

Displacement and environmental destruction

Mega-dam INGA 3 in the Democratic
Republic of Congo is no solution for
the German energy transition

Introduction

In July 2020, the German Chancellor's personal representative for Africa, Günter Nooke, posted on his homepage a proposal to import hydrogen from the Democratic Republic of Congo (DRC). The aim was to help controversial plans for the construction of the Inga 3 giga-hydroelectric power plant, which had been on hold for many years, to achieve a breakthrough. Some of the electricity generated there could be used to produce hydrogen for the German market. This should then attract German and international investors to invest in the project. According to Nooke, this is a win-win situation for both countries.

Together with Leipzig-based consulting firm Evagor and its managing director Dr. Gernot Wagner, Nooke has since been promoting this project as a showcase for emerging economic cooperation with the DRC. Dr. Wagner is a former honorary consul for the DRC. Under his chairmanship, a business delegation travelled to DRC capital Kinshasa for five days in August 2020, to get a first-hand picture of the Inga 3 construction project in the Kongo Central province.

The plans for Inga 3 bring back memories of the Desertec project, which was supposed to produce solar power in North Africa for the European market. The plans have, however, so far failed for various reasons, one of them being that little consideration was given to how people in the exporting countries would benefit from the planned power plants. This issue is also expected to hinder the planning of the Inga 3 project. From a development perspective, developing hydrogen production in the DRC should first benefit the local people. On the contrary, the implementation of Inga 3 would cause considerable social and environmental damage and moreover call into question the integrity of hydrogen technology. Such an inauspicious beginning to the hydrogen economy would have dire consequences for climate goals. After all, large quantities of renewable hydrogen will be needed for climate protection and renewable hydrogen imports will be necessary.

Against this backdrop, this fact sheet highlights the potential impacts of implementing the Inga 3 megadam on the people of DRC and why we strongly advise against support of the project by the German government.

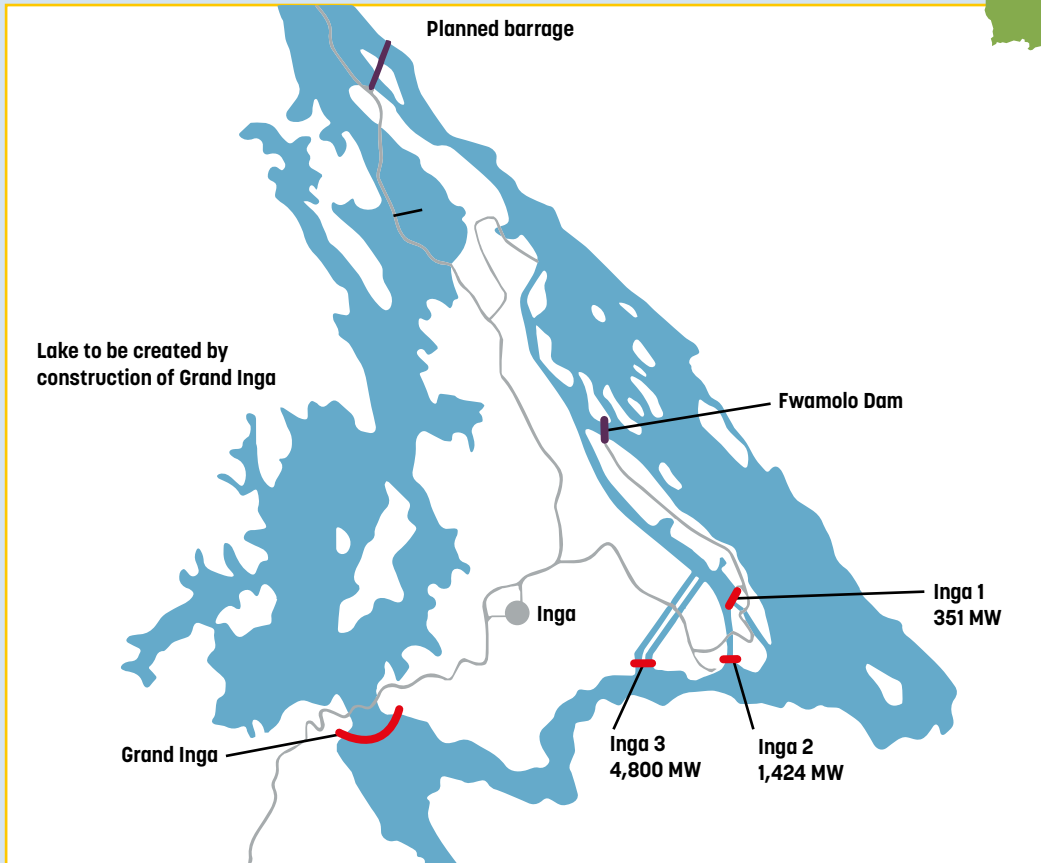
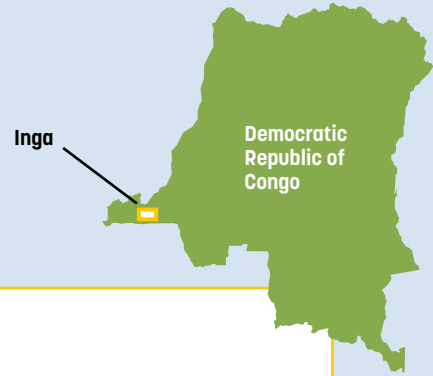


