

# Grand Inga dam Congo, the Democratic Republic of the

**Sectors:** Hydroelectric Power Generation

## ● On record

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[Project website](#)

<b>Sector</b>	Hydroelectric Power Generation
<b>Location</b>	

## About Grand Inga dam

The Grand Inga Dam, located in western Democratic Republic of Congo (DRC) on the Congo River, is the world's largest proposed hydropower scheme. The massive dam is part of a greater vision by the international economic community to develop a power grid across Africa that will spur the continent's industrial economic development. Grand Inga could produce up to 40,000 megawatts of electricity, over twice the power generation capacity of the Three Gorges in China, and more than a third of the total electricity produced in Africa.

The Grand Inga dam will be constructed in 6 phases. Inga I (351 MW) and Inga II (1,424 MW) were commissioned in 1972 and 1982 respectively. [Inga III](#) is currently in the design phase, with the ultimate design and size being a subject of significant debate. The construction of the successive phases of Grand Inga will hinge on availability of a market and funding for the projects.

The project has been estimated to cost US \$80 billion, including cost of the transmission lines needed to carry its power across Africa and potentially to Europe. Many consider this amount to be an underestimate.

## Latest developments

### German Investors Interested in Funding DRC's Inga III Dam

Aug 14 2020

### South Africa and DRC plan to press ahead with Inga 3 in the midst of the COVID-19 pandemic

Jun 30 2020

## Why this profile?

The Grand Inga Dam has caused, and is expected to further cause, a number of harmful impacts. The construction of Inga I and Inga II led to the physical displacement of many people, who have still not been adequately compensated for damages. The proposed design of Inga III would result in even more people being displaced, including those already affected by Inga I and II. The project also threatens an increase in greenhouse gas emissions; a loss of biodiversity; and deforestation. In addition, no environmental impact assessment or mitigation and environmental management plans have been adopted to this date. There is a huge lack of transparency in the process.

## What must happen

The African Development Bank and any other financial institution should not agree to finance this project until the existing dams are fully operational and a plan is put in place to maintain the dams and transmission systems; until a full analysis of how the dams will affect the Congo Plume has been completed and reviewed by climate experts; a binding legal agreement detailing compensation between the government of the DRC and communities displaced by Inga I and II is reached; and a plan is in place detailing how the project will address DRC's energy poverty. The Grand Inga price tag of US \$80 billion is too heavy for a poor, corrupt and volatile country as the DRC. The Inga I and Inga II dams were responsible for a huge part of the country's debt burden, and Inga III will inevitably add to this debt burden. The DRC government needs to put up convincing measures to combat corruption and a debt repayment plan.

## Impacts

### Social and human rights impacts

**Access to electricity** Only 9% of DRC's 70 million people have access to electricity: -about 30% in urban areas and an alarming 1% in rural areas. The DRC capital of Kinshasa has over 10 million people and less than 30% of them have access to electricity. Despite this huge energy divide in the country, a series of high-voltage transmission lines exceeding 10,000km would tap Grand Inga's power and transport the electricity to industrial and urban centres far away, possibly even to Europe and beyond. These transmission lines will not bring power to the Congolese people. [South Africa](#) and [Angola](#) have already committed to purchase large amounts of energy from Inga III. Less than one third of the electricity generated will be used in the DRC and this will be distributed between the mining industry and the general population.

**Physical displacement** Those displaced by the building of Inga I and Inga II have not yet been compensated for damages and many still live in "Camp Kinshasa" without basic services such as adequate water and sanitation. The issues between the government and the communities are still not resolved and communities say they have not received the compensation promised in 1958.

The dearth of information about the latest plans for Inga III make it impossible to identify the displacement impacts with any precision. Inga III is expected to divert water into the Bundi Valley, which will eventually flood the valley as the stages of the project proceed. The director of the Agency for the Development and Promotion of the Grand Inga Project, [Bruno Kapandji](#), estimated that 37,000 people will be displaced by Inga III based on the 11 GW design. At the 4.8 GW, the number would be well over 10,000 people. This includes the 9,000 people living in Camp Kinshasa.

**Loss of livelihoods** In addition the physical displacement, the flooding of the Bundi Valley will result of livelihoods and economic displacement. The Bundi valley is where the communities of Inga and the surrounding area derive most of their resources. This valley, rich in land and biodiversity, has for centuries nourished the surrounding populations who practice agriculture, fishing, hunting and gathering. The valley is also a cultural cradle, home to cemeteries, sacred sites, and areas of ancestral rites practices. A substantial amount of fertile land will be flooded to create a reservoir for the Inga III dam, resulting in the disruption and loss of livelihoods for agriculture and riverine-dependent communities.

