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Democratic Republic of Congo
Inga hydroelectric power project at risk of becoming another "white elephant"

The Inga III dam power plant is a public-private partnership (PPP) hydroelectric project that is currently in its design phase. The project was preceded by Inga I and Inga II, both failed mega infrastructure dams, which can be described as "white elephants". This case provides some insights into the politicised nature of infrastructure development in the Democratic Republic of the Congo. The benefits of this project are described as steps towards the creation of a continental electricity market that is important for accelerating the region's industrial economic development. However, the project raises the following concerns:

- it is designed to meet investors' needs rather than prioritising development goals
- it is likely to lead to increasing indebtedness
- transparency issues make it difficult to ascertain the details of who benefits from the project
- it contributes to environmental degradation and displacement of communities
- the adverse impacts on gender are especially visible, since a community of previously self-sufficient women have lost their livelihoods

State of play

The Inga dams are a complex of hydro power plants and dams connected to one of the largest waterfalls in the world, the Inga Falls. They are located in the Democratic Republic of the Congo (DRC), on the Congo River in the Western Province of Bas-Congo, near the city of Matadi. Two hydroelectric dams have been built so far and are under use: Inga I (351 MW, opening date 1972) and Inga II (1,424 MW, opening date 1982). Inga III is currently in the design phase (planned 4.8 GW), with the ultimate design, size and financing being a subject of significant debate.

The three dams are part of the Grand Inga hydroelectric complex, which has not yet been completed (see Figure 1). The Grand Inga complex could become the largest hydro-electric power generating facility in the world (planned 45 GW), if it is completed. According to their Congolese and international promoters, Grand Inga "has the potential to transform Africa's power sector",[1] and could considerably contribute to the development of the region. However, the mega-hydroelectric project has attracted criticism concerning its financial risks, social and environmental impacts and has also been criticised for its failure to improve the economic situation of the region.

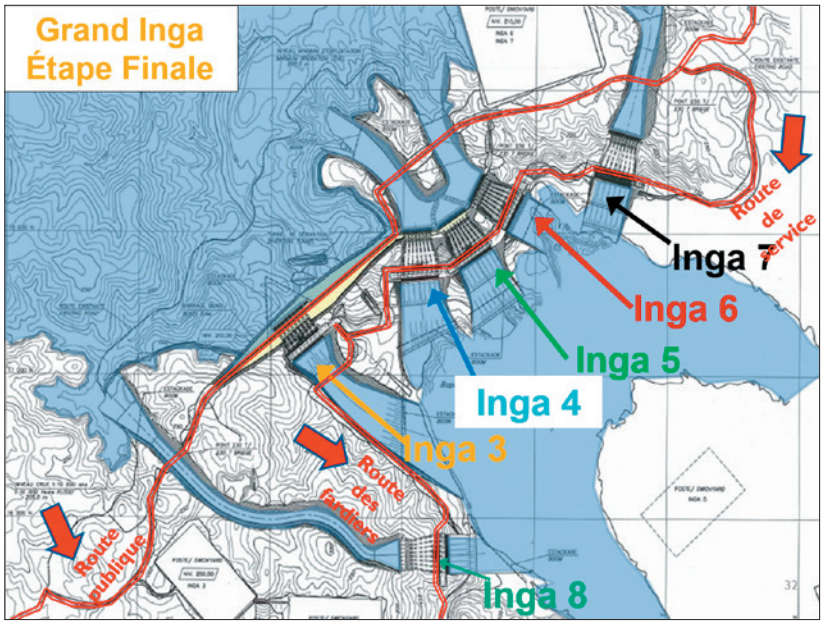


Figure 1
Map of Grand Inga. Inga III is the next stage of the whole project.

Source: Government of the Democratic Republic of the Congo. https://adpi-rdc.com/perspectives-de-developpement

After some years of standstill and problems with the private companies involved, the Congolese government and the international promoters revived the Inga III negotiations in August 2020, in the middle of the coronavirus pandemic. However, after Inga I and Inga II turned out to be "white elephants," there is a high risk of Inga III becoming another example of a failed PPP project.

