

WORLD SMALL HYDROPOWER DEVELOPMENT REPORT 2013

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MALI



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1 Africa

1.5 Western Africa

1.5.7 Mali

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Key facts

Population	15,494,466 ¹
Area	1,240,192 km ²
Climate	Subtropical to arid; hot and dry (February to June); rainy, humid, and mild (June to November); cool and dry (November to February) ¹
Topography	Mostly flat to rolling northern plains covered by sand; savannah in south, rugged hills in northeast ¹
Rain Pattern	Highly variable climate characterized by a long dry season and a rainy season averaging one month in the North (Timbuktu region) to five months in the South (Sikasso region). Rainfall ranging from 1,200 mm/year in the Sudano-Guinean zone to 200 mm/year in the Saharan zone ²

Electricity overview

The rate of access to electricity is 55.27 per cent in urban areas and 14.89 per cent in rural areas, leading to a national average of 27.08 per cent.

Some private sector operators provide the public service of electricity, the most important of which is the company Energy of Mali (Énergie du Mali EDM) as a contract-holder.

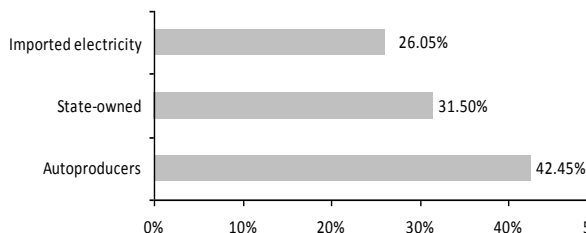


Figure 1 Electricity generation in Mali

Source: Mali Direction de l'Énergie³

On the inter-connected grid, 57.3 per cent of the electricity is generated by hydropower plants and 42.7 per cent by thermal plants. The share of hydropower in the grid decreased from 80 per cent in 2004 to 57 per cent in 2010, because the constructions of key regional/national hydropower plants and regional

interconnections were delayed, the Government had to increase costly thermal power supply in the short term.²

The total installed electricity generation capacity in Mali is 326.8 MW (excluding self-generation), distributed between hydropower (71.6 per cent) and thermal (28.4 per cent) power plants. About 20 hydropower sites of medium and large capacity with a total capacity of about 1,150 MW (an electricity production of about 5,600 GWh) were identified throughout the national territory. Only four of these sites are fitted out at the moment (representing approximately 25 per cent of the national potential), namely: Félou (0.6 MW, about 3 GWh/year), Sotuba (5.2 MW, about 40 GWh/year), Sélingué (44 MW, about 200 GWh/year) and Manantali (200 MW, about 800 GWh/year).

Small hydropower sector overview and potential

Since 1927, the inauguration year of the hydropower power station in Félou (600 kW, 3 GWh/year), no other small hydropower projects have been put into operation, except for one pico-hydropower station at Siraorobougou of 3 kW in 2008.

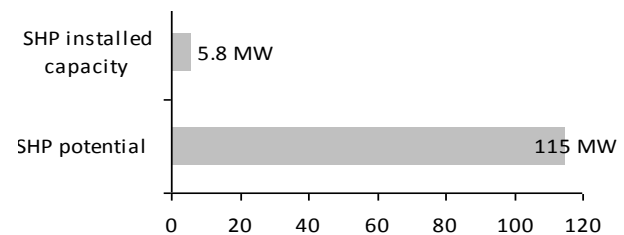


Figure 2 Small hydropower capacities in Mali

The country has a small hydropower potential, as demonstrated by the 1988 study of the German Technical Cooperation (GTZ), which inventoried and estimated briefly the sites of Farako (50- 250 kW), Kéniéba or Doundi (180-250 kW), Nimbougou (10-50 kW), Papparah (50-60 kW) and Missira. Other potential sites are identified in the regions of Kayes and Sikasso (at Sirakorobougou; 3 kW). Of all those sites, only Sirakorobougou is currently operational and Farako is part of a feasibility study, with technical and financial support from UNIDO.

Seven priority sites have been identified: three sites at Farako (Farako I, Farako II, Farako III), two sites at Waromi (Woroni I, Woroni II), Nimbougou and Doundi. The evaluation of a further 10 additional micro hydropower sites is planned within the framework of the Master Plan Study for Rural Electrification financed by the African Development Bank (AfDB).

Renewable energy policy

Mali's renewable energy penetration target for 2015 is 25 per cent.⁴ i Renewable energies (solar, wind, micro/mini hydropower, etc.) are currently used at an insignificant level. The Government's vision and targets have been formulated in key policy papers, including the National Energy Policy (2006), the National Strategy for the Development of Renewable Energies (2006), the National Strategy for the Development of Biofuels (2006) and the National Energy Sector Policy Letter (2009-2012).

Mali has been selected as one of the six countries to benefit from the Scaling-Up Renewable Energy Program in Low Income Countries (SREP), funded by the AfDB. The main objective is to demonstrate the economic, social and environmental viability of a low-carbon development path in selected countries, with a view to increasing energy access, by using renewable energy and creating new economic opportunities.

The SREP Mali Investment Plan has been prepared under the leadership of the Government of Mali, represented by the Ministry of Energy and Water, and by different specialized national agencies. It is therefore a country-led programme, in line with key strategies of the national energy sector, as well as with the main principles of its Growth and Poverty Reduction Strategy and the National Climate Change Strategy.

Barriers for small hydropower development

The main barriers in Mali for small hydropower are geo-climatic factors (see key facts above) as well as lack of financial resources to implement projects.

A legal and regulatory framework is needed in order to facilitate the construction of small hydropower plants in rural communities and in order to remove the barriers that small hydropower promoters in local communities and in the private sector encounter.

Tools are missing to build up local capacity for the design and implementation of mini- and micro-hydropower plants.⁵ Lacking capacities in metal processing and manufacturing of key parts of small hydropower plants also pose a challenge.

Note

i. Another source reports the target of renewable energy contribution of 10 per cent of the total energy production by 2022.⁵

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