**Absence of transparency and dialogue with affected communities** Since November 2015 the promotion of the Grand Inga project has been handed over to the Agency for the Promotion and Development of the Grand Inga project (ADPI). The ADPI is under direct control of the Presidency and has been criticised for a lack of transparency and supporting investors plans without adequate independent studies.

As of early 2020, no environmental impact assessment has been conducted and no mitigation and environmental management plans have been adopted. The Inga III project design, which has been under consideration by the DRC government for decades and subject to numerous changes, has not involved a single instance of meaningful free, prior and informed consultation with potentially affected communities. Communities have petitioned the government of DRC demanding information disclosure and consultation in [2014](#) and [2018](#). Such a lack of transparency does not meet the requirements of good governance. A series of studies were to be conducted by the World Bank in order to comply with environmental and social standards, however these were never completed following its withdrawal of support for the project in 2016. There have been no steps taken to establish a consultative process enabling affected communities to fully participate in discussions surrounding the project design and implementation.

In [2014](#), local communities requested the establishment of a mechanism for engagement along with a formal consultation process, but to date it has not been established.

### Environmental and climate impacts

**Greenhouse gas emission** Scientific studies indicate that dams and reservoirs are globally significant sources of the greenhouse gases; carbon dioxide and, in particular, methane. The river empties water and sediment into the Atlantic Ocean, creating the '[Congo](#)

**Plume'** - a natural process which is thought to be one of the largest carbon sinks in the world, and plays a globally important role in the ocean's carbon cycle. The vast flow of the Congo River delivers various nutrients and sediments far offshore, where it is consumed by small sea life such as phytoplankton. These microorganisms "fix" carbon by taking it out of the atmosphere. The organisms eventually sink, taking carbon with them to the deep seafloor. Dams could change the delicate workings of this ecosystem service by holding back the river-borne and nutrient-rich sediment that feeds this cycle. In brief, the Grand Inga would interrupt the biological activity in the fan and plume of the Congo River.

**Loss of biodiversity** Diverting flow from the Congo River to Grand Inga Dam will flood the Bundi valley, resulting in a loss of agricultural land and a new aquatic regime. The effects of reduced flow in the main Congo River may cause [loss of biodiversity](#) and a shift in the dominant species. The Congo River has the highest diversity of freshwater species after the Amazon and is home to at least 700 fish species. Damming the main Congo River will modify the flow regime; largely affect the rapids in the main river; locally affect the natural silt dynamics; and create a barrier for fish migration. The flooded area may also create an environment that is conducive for the breeding of water-borne vectors as that of the "malanquin" mosquito reported for the Inga 1 reservoir.

**Deforestation** The Grand Inga project also subjects a large area of forest to be logged and cut with roads in order to build transmission lines. The 3,100 km of transmission lines to be constructed as part of Inga III will cause deforestation along the route. This will have significant environmental and social impacts, not to mention the security and maintenance risks posed by such a long transmission system.

## Other impacts

**Economic risks** The massive cost of the Grand Inga project threatens to plunge the DRC further into debt, compromising its long-term future and prospects for inclusive and sustainable development. According to an analysis conducted in 2017, which assessed the economic viability of the project prior to the expansion of Inga III, even with fairly conservative estimates of cost overruns and generous assumptions of power generated, electricity prices, and low interest rates, the DRC would stand to lose USD 618 million per year on the project, or nearly USD [22 billion](#) over the project's 35 year lifespan. This would increase the DRC's debt burden, harming its long-term economic health.

**Corruption** The DRC struggles with a legacy of entrenched corruption, ranking 168th in the world on [Transparency International's Corruption Perception Index](#), and large infrastructure projects have been particularly susceptible to corruption. The World Bank's decision to cancel its support to the Inga III project was based on the government's decision to interfere politically in the agency created to prepare the Inga project, and for the government's attempt to circumvent the World Bank's procurement process in awarding lucrative contracts.