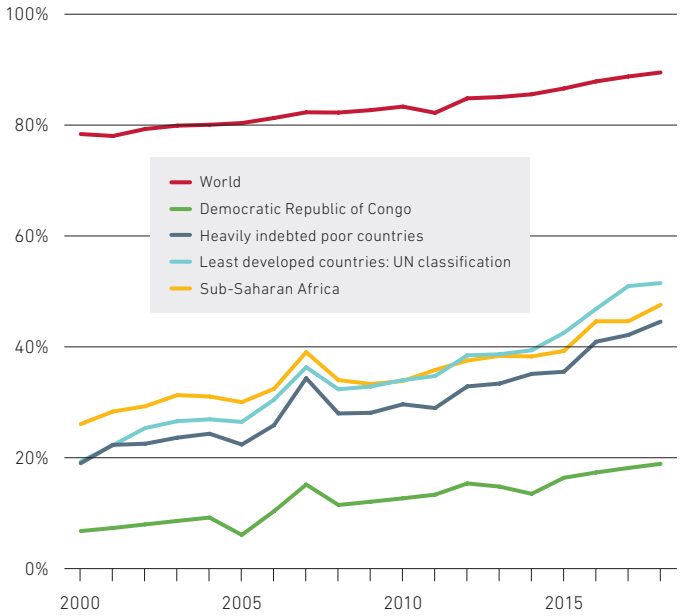
Looking back: Inga I and II

Inga dams I and II are two of the best-known examples of external sponsored and failed mega-projects during the era of Mobutu Sese Seko's dictatorship (from 1965 to 1997). The DRC commissioned those two disastrous, corruption-laden projects in 1972 and 1982. The dams were to be constructed in order to supply DRC and its neighbouring countries with electricity. However, with installed generation capacities of 351MW and 1,424MW respectively, the dams never generated the power promised. Today, the power plants are reported to be operating at 40 per cent of their capacity. Furthermore, these hydropower projects have mainly served cobalt and copper mines in the south (province of Katanga) and export markets, not the rural areas. According to World Bank data, in 2018 only 18.98 per cent of the population had access to electricity, positioning DRC at the very bottom of least developed countries (see Figure 2).

A mixture of private and public groups provided the financing for Inga I, II and the Inga-Shaba powerline, which connects the hydropower complex to the mining areas in Katanga. Notably the World Bank granted a loan for US$ 13 million, and the European Development Fund financed the power lines and Inga I transformer station. Inga II was also financed by the European Development Fund and the European Investment Bank, which turned a blind eye to overcosts in the early assessments. In 1997, Mobutu left the DRC with a total debt stock of around US$ 13 billion, where a huge portion can be tracked back to overruns and debt from the Inga projects.[2] However, the infrastructure was not spared from corruption afterwards. In 2008, US$ 6.5 of the US$ 200 million support for Inga II rehabilitation, financed by the European Investment Bank, African Development Bank and World Bank, went unaccounted for.[3]

In short, Inga I and II neither benefited economic development nor helped the Congolese people to improve their living situation, but displaced thousands, destroyed livelihoods and impoverished generations while plunging the country into debt. Inga's displaced communities have been struggling since the 1960s to obtain fair compensation and have received nothing to date.[4]

Figure 2
Access to electricity (% of population)



Source: World Bank data, March 2021
https://data.worldbank.org/country/congo-dem-rep

International interests and strategies behind Inga III

Even though poor maintenance, financial problems and low operativity of Inga I and II raised concerns amongst development institutions, investors and civil society, there has still been a strong push for Inga III. The main promoter is the Congolese government. Félix Antoine Tshisekedi, President of DRC, declared Grand Inga a subject of personal concern. In June 2020, in the middle of the coronavirus pandemic, the DRC government organised a conference of African heads of state at the "Pan-African Conference on the Grand Inga". The main objectives of the meeting were to advance with the feasibility study of the project, and its financing.[5]

