

## Congo off-grid solar

? Life expectancy: 48 years

? Undernourished: 42 million people (2005 - 2007)

It is a country of vast resources. Minerals include; copper, diamonds, cobalt, tin, coltan and many others. Its estimated that the value of known resources amounts to \$24 trillion dollars and the DRC is responsible for 80% of the worlds cobalt supply. The DRC could be the Saudi Arabia of the EV age, possessing most of the worlds "coltan" used in battery and mobile phone manufacture.

In 1960 it had the second largest industrialised economy in Africa only exceeded by South Africa. Since then a mixture of corruption, civil war, failing infrastructure and its sheer size and diversity has created a state with grand plans but major difficulties raising capital from anywhere in the world except China. The kleptocratic nature of government makes It difficult to negotiate with government at all levels of the state. The human development index(HDI)is very low - at 176 out of a total of 187. Apart from the standard of living and availability of jobs and housing, access to clean water and grid power are key indicators in the HDI index. The DRC fails on every one of them.

The extent of the rain forest makes it difficult to build roads and railways across this vast country. The only major rail links are into Zambia and Benguela in Angola. Poor and non existent roads make it difficult for other parts of the infrastructure. Power lines are confined to a few big cities and the cross country link to the mining areas in the south.

[https:// &#8211; a water lily clearance vessel](#)

Since 2003 the South African power company, Eskom (7th largest utility in the world) has wanted to do a joint venture to build Inga 3 so as to cover their own shortages in capacity whereby they would take 3,500 mW while DRC uses the balance of 1,000 mW. The spread of power consumption in Africa is very uneven so further development at Inga could help spread of power more evenly but this only benefits "corporate Africa" i.e the mining sector and the growing middle class in the large cities. The poor derive very little or no benefit.

## Electrical Production in Africa

The DRC has a productive capacity of 9,033,000 gWhrs but this is just 2% of the DRC's potential HEP capacity. But is it the best alternative for the DRC given the corruption and the difficulty of raising sufficient capital to just build INGA 3 ?

39 gW of HEP in Inga 4 compares with an estimated 70 gW of solar and 15 gW of wind located mainly in the



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SE of the country in the mining areas. There is 5 gW of wind and 5 gW of solar within 25kms of existing and planned transmission lines. The cost of producing the solar is only 7 us cents per kW hr compared with 8 us cents per kWhr from the Inga 3 dam as estimated by the World Bank.

In the SE the renewable energy has enormous potential from both private and commercial customers.

In the area around Kinshasa there is a further 6 gW of solar available at 7 us cents per kW hr. There is also sufficient for the rural areas around Kinshasa, Mbandaka on the Congo river and the main port of Matadi. It can even be exported over the river to Brazzaville.

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