**Political instability** The DRC suffers from instability and considerable social, political, and land conflicts. Disagreements between the government and local communities are already causing great concern. Resentment is growing among potentially affected communities, particularly the thousands of victims displaced from their land during the construction of Inga I and II, who would again be victims of Inga III. These land grabs, during the construction of Inga II resulted in serious land conflicts, and the Inga III project threatens to create new land conflicts that could lead to community opposition and serious violence.

**Alternatives** The DRC is rich with solar, wind, geothermal and biogas as alternative sources of energy. In terms of solar energy potential, the DRC is in a very high level sun belt where values are between 3240 and 6000 watts-peak/m<sup>2</sup>/s. This makes installation of photovoltaic systems viable in many parts of the country. Unfortunately the DRC has done almost nothing to develop these resources. There are some areas in the DRC where wind speed is equal to or greater than 5km/h. However, wind energy is not used in the DRC with the exception of few pilot facilities or isolated cases where the energy is used to supply pumps and/or lighting. If these alternatives could be harnessed, then the huge energy crisis in the DRC would be mitigated.

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## Governance

### Applicable norms and standards

**African Development Bank Group's Policy on the Environment**

**OECD Guidelines for Multinational Enterprises**

**World Commission on Dams**

### Other applicable regulations

- [China's Guidelines for Environmental Protection in Foreign Investment and Cooperation](#)

- [Chinese State's strategy for overseas investment, as outlined by the Nine Principles on Encouraging and Standardizing Outbound Investment](#)
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## Brief history

Two previous hydropower projects were developed at the Inga site. Inga I (351 MW) and Inga II (1,424 MW) were commissioned in 1972 and 1982 respectively. The projects were commissioned despite feasibility studies finding that both projects were uneconomical and far in excess of the country's electricity needs at the time. Neither of these two projects have ever operated close to their designed capacity.

Neglect, financial mismanagement, war and siltation caused the Inga dams' turbines and the associated electrical infrastructure to deteriorate long before the end of their expected lifespan. By 2002, the dams were producing only 40% of their capacity. The related transmission line, which runs for 1,725 kilometres, was the largest contributor to the DRC's debt burden. Within 10 years, poor maintenance, theft and the ravages of the tropical climate caused the lines to deliver less than half the electricity they were designed to carry. Efforts have been made to rehabilitate the dams and transmission line. The World Bank approved funds in 2007 to rehabilitate the transmission line and replace turbines. Costs have escalated significantly, and rehabilitation has undergone repeated delays.

At the end of the civil war in the DRC and following the peace deal of 2003, the plans to construct Inga III were revived. In 2004, the Western Power Corridor (Westcor), a consortium of national utilities from five Southern and Central African countries, signed a Memorandum of Understanding to construct Inga III, with its power to be distributed to all signatory countries through the Southern African Power Pool. In 2009, the DRC withdrew from Westcor. The DRC floated tenders for the development of Inga III with private companies, and BHP Billiton won the tender. However, BHP Billiton withdrew from the deal in 2012.

The World Bank and other financial institutions came onboard in May 2013, promising to offer finance for Inga III. South Africa committed to buy 2.5 gigawatts of the 4.8 gigawatts to be generated, making it the key purchaser of Inga III's electricity. In July 2016 the World Bank [cancelled](#) its involvement in the project after Congolese President Joseph Kabila wrested control of the project from the assigned technocratic agency, raising significant concerns around governance and corruption.

Inga III is reportedly being developed as a public-private partnership. Two project development consortiums, one Chinese-led and one predominantly European, initially competed for the contract before being asked by the government to combine bids in 2018. The leader of the European consortium, Actividades de Construcción y Servicios (ACS), has since announced that it will withdraw from the project, leaving China's Three Gorges Corporation as the presumptive main developer.

Securing buyers for the dam's electricity, which is necessary for the project's "bankability," has proven to be a persistent stumbling block. South Africa has committed to off-take 2.5 gigawatts of the dam's planned 4.8 gigawatts. However, the arrangement has vocal critics in South Africa, including within the government, who contend that electricity from dam – not to mention the transmission infrastructure that needs to be built – would be unduly expensive. The dam's developers have yet to identify committed buyers for the remaining 2.3 gigawatts, though mining companies in DRC's Katanga Province have long been considered likely off-takers.

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## Updates

### German Investors Interested in Funding DRC's Inga III Dam

Aug 14 2020

A delegation of [German investors](#) visited Kinshasa this week looking at investment opportunities in the Democratic Republic of Congo's (DRC) energy and railway transport sectors.