South Africa is one of the main supporters of the project. According to South Africa's Integrated Resource Plan,[6] the country plans to import at least 2.5GW of electric power from Inga III (or more than half of the original 4.8GW design). This was later formalised in the Power Purchasing Agreement (PPA) signed between the South African government and DRC.[7] In fact, in order to obtain financing for the project – given the inability of the Congolese government to reliably underwrite the project – the backing of the project by South Africa is crucial.[8]

Moreover, the Grand Inga project is a priority project for the African Union. In its Agenda 2063,[9] the Africa Infrastructure Development Programme – Priority Action Projects (PIDA-PAP) and the African Union's Master Plan for Continental Electrical Systems, Grand Inga is presented as a strategic project that could lead to the creation of a continental electricity market and could spur the continent's industrial economic development. After the opening of the African countries under the African Continental Free Trade Area (AfCFTA), since 1 January 2021, it is expected that Grand Inga will be further promoted by the African Union.

The massive dam is also part of a greater vision by the international economic community to develop a power grid across Africa that could provide the region and the international community with "green" energy. Grand Inga could produce up to 45 GW of hydropower 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.[10] Grand Inga is listed by the G20-Multilateral Development Banks as one of the top 10 "Exemplary Transformational Projects" – that is, large projects meant to have a significant impact on development.

Furthermore, non-African promoters have also been interested in this project. Negotiations have been going on with European construction and energy firms about the possibility of transporting electricity through power lines, crossing half the African continent, to provide European economies with green hydropower. In August 2020, a delegation of German investors visited Kinshasa looking at investment opportunities and expressed their interest in Inga III.[11] In parallel, backed up by the brand new National Hydrogen Strategy of Germany,[12] negotiations between the Congolese and German administrations, including meetings with German infrastructure and hydrogen companies, like Evagor GmbH, Siemens, Linde, VN Gas, Deutsche Bank and other companies, took place during 2020.[13] The newly awakened interest of European investors in Inga III is certainly related to the increasing demand for green hydrogen, and with the objective to become climate-neutral by 2050 (objective of the European Green Deal), hydrogen power is being promoted as central for Europe's "green transition".[14,15]

Financial flows and fiscal impact

The total cost of Inga III is estimated to be US$ 13.9 billion, which includes the construction of two dams and approximately 2,000 km and 3,000 km long transmissions lines within the DRC and across borders respectively. The development of the whole Grand Inga complex is estimated to cost up to US$ 80 billion, including the cost of the transmission lines needed to carry power across Africa and potentially to Europe. However, learning from former mega-hydropower constructions, many consider this amount to be an underestimate.[16] If the estimated cost for Inga III turns out to be right, the construction cost of US$ 13.9 billion represents around 29 per cent of DRC's Gross Domestic Product (GDP).[17] This is a huge portion for a country like DRC, which spends around 3.3 per cent of GDP on health and 1.4 per cent of GDP on education.[18]

How is Inga dam III financed?

The DRC has chosen to finance this mega-project as a PPP, and more specifically through a Build, Operate and Transfer (BOT) concession. This means that the concessionaire builds and operates the hydropower plant until the agreed date in the contract. Then, it transfers the full management of the infrastructure to the owner, the Congolese state. During the time of concession, the concessionaire has the right to use and obtain the benefits from selling the produced electricity, but the property right for the dam remains with the DRC.[19]

In 2018, after a long selection process that started in 2010 with the Congolese Government's "call of interest", former President Josef Kabila appointed two Chinese and Spanish groups that had competed for the project as co-developers. The two consortia were led by the China Three Gorges Corporation and the Spanish construction firm ACS. Unexpectedly, ACS withdrew from the project in February 2020 without an official statement, probably because of disagreements with the Chinese partner on the share of revenues.[20] The new agreement, signed in August 2020, brings together the companies in one consortium that comprises six Chinese companies, including China Three Gorges Corporation and AEE Power Holdings of Madrid. Following this new agreement, the six Chinese companies in the consortium have a total 75 per cent stake in the project while the Spanish company, AEE Power Holdings, has a 25 per cent share.[21] The latter will retain this shareholding in the future special purpose vehicle that will be set up to develop and ensure the financial mobilisation for the implementation of this project.

