign businesses seeking cheap electricity and financial opportunities for Africa's elite business and government leaders, offering few "trickle-down" benefits.

Inga's centralized grid system is likely to do little to "light up" Africa for the 90% of people now living without electricity, most of whom live in rural areas outside the reach of power grids. Grid expansion is quite costly, and trying to reach scattered rural communities would significantly increase project costs as well as the cost of electricity. Long transmission and distribution lines also increase electricity losses (older systems can lose up to 30% through transmission and distribution losses). Based on historical trends, the trickle-down effects in the form of jobs and taxes will likely be minimal for Africa's poorest, while also increasing unsustainable national debt loads. Potential direct impacts to locally affected peoples are unknown at this time, but remain of concern.

Myth of Green Energy

"The Inga project is one that really excites us because we believe that in one fell swoop we could address the bulk of Africa's needs and do it in a manner that is clean and environmentally friendly, by harnessing run-of-river hydroelectricity as opposed to damming up a river," Eskom's Khoza said.

While run-of-river projects can have less damaging consequences than storage dams, they are often far from environmentally benign. The term 'run-of-river' is undefined, and is often therefore used to "greenwash" projects. In fact, many run-of-river dams have large dam walls, major social and environmental impacts, and even reservoirs*. The extent of barriers and diversion canals

involved in this colossal project is still unclear, but the cumulative impacts of Grand Inga's 52 turbine installations, as well as Inga 3, on the river's flow could be considerable. Impacts to fisheries, riverine forests and river ecology will need careful study.

As more studies of GHG emissions from hydropower are conducted, scientists are finding increasing evidence that emissions from dams, especially methane, are a legitimate concern, particularly in tropical areas. The Inga projects will also need careful, independent study of their emissions impacts.

Project proponents have indicated they hope to gain a revenue stream for Inga 3 from the Clean Development Mechanism (CDM), a program to subsidize low-carbon projects in developing countries in order to minimize greenhouse gas emissions. Big hydro threatens the effectiveness and credibility of the CDM, and risks undermining the Kyoto Protocol by providing carbon reduction credits for projects that don't actually reduce emissions or would be built regardless of credit programs. Projects like Inga 3 turn the CDM into a subsidy mechanism for hydro developers and a carbon accounting loophole for industrialized countries, instead of a tool for climate protection (see back page for more on this issue).

CDM credits for Inga 3 would also be a double blow to renewable energy in Africa. First, project investment attracted by CDM credits would divert potential investment from renewable energy such as wind, solar, and geothermal to large hydro. Second, revenue from CDM credits would divert additional CDM investment from truly sustainable projects, effectively crowding out funds for new renewables in Africa.

Development of Inga will also significantly increase Africa's vulnerability to climate change and political instability. Climate change will bring risks to hydro-dependent economies through increases in the severity and frequency of both droughts and floods. Worsening droughts will reduce hydropower production, while increased floods threaten dam safety and may also increase sedimentation (thus shortening the useful life of dams). Climate change will add to existing environmental stresses on riverine ecosystems and watersheds. Economic

feasibility, environmental impact studies and engineering plans for Inga should take into account the hydrological uncertainties of a warming world. Political instability is a very real concern across the region where the transmission grid would be built. The ongoing violence in DRC was recently rated the world's most forgotten crisis by Reuters. Over three million people have died since 1998 as a result of the civil war and ongoing strife in DRC. The Inga mega-project would centralize much of Africa's electricity source and require a grid of transmission lines through many of Africa's most politically unstable regions. Dams, power plants, and transmission lines are often made targets in political conflicts. The dependence of more countries' economies on Inga would increase its attractiveness as a target for sabotage by rebel groups. Less than 10 years ago (in 1998), rebels seized Inga II and cut its power to Kinshasa, the capital of DRC.

Inga Mega-Project Quick Facts

- Located 150km upstream of the mouth of the Congo River, 225km downstream of Kinshasa, DRC.
- Inga I and Inga II are located in the Nkokolo valley; Inga 3 will also be located here.
- Grand Inga would build a dam across the entire Congo River and divert the flow into the Bundi Valley.

| | Commission Year | Rated Generation Capacity | Cost for Current Project |
|-------------------|------------------------|----------------------------------|---------------------------------|
| Inga I | 1972 | 351 MW | \$550 million (rehabilitation) |
| Inga II | 1982 | 1,424 MW | |
| Inga III | 2012 | 3,500 MW | \$5 billion |
| Grand Inga | Unknown | 39,000 MW | \$55 Billion |

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