Democratic Republic of Congo

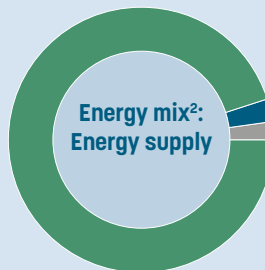
Despite its immense wealth of natural resources, the country is one of the poorest in the world economically. Three quarters of the population live below the poverty line. The precarious living conditions of the population are coming under increasing pressure from internal regional conflicts, and the movements of refugees. State structures are dysfunctional in many parts of the country. Violent conflicts continue, especially in the resource-rich regions in the east of the country. The initial hopes for new president Felix Tshisekedi to make political power reforms since election in 2019 have given way to disillusionment. Abuse of power, corruption, lack of security structures and local conflicts characterize the country's political situation. This persistent energy poverty also remains a major hurdle for the country's development, especially in rural areas.

Key figures

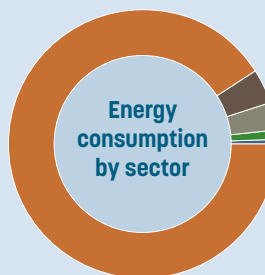
- Around 86 million inhabitants
- Around 4,8 million internally displaced persons (IDPs)
- Human Development Index 2018: rank 179 of 189¹



- **Energy poverty:**²
 - Less than 10% of the population has access to electricity
 - Average annual electricity consumption per capita is 0.1 MWh (compare with Germany: 6.7 MWh, almost 70 times higher)
 - Around 3% have access to modern cooking facilities



- 95 % biomass
- 3 % Electricity mainly from hydroelectricity
- 2 % oil (products)



- 91 % Private households
- 4 % Industry
- 3,5 % Transport
- 1 % Agriculture
- 0,5 % Other

Grand Inga

The idea of building a mega-dam on the lower reaches of the Congo River goes back more than 40 years. Two dams, Inga 1 and 2, have already been running near the planned facility since the 1970s and 80s. Plans for a 'Grand Inga' network of dams include two more, much larger dam projects. Grand Inga would entirely dam the Congo River, supplying half the continent with electricity. The hydropower project will have a total of up to eight dams, whose hydroelectric power plants would have a combined nominal capacity of around 44GW and would cost around USD 80 billion.³

Inga 1 and 2

Inga I, the first plant, was commissioned in 1972, with a capacity of 351 megawatts. Ten years later, Inga 2 was completed, adding 1,424 megawatts. Both dams supply electricity to part of the capital Kinshasa (population around 15 million) as well as mining operations in Haut-Katanga and Lualaba provinces.

Since their commissioning, both dams have only used 52% of their capacity.⁴ The two plants are currently being partly refurbished. However, the original schedule has already been delayed by years and the costs have increased significantly from an initial USD 200 million to the current USD 883 million.⁵ Construction of power lines alone has led to a high level of debt and the local population has been left out in the cold: they are still not connected to the power grid. Inga 1 and 2 were built primarily to export electricity and to boost the Congolese economy and took into account neither local needs nor the negative consequences for the regional population and ecology. Part of the population of the Inga region was displaced to make way for the construction of the two dams. People's livelihoods such as fishing were depleted as a result of the construction of the dams. Human intervention in the local environment has caused ecological damage, such as the drying up of the riverbed and a loss of biodiversity.⁶



Inga 3

Plans for the construction of the Inga 3 mega-dam have been under discussion since the beginning of the millennium. As early as 2004, the then Congolese government signed a memorandum of understanding with five South African countries on the construction of the hydropower plant. In 2009, the DRC terminated this agreement and found a new partner, the Anglo-Australian mining company BHP Billiton. However, this business relationship also failed. In 2013, the two former presidents Joseph Kabila and his South African counterpart Jacob Zuma agreed that South Africa would purchase more than half of Inga 3's planned total output of 4.8 GW. The World Bank withdrew from the financing already in 2016 due to a lack of feasibility studies and contract violations by the Congolese government.⁷

Nevertheless, despite unsecured funding, Kabila awarded the project to a European-Chinese consortium in 2018. The investors increased the planned capacity to 11 GW. These partner companies, however, failed to come to an agreement, and in January 2020 the Spanish company ACS pulled out of the Inga 3 project. Kabila's successor, President Felix Tshisekedi, again reduced the planned power production to 4.8 GW.⁷

The history of this controversial project alone should put German investors and development organisations on the alert.