Financial support by international financial institutions

Regarding previous stages of Inga III, the project received funding from international development banks mainly for feasibility studies. In 2014, the World Bank approved a US$ 73.1 million grant to give technical assistance for the planning and feasibility studies for Inga III. In 2016, the World Bank withdrew from the project because of diverging views on the leadership and national direction of the project, after the DRC took the decision to create the Agency for the Development and Promotion of the Grand Inga Project (ADPI-RDC), a specialised agency with the Presidency of the Republic in charge of all decisions concerning the Grand Inga project. Moreover, since 2010 the African Development Bank has provided grant support of US$ 15 million to conduct a feasibility study of both the Grand Inga and Inga III hydro projects. The study was undertaken by a Canadian/French consortium.[22]

Lack of transparency regarding the consortium

Importantly, the project has been surrounded by lack of transparency. The contract has not been published and more details on the agreement have not been revealed to the public, either by the Congolese authorities or by the companies towards their shareholders. This leaves a wide range of questions unanswered. In case of underperformance – as happened with Inga I and II – and in case of external shocks, like the coronavirus pandemic; in case of negative impacts on the ecosystem and population, who will assume responsibility? It is uncertain what kind of risk sharing has been agreed.

The Congolese government has not provided any details about what they will undertake to guarantee foreign investment. No information has been revealed so far on specific mechanisms to mitigate the risk, either on what kind of guarantee, or under what terms will be given to the investors. Furthermore, it is unclear what will be the role of the consortium: will it have the only construction and use right, or can other investors join in? Who will be in charge of looking for gaps in the financing?

An institutional landscape to attract private finance

Like many other developing countries, DRC has been fully integrated in the World Bank's "Maximising finance for development" approach, which focuses on mobilising private sector solutions and finance to promote development projects.[23] Even before that, the 2013 DRC's Country Assistance Strategy, implemented by the World Bank, aimed to help the country reach the Millennium Development Goals – mainly by privatising the natural resources, mining and energy sector, and increasing the "efficiency" of key public services, through PPP or management performance contracts. This programme came to a halt in 2017 and has been subjected to further review for non-compliance.[24] The World Bank is developing a new country partnership framework together with the DRC.

The Organisation for Economic Co-operation and Development (OECD) also recommended in its DRC Country Assistance to develop a strategy and policy framework for PPPs, including contracting mechanisms, social marketing and delivery of high-impact services to households being a priority for the water, agriculture and health sector. According to the African Development Bank, the African Union should be open to various financing models such as PPPs, commercial loans, development funding and sovereign bonds in order to close the "financing gap". According to the Bank, this is between US$ 68 billion and US$ 108 billion.[25]

Therefore, the DRC has embarked on a strategy based on PPPs aimed at mobilising significant funds for cooperation projects, in particular for basic infrastructure and natural resources (minerals, hydrocarbons, forest and water, amongst others). This political shift has led to new regulatory frameworks, promoting PPPs as the new development tool. This includes:

- The Law N°14/005 of 11 February 2014 governing collaboration agreements and cooperation projects.[26] This law regulates the modalities of contracting and execution of PPP projects in relation to development projects, but also provides for tax, customs, fiscal and exchange regime that derogates from common law.
- The special PPP-Law N°18/016 of 9 July 2018 concerning PPP specifies models, procurements and responsibilities for the public and private partners. In concrete, as part of the PPP to be implemented through collaboration agreements, on the one hand, the companies, groups of companies, or consortiums carry out the building of infrastructure projects and operating of natural resources in the DRC and, on the other hand, the state undertakes to guarantee the investments made.