The business representatives have shown interest in eight potential railway corridors, which are fundamental for the DRC's economic development, but the big investment target lies in the Inga III Dam, a massive 11000 MW hydropower plant to be built on the Congo river. After years of delays caused by difficulties in securing funding, German and European Union-led financing could finally see the project take off.

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## South Africa and DRC plan to press ahead with Inga 3 in the midst of the COVID-19 pandemic

Jun 30 2020

The DRC has just concluded a week-long conference on the Grand Inga Dam project, in which South Africa restated its commitment to purchase 5000MW of electricity from the proposed project. [International Rivers and WoMin raise concerns](#) that it is ill-timed for South Africa, which is in the midst of the Covid-19 pandemic, and cannot afford to place the economy at any further risk by incurring debt to fund the Inga III plans.

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## DRC government organises conference of African heads of state on Grand Inga

Jun 26 2020

The government of the DRC is [organising a conference](#) of African heads of state on the Grand Inga hydroelectric project. The first preparatory phase was launched on June 22 2020. The main objectives of the meeting are the feasibility study of the project, and its financing.

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## China Three Gorges is reportedly willing to take over Inga III project on its own

Mar 30 2020

It is [reported](#), but cannot be confirmed, that Three Gorges is willing to take on Inga III project on its own, giving speculation that a concession contract for construction could be moving forward shortly.

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## NYU's Congo Research Group publishes new report on SA's involvement in INGA

Mar 20 2020

The [report](#) gives a good background on the political economy logic of South Africa's interest in purchasing energy from Inga, even when it is known by the officials themselves to be economically irrational. It also confirms that SA official policy is to purchase at least 2.5 GW of energy from Inga, although there are some within the ANC that want that to be 5GW. The report also cites an anonymous source from within the Consortium that states South Africa's purchasing power agreement is needed for lenders to approve the project (pg. 9). The report also states Chinese officials are worried about the lack of regional consensus which in their view undermines Inga's financial prospects (12).

In 2018, a senior SA energy minister stated that power from Inga would cost 2-3c/kwh more than their previous lowest cost scenario – costing at least \$12million/year to the economy than planned. South Africa's parliament energy portfolio committee testified in 2018 that investing in domestic power would be cheaper and have more economic benefits for SA. There are also doubts from stakeholders in SA, the DRC and Eskom itself that Eskom has the funds to pay for electricity from Inga.

There is also the issue of the transmission line. There are two known plans, one that would go straight from Inga to SA, and others that would also connect to Zimbabwe, Zambia and Botswana's energy grid. The grid is estimated to cost over \$1bn, (international rivers estimates it at \$4bn) not including the needed substations (10-11).

The Minister of SA's Department of Mineral Resources and Energy is quoted as saying "There is a need to finalise the technical solution for [transmission from Inga to SA]... necessary agreements must be concluded as soon as possible if the hydro option from Grand Inga is to materialize." Placing this in context that the DRC-SA 2013 signed treaty that states SA will purchase 2.5GW of energy from Inga expires in 2030. With an estimated construction being 7 years, that gives until 2023 for Inga III to start before SA considers other sources to meet the 2.5GW supply (12).

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## DRC leader to hold conference to revive dam project

Mar 15 2020

The Democratic Republic of Congo President, Félix Tshisekedi, [plans to hold a conference](#) on 28th April to seek regional political support for the Grand Inga Dam project on the Congo River. The DRC leader, with the support of the African Union, has invited leaders from Angola, Republic of Congo, Rwanda, Uganda, South Africa and Kenya to discuss the feasibility of the project.

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## Raila Odinga holds talk on Inga III project with the President of the African Development Bank

Feb 9 2020

Kenyan Opposition leader and current AU high representative for Infrastructure development, Raila Odinga, is [said to be involved](#) with the Inga III negotiations. Odinga [considers](#) Inga to be one of the most important projects on the Continent. During the 2020 African Union summit in February Raila Odinga [met with the President of the AfDB](#) to talk about the Inga III dam project. No details of the meeting were given.

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## South Africa to fast-track Inga III dam support

Feb 8 2020

As the current assumed Chair of the African Union – South African President Ramaphosa [gave his country's support](#) in fast tracking four major infrastructure projects on the Continent. The top four projects include South Africa working with the DRC, Namibia, Botswana and Angola to develop the Inga III dam.