Risks of Inga 3

- Congolese civil society – such as local NGOs and inhabitants of the affected areas – criticises the lack of any **environmental and social follow-up studies** on Inga 3, especially since it is already known that the construction and commissioning of the existing dams will likely have negative consequences for the local population.
- The extent of the **environmental damage** cannot be predicted. It is certain, however, that Inga 3 will cause the lowering of the downstream riverbed and a reduction in the flow velocity of the river, resulting in a threat to biodiversity and species diversity. This further threatens the role of the Congo River as one of the world's largest natural mechanisms for absorbing CO₂ from the atmosphere.⁸
- Inga 3 will result in the **displacement** of approximately 37,000 agricultural households and social and economic infrastructure along the Congo River.^{9/10}
- Large-scale projects in the DRC have proven to be politically contentious in the past, because they are particularly susceptible to corruption. In the 2019 Corruption Perceptions Index the DRC scored 82 points, ranking 168th out of 180 countries surveyed.¹¹ The lack of transparency in project planning and the tendering process, the various interests of national and international-level representatives, and the mismanagement of existing projects are indicative of this.
- In addition, civil society and local populations were **not involved** in project planning, there was little available information about the overall process.
- The construction and commissioning of the mega-dam will create **only a few jobs** for the local population; estimates suggest a maximum of 6,000 new jobs⁴ – a relatively small number for such an expensive multi-billion-dollar project. At the same time, vast swathes of housing, community life and living culture will be destroyed, and with it the livelihood of the local population.
- Inga 3 would **aggravate energy poverty**. The population in Congo Central Province and other areas of the country will receive hardly any of the electricity produced, due to there being no electricity grid to make it accessible. As the Congolese government has announced, the electricity produced will primarily supply the national extractive industry and be exported to other countries.
- Inga 3 is **not necessary for national energy supply**. The DRC has sufficient potential for photovoltaic and wind energy, which is much more suited to ending energy poverty quickly while creating more local value and moreover these renewables would produce cheaper electricity than Inga 3.¹²
- The projected **construction cost** of Inga 3 is USD 12-24 billion.⁴ The Congolese government has announced that it will contribute USD 3 billion through concessional loans, although this amount could rise to USD 6 billion. The rest is expected to come from private investments. The DRC – which is already heavily indebted at more than USD 7 billion – runs the risk of falling into a further **debt trap** from such enormously high costs, and the associated financial risk. At the same time, the country urgently needs funds for basic needs such as health, education and, not least, local energy access.
- In operation, Inga 3 will be **economically unviable** unless utilization exceeds 86%.⁴ Experience from smaller hydropower plants such as Inga 1 and 2 shows that this is far from being the case in reality. In addition, climate change has made precipitation more unpredictable and dry periods are becoming longer.¹³ It is therefore likely that Inga 3 will make losses.
- The electricity generated by Inga 3 would be **too expensive for export**. If generation and transmission costs as well as transmission losses are added up, it becomes clear that potential importing countries can already produce their own electricity much more cheaply with local photovoltaics and wind power plants.¹² Inga 3 could supply electricity in 10 years at the earliest. At that time, however, solar and wind power will be cheaper than importing expensive Inga 3 electricity.



Hydrogen

It is no coincidence that the proposal to use Inga 3 for hydrogen production was made in the summer of 2020. Hydrogen has become a much-discussed topic in the realm of renewable energy transition, after both the German government and the European Union adopted a hydrogen strategy.

Hydrogen is a necessary element for decarbonization, especially for all applications that cannot be electrified or replaced.¹⁴ This includes parts of industrial production as well as aviation and shipping. Renewable hydrogen is to be produced by electrolysis, which requires large amounts of renewable electricity.

Germany's national hydrogen strategy envisions large scale hydrogen imports, since it is expected that Germany will not be able to provide enough renewable electricity for national hydrogen production. In addition, imported hydrogen from sunny regions is likely to be cheaper. However, hydrogen from sub-Saharan Africa will not be able to compete economically in the foreseeable future with hydrogen from

European regions with good production conditions, the Mediterranean region or the Middle East.¹⁵ High capital costs and expensive transportation to Europe are good arguments against the viability of imports. If, in addition, relatively expensive electricity is used as from Inga 3 (about 6-12 ct/kWh)⁴, hydrogen will become too expensive for export to Europe.

Boosting hydrogen production in DRC, however, could pay off in other ways. Small plants, fed with electricity from photovoltaics and wind, could help to decarbonize the local industry.