Who benefits from Inga III?

The two main companies involved in the PPP are China Three Gorges Corporation and AEE Power Holdings of Madrid. China Three Gorges Corporation is a listed holding company, owned by the Chinese government. Its Chairman is the secretary of the Communist Party, Lei Minshang. The corporation has bought in and invested heavily in the European energy sector, holding partial ownership of the Portuguese national electricity and natural gas grid.

Contrarily, AEE Power Holdings of Madrid, former partner in the Inga III consortium with ACS, stands out as a relatively small, private and very opaque corporation. There are no shareholders published anywhere, nor annual reports published, nor details revealed about their projects. It is probable that the president and founder Jose Angel Gonzalez Tausz has significant participation in shares, as well as the rest of board of directors. In fact, the board boasts prominent members like Ana Palacio, former Minister of Foreign Affairs of Spain.

In terms of revenues and returns of the private investment, Inga III is expected to energise the region and earn foreign exchange from exported electricity. The DRC government states that "significant and regular revenues are expected, particularly from water rights, in the order of US$1 to 1.5 billion per year".[27] This revenue estimation could only be possible if the majority of Inga III's electricity generation is exported. The largest remaining fractions would be purchased by the mining industry in the DRC. Less than 10 per cent of the electricity from Inga III is expected to supply the DRC's residential electricity needs.[28] It is also expected that the project will access green funds through carbon credit, as hydroelectric power will be considered a sustainable investment.

Investors calling the shots

In order to make Inga III attractive to investors, the project has been designed to gain revenues through selling electricity abroad. As Congolese citizens do not have the purchasing power nor the access to a local power grid, Inga III has no prospect of significantly improving access to electricity in the country or contributing to local economic development. Therefore, the project has clearly been designed in order to meet investors and foreign energy needs. This is illustrated by the fact that, when deciding on the size of Inga III, the private investors of the consortium insisted on building a larger Inga III than proposed in the former feasibility study financed by the European Investment Bank. South Africa had requested more electricity than the initial version could provide,[29] and according to the consortium, in terms of financial rentability, building a smaller hydrogen power plant would be less profitable than building a bigger Inga III dam. This despite the fact that it would lead to grave environmental and social impacts for the Congolese local communities.

Impact Assessment of Inga III

Congolese and international non-governmental organisations, such as International Rivers,[30] Banktrack,[31] WoMin African Alliance[32] and the Congo Research Group[33] have called for a halt to Inga III in its current form, complaining about the lack of transparency in the management of the project and warning of its environmental, climate, social and gender impacts. Below there is a list of the different impacts identified by these organisations.

Displacements and loss of livelihoods

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 Bundi Valley is where the communities of Inga and the surrounding area derive most of their resources. The Director of ADPI-RDC estimated that 37,000 people would be displaced by Inga III based on the broader 11 GW design. At 4.8 GW, the number would be well over 10,000 people. This includes the 9,000 people living in Camp Kinshasa, of which many inhabitants were displaced by the development of Inga I and II.

The history of displacement of populations for Inga I and II shows the devastating long-term human consequences of these projects, and the construction of Inga III will likely stir up these previous conflicts. The issues between the government and the communities are still not resolved and communities displaced by Inga I and II say they have not received the compensation promised.

Gender impacts

The women of Inga are self-sufficient, growing everything they consume on their own land. Most of the husbands of the region are unemployed and agriculture has become the only source of income. They have been abandoned by the Congolese government and starved of essential services, including water, energy, schools, hospitals and roads. The promised electricity and jobs for the region did not come about. These women have been able to survive for decades because of the river and forest and will be particularly impacted by any future displacements.[34]

Environmental impacts

Inga III is likely to cause significant environmental damage, including a loss of biodiversity, increased threats to several endangered species, and a reduction in fish stocks. Furthermore, methane emissions are likely to increase as a result of the flooding of large tracts of forest. Inga III and the other phases of Grand Inga dam will also have an impact on the Congo plume, which is one of the largest carbon sinks in the world, essential for the mitigation of climate change. 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.