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## New Chinese-Egyptian consortium could potentially take over the Inga III project

Feb 3 2020

After Spanish ACS dropped out of the original Chinese-Spanish consortium, authorities in the DRC are contemplating changing their contract to a new [Egyptian-Chinese consortium](#). The Egyptian-Chinese consortium would be made up of Egypt's Income corporation and the China State Construction and Engineering Corporation. This comes after a high-level Egyptian energy delegation [held talks](#) with DRC officials to talk about potential cooperation. CSCEC is one of China's largest state-owned enterprises who has been active in the global construction space for decades, but has limited experience in large-scale dam building. [Egypt Income Co](#) is a well-connected, consultant firm that works on large-scale infrastructure projects. The two companies are currently cooperating on the massive New Cairo City project.

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## Egypt seeks participation in implementation of Inga project

Jan 27 2020

Egypt's minister of Electricity and Renewable Energy Mohamed Shaker made a trip to the DRC for talks that included finding ways to create [Egyptian participation in the Inga Dam project](#). His visit also included multiple Egyptian officials and Egyptian private sector energy companies who looked for energy opportunities in the DRC, including cooperating on the Inga dam project.

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## Spanish ACS withdraw from Inga III project

Jan 22 2020

The Spanish consortium, led by **Actividades de Construcion y Servicios (ACS)**, who are in part responsible for the development of the Inga III hydroelectric project have [withdrawn](#) from the project. This is following tensions between the Spanish and Chinese consortium (led by **Sinohydro** and **Three Gorges Corporation**), who had been chosen by the DRC government to develop Inga III. [Allegedly](#) there existed tensions between the two consortia concerning, in particular, its execution of the project and the distribution of shares within the final consortium.

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## Workshop on development of Inga III

Jan 13 2020

A [workshop](#) was held on 13 January 2020 in Abidjan, Ivory Coast, on the development of the Inga III project. It provided a platform for exchanges and sharing of views between the African Development Bank, the DRC, and other partners to outline a roadmap as part of the effective launch of the development of the Inga site. Parties will review the request and gather support of the financial, technical and political partners necessary for the smooth running of the project.

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## Angola seeks to buy 5000MW of energy from Inga III

Nov 11 2019

Angola's energy ministry [expressed interest](#) in buying as much as 5000MW of energy from the Inga 3 dam project. This will only happen if the 11,050MW version of the Inga 3 dam is built. Angola hopes to begin their purchases in 2025. The head of communications for the Agency for the Development and Promotion of the Grand Inga Project also stated that Congo now plans to keep 6,000MW of the power domestically.

## World Bank suspends support for Inga III dam

Jul 25 2016

The USD 73 million grant, approved by the World Bank in 2014, was [cancelled](#) on July 25th 2016. The grant was intended for environmental, social and technical studies to be conducted, which have not been finished yet. The withdrawal of the World Bank clearly shows the deficits of the project and should be a warning for other investors.

## Workshop on Inga III

Jun 17 2013

A meeting was held in Kinshasa by the minister of Energy of the DRC, concerning funding arrangements for the Inga 3 dam as part of a regional integration program

## DRC Government announced date on dam construction after Meeting in Paris

May 19 2013

The DRC declared that it will start work on the world's largest hydroelectricity Inga dam on the Congo River in October 2015. This announcement was made after talks between the DRC and International Officials ended in Paris. The Paris meeting followed a deal signed on 7 May 2013 between South Africa and the DRC for cooperation in the energy sector. For more information click on the link <http://allafrica.com/stories/201305210073.html>

## South African Government Drafts Treaty on DRC hydro project

Aug 22 2012

The South African Cabinet approved a draft treaty between South Africa and the DRC for the development of the Grand Inga Hydro-electric project. The purpose of the treaty was to develop an enabling framework linking the DRC and South Africa into the Grand Inga project, and allowing for the two countries to jointly explore different economically feasible options for the development of the project.

## Financiers

### Multilateral development banks

#### [African Development Bank](#)

[Details](#) ▼

Approached, interested

October 2013

US \$68 million loan provided to fund technical assistance and feasibility studies related to Inga III. source: Africa 21

#### [World Bank \(IBRD, IDA\)](#)

[Details](#) ▼

Approached, interested

USD 4.39 million

20 March 2014 - July 2016

US \$73 million loan provided to fund technical assistance and feasibility studies related to Inga III. Loan cancelled in 2016 after disbursing only 6%.

source: [link](#)



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