Conclusion

In the light of the problems and negative consequences presented here, the German Government should refrain from supporting Inga 3 directly or indirectly. The construction of Inga 3 would have devastating social and environmental consequences for the people of DRC, would not contribute to the local energy supply, and quite possibly could turn into a new debt trap.

In addition, the planned use of Inga III's electricity to export hydrogen would tarnish the idea of a renewable hydrogen economy as a building block of the global energy transition. Importing hydrogen from countries in the Global South, without adequate consideration of the environmental and social situation in the country of production, harbours the risk of being perceived as an exploitative mechanism or a new form of colonialism, which could lead to a failure similar to that of Desertec. Given hydrogen's importance in meeting climate targets, this would not be in anyone's interest.

The German development cooperation in the DRC should instead focus on promoting decentralized renewable energy, to counteract energy poverty and create local value. At the same time, Inga 1 and 2 should be repaired to render them more economical and, above all, to benefit the local population. Hydrogen should only be produced in small plants to decarbonize the local industry.



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Notes

- ¹ Federal Ministry of Economic Cooperation and Development (BMZ) (2020). *Democratic Republic of the Congo*. Published at: <https://www.bmz.de/en/countries/democratic-republic-of-the-congo> (accessed on 28 October 2020).
- ² International Energy Agency (2020). *Democratic Republic of the Congo*. Published at: <https://www.iea.org/countries/democratic-republic-of-the-congo> (accessed on 28 October 2020).
- ³ GegenStrömung (2018). *Inga 3-Wasserkraftwerk am Kongo-Fluss rückt näher*. Published at: <https://www.gegenstroemung.org/web/blog/inga-3-wasserkraftwerk-am-kongo-fluss-rueckt-naeher/> (accessed on 28 October 2020).
- ⁴ Jones, Tim (2017). *In debt and in the dark – Unpacking the economics of DRC's proposed Inga 3 dam*. International Rivers. South Africa.
- ⁵ Dörrie, Peter (2014). *Die Kraft des Kongos zähmen*. Published at: <https://www.welt-sichten.org/artikel/24441/die-kraft-des-kongo-zaeahmen?page=all> (accessed on 28 October 2020).
- ⁶ Hütz-Adams, Friedel (2008). *Energie- und Wasserversorgung in der Demokratischen Republik Kongo*. Published at: <https://www.suedwind-institut.de/files/Suedwind/Publikationen/2008/2008-11%20Energie%20und%20Wasserversorgung%20in%20D.R.%20Kongo.pdf> (accessed on 28 October 2020).
- ⁷ Herrmann, Clarissa (2020). *Kongo zwischen Strommangel und Mega-Staudamm*. Published at: <https://www.dw.com/de/kongo-zwischen-strommangelund-mega-staudamm/a-52825810> (accessed on 28 October 2020).
- ⁸ Huber, Amelie (2018). *Wasserkraft und Klimawandel – Eine problematische Beziehung*. GegenStrömung und INFOE. Berlin.
- ⁹ Bauchmüller, Michael, Ludwig, Kristiana und Raupp, Judith (2020). *Hoffen auf Inga*. Süddeutsche Zeitung, 8 September 2020: p.15.
- ¹⁰ Radio Okapi (2020). *Kongo-Central: les communautés locales s'opposent au projet de construction du barrage hydroélectrique Inga 3*. Published at: <https://www.radiookapi.net/2020/08/27/actualite/societe/kongo-central-les-communautes-locales-sopposent-au-projet-de> (accessed on 28 October 2020).
- ¹¹ Transparency International (2019). *Corruption Perceptions Index*. Published at: <https://www.transparency.org/en/cpi#> (accessed on 28 October 2020).
- ¹² Deshmukh, Ranjit, Mileva, Ana und Wu, Grace C. (2017). *Renewable Riches: How Wind and Solar Could Power DRC and South Africa*. International Rivers. South Africa.
- ¹³ Conway, D., Dalin, C., Landman, W.A. et al. (2017). *Hydropower plans in eastern and southern Africa increase risk of concurrent climate-related electricity supply disruption*. *Nat Energy* 2, 946–953 (2017).
- ¹⁴ Heinemann, Christoph and Kasten, Peter et al. (2019). *Die Bedeutung strombasierter Stoffe für den Klimaschutz in Deutschland*. Öko-Institut Freiburg (Institute for Applied Ecology).
- ¹⁵ Matthes, Felix (2020). *Wasserstoff und wasserstoffbasierte Energieträger bzw. Rohstoffe in der Transformation zur Klimaneutralität. Statement on the Hearing of the Committee for Economic Affairs and Energy of the 19th German Bundestag on October 26, 2020*, Öko-Institut.