Economic and financial risks

The massive cost of this project threatens to plunge the DRC further into debt, compromising the country's long-term future and its prospects for inclusive and sustainable development. The International Monetary Fund and World Bank have advised the DRC to adopt a cautious approach to external borrowing. However, Inga III could mean several billions of dollars of new debt for the government, especially if the projects fails and the government will be tied to a PPP contract having to compensate the private corporations. This would increase the DRC's debt burden, harming the country's long-term economic health.

Absence of transparency and dialogue

Since November 2015, the promotion of the Grand Inga project has been handed over to the ADPI, the special agency dedicated to promote the project. 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. Moreover, the Inga III project design, which has been under consideration by the DRC government for decades, 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 and public engagement does not meet the requirements of good governance.

To make matters worse, the DRC suffers from instability and considerable social, political and land conflicts. Resentment is growing among potentially affected communities, particularly among 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.

The way forward

A coalition of 32 Congolese civil society organisations involved in environmental protection urges the AfDB and any other financial institution not to agree to finance Inga III until the existing dams Inga I and II are fully operational and a plan is put in place to maintain the dams and transmission systems;[35] 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 put in place detailing how the project will address DRC's energy poverty.[36]

Considering the significant environmental and social impacts, as well as the high economic risks, doubts have been raised about whether Inga III will improve the living conditions of the Congolese people and contribute to sustainable and just development in the DRC. Furthermore, economists warn that the profitability of the hydropower plant on the Congo River is based on overly optimistic electricity prices.[37] There have been dramatic changes in the energy sector in the past years. In particular, the cost of alternative energy sources like wind and solar has changed the game for cost-competitive and sustainable energy generation that can be rapidly scaled up.

More and more experts hold the opinion that there are more efficient ways to address severe energy deficits quickly and cost-efficiently.[38] For example, wind projects take only one to three years to build and most solar photovoltaic projects take a year. Both incur lower costs than hydropower projects, which take five to ten years to build. The latest construction time estimate for the Inga III is eight years. Longer build times lead to greater costs due to interest on capital. Analyses of data from past mega hydropower dams show that these projects cost twice the amount quoted at the start of the project.[39]

