

TI-UP Enquiry: Hydro Potential of the Congo River

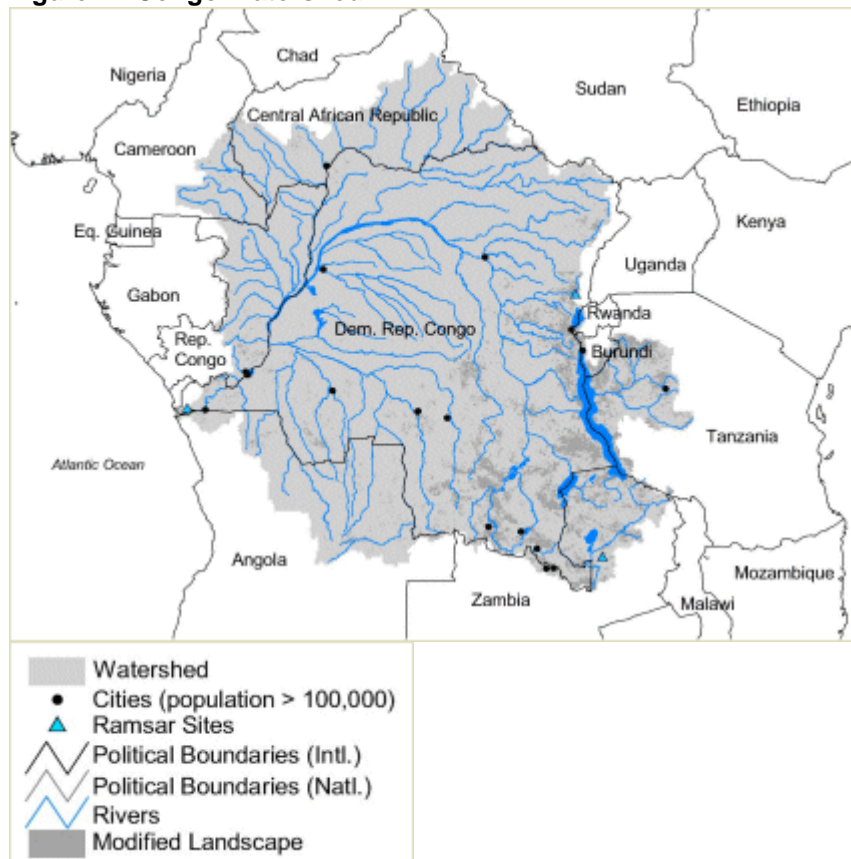
In Brief

The Congo River's hydroelectric potential is estimated at 100,000 MW, 44,000 MW of which come from the Inga site alone. It has been estimated that the hydroelectric potential of the Congo basin amounts to about one-sixth of the known world resources, but only a fraction of this potential has been harnessed (INICA Report)

Congo River

The Congo River is the largest river in Western Central Africa. Its overall length of 4,667 km (2,900 miles) makes it the second longest in Africa (after the Nile). The river also has the second-largest flow in the world, behind the Amazon, and the second-largest watershed of any river, again trailing the Amazon; its watershed is slightly larger than that of the Mississippi River. The river has a very large river basin (drainage basin), an area of 3.690.000 km², taking care of the drainage of almost all of central Africa. Because large sections of the river basin lie above and below the equator, its flow is stable, as there is always at least one river experiencing a rainy season. At points where navigation is blocked by rapids and waterfalls, the sudden descent of the river creates a hydroelectric potential greater than that found in any other river system on earth.

Figure 1 - Congo Watershed¹



In February 2005, South Africa's state-owned power company, Eskom, announced a proposal to increase the capacity of the Inga dramatically through improvements and the construction of a new hydroelectric dam. The project would bring the maximum output of the facility to 40 GW, twice that of China's Three Gorges Dam. Three electricity superhighways would deliver power south to Angola, Botswana and South Africa, west towards Nigeria and north to Egypt and, ultimately, southern Europe.

Democratic Republic of Congo

The Democratic Republic of the Congo is blessed with the greatest hydropower potential in Africa, and among the largest in the world. This potential is a result of the country's location with the catchment area of the Congo river. The republic's gross theoretical hydro potential is 1,397,000 GWh/year, while its technically feasible potential is about half that, at 774,000 GWh/year (estimated in 1997).² The economically feasible potential was calculated in October 1991 to be 419,210 GWh/year (based on sites in operation, studied, and inventoried assuming a 100 % load factor). In 1997, only 4835 GWh of electricity were produced in the DRC. Less than 1% of the technically feasible potential has been developed.³

Response prepared by Steven Paling, TI-UP Resource Centre

References

"Central Africa: The Africa of Water" - Initiative for Central Africa (INICA)

"Sub-Saharan Africa's Energy conundrum" – PricewaterhouseCoopers

"The Grand Inga Power Plant Project" – Report prepared by Société Nationale d'Electricité (SNEL)

"Inga Project" – Report prepared by the Ministry of Electricity and Energy, Egypt

¹ http://earthtrends.wri.org/maps_spatial/maps_detail_static.php?map_select=289&theme=2

² http://www.small-hydro.com/index.cfm?Fuseaction=countries.country&Country_ID=123

³ <http://www.oasisfoundation.org/oasis/okapiintro.asp>

"Could a \$50bn plan to tame this mighty river bring electricity to all of Africa?", Article from **The Guardian**, 25th February 2005

<http://www.guardian.co.uk/congo/story/0,12292,1425023,00.html>

"Africa waits on scheme to harness the power of the Congo River", Article from **The Times Online**

http://business.timesonline.co.uk/tol/business/industry_sectors/utilities/article1522278.ece