Endnotes

1 International Hydropower Association (2019). Inga development. See: https://archive.hydropower.org/congress/sessions/inga-development
2 Observatori del Deute en la Globalització (ODG) (2018). Mega-infrastructure as a mechanism of indebtedness. https://odg.cat/en/publication/infrastructure-indebtedness/
3 Sanyanga, R. (2015). Is the Grand Inga Too Big to Build? https://www.internationalrivers.org/resources/9034
4 International Rivers (2021). Congo: https://www.internationalrivers.org/where-we-work/africa/congo/
5 Bancktrack (2020). Updates, Grand Inga dam, Democratic Republic of the Congo: https://www.banktrack.org/project/grand_inga_dam#updates
6 Government of South Africa, Department of Mineral Resources and Energy (2019). Integrated Resource Plan 2019: http://www.energy.gov.za/IRP/irp-2019.html
7 Treaty on the Grand Inga Hydropower Project between the Republic of South Africa and the Democratic Republic of the Congo: https://pmg.org.za/files/141104treaty.pdf
8 Congo Research Group and Resource Matters (2019). Inga III: Kept in the Dark. How the World's Largest Hydropower Site is Being Negotiated Behind Closed Doors: http://congoresearchgroup.org/wp-content/uploads/2019/10/GEC_Resource-Matters_Inga-III_EN_final-2.pdf
9 African Union: Flagship Projects of Agenda 2063: https://au.int/en/agenda2063/flagship-projects
10 Bancktrack (2020). Grand Inga dam, Democratic Republic of the Congo: https://www.banktrack.org/project/grand_inga_dam
11 Hedley T. (2020). German Investors Interested in Funding DRC's Inga III Dam: https://www.africaoilandpower.com/2020/08/14/german-investors-interested-in-funding-drcs-inga-iii-dam/
12 Federal Government of Gemany (2020). The National Hydrogen Strategy.
13 FuelCellsWork (2020). Germany: green hydrogen from the Democratic Republic of the Congo: https://fuelcellsworks.com/news/green-hydrogen-from-the-democratic-republic-of-the-congo/
14 See https://ec.europa.eu/commission/presscorner/detail/en/FS_20_1296
15 See https://ec.europa.eu/commission/presscorner/detail/en/FS_20_1296
16 See note 13.
17 GDP 2018: US$ 46,831 billion. World Bank data: https://data.worldbank.org/country/CD
18 Health (2018) and education (2017) spending. World Bank data: https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS?locations=CD
19 Government of the Democratic Republic of the Congo, ADPI: Grand Inga, around 42,000 MW, decreasing in six phases: https://adpi-rdc.com/inga-3/
20 Construction review online (2020). Consortium formed towards the implementation of Inga III hydropower project in Congo. https://constructionreviewonline.com/news/inga-iii-hydro-power-project/
21 Kavanagh, M. (2020). China dominates bid for Africa's largest dam in new pact. https://www.bloombergquint.com/business/chinese-firms-dominate-bid-to-build-congo-s-inga-dam-in-new-pact
22 International Rivers (2020). Grand Inga Dam, DR Congo: https://archive.internationalrivers.org/campaigns/grand-inga-dam-dr-congo
23 World Bank. Maximizing Finance for development: https://www.worldbank.org/en/about/partners/maximizing-finance-for-development#3
24 See https://www.worldbank.org/en/news/statement/2017/11/27/drc-world-bank-suspends-disbursements-for-civil-works-for-the-high-priority-roads-reopening-and-maintenance-proroutes-project
25 See http://www.thepresidency.gov.za/speeches/remarks-president-cyril-ramaphosa-nepad-heads-state-and-government-orientation-committee
26 See https://www.leganet.cd/Legislation/Dfiscal/Loi13005.11.02.2014.htm
27 Government of the Democratic Republic of the Congo, ADPI: Grand Inga, around 42,000 MW, decreasing in six phases: https://adpi-rdc.com/inga-3/
28 The Conversation (2020). Why wind and solar would offer the DRC and South Africa better energy deals than Inga 3: https://theconversation.com/why-wind-and-solar-would-offer-the-drc-and-south-africa-better-energy-deals-than-inga-3-142411
29 See https://cic.nyu.edu/sites/default/files/south-africa-inga-3-report-web.pdf
30 See https://www.internationalrivers.org/where-we-work/africa/congo/
31 See https://www.banktrack.org/project/grand_inga_dam and BankTrack (2020). Inga III – the Democratic Republic of the Congo: https://www.banktrack.org/project/inga_iii_basse_chute
32 See https://womin.africa/press-release-south-africa-and-the-drc/
33 See http://congoresearchgroup.org/
34 See https://www.internationalrivers.org/where-we-work/africa/congo/
35 See https://www.afrik21.africa/en/drc-afdb-provides-73-million-for-grand-inga-dam-feasibility-studies/
36 See https://www.banktrack.org/project/grand_inga_dam
37 Deshmukh, D., Mileva, A. and Wu, G.C. (2014). Renewable energy alternatives to mega hydropower: a case study of Inga 3 for Southern Africa. https://iopscience.iop.org/article/10.1088/1748-9326/aabf60
38 See https://theconversation.com/why-wind-and-solar-would-offer-the-drc-and-south-africa-better-energy-deals-than-inga-3-142411
39 See https://www.sciencedirect.com/science/article/abs/pii/S0301421513010926