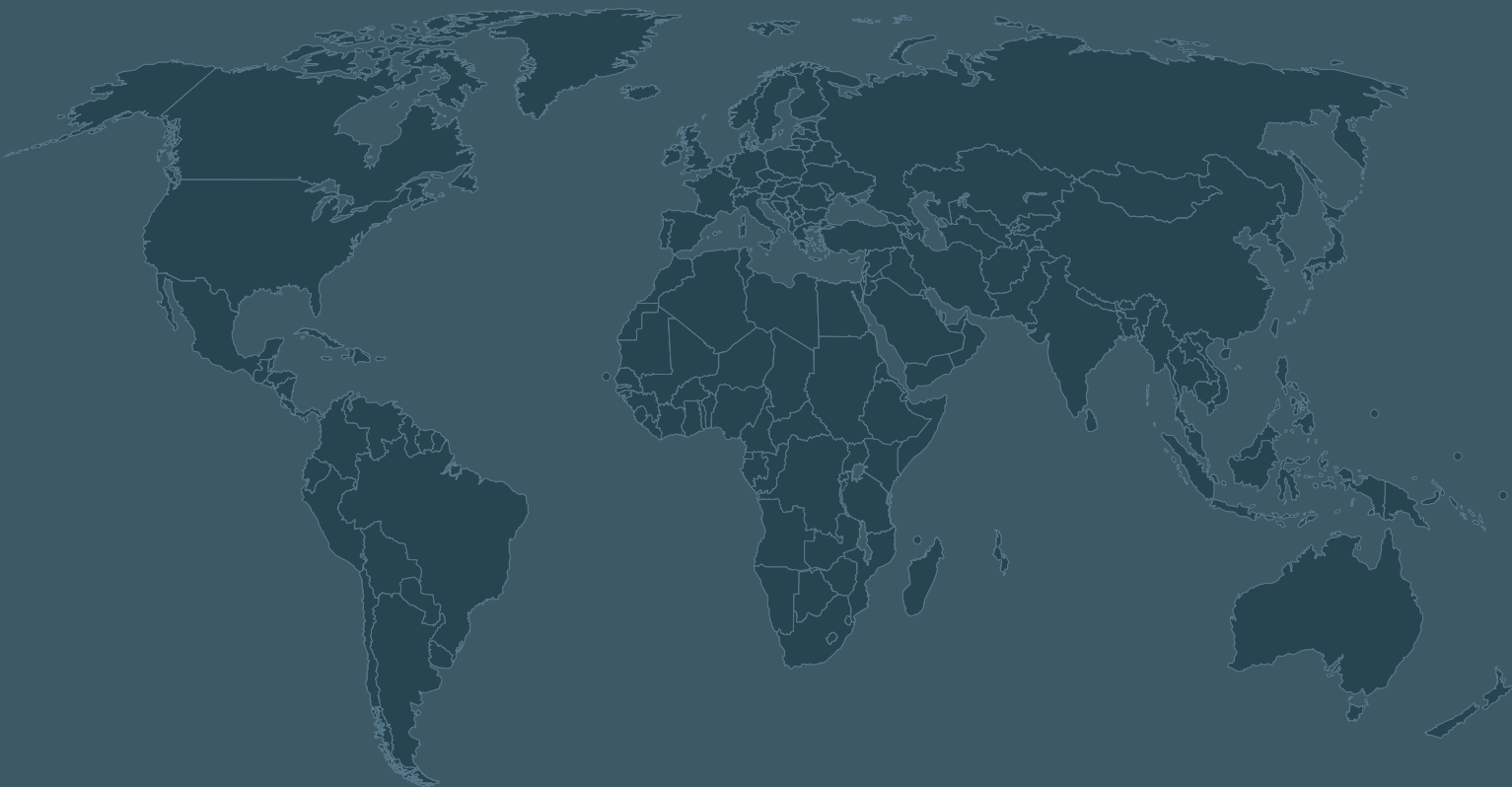


WORLD SMALL HYDROPOWER DEVELOPMENT REPORT 2013

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BURKINA FASO



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1 Africa

1.5 Western Africa

1.5.2 Burkina Faso

A.A. Esan, UNIDO Regional Centre for Small Hydro Power in Africa, Nigeria, Lara Esser, International Center on Small Hydro Power

Key facts

| | |
|--------------|--|
| Population | 17,275,115 ¹ |
| Area | 274,200 km ² |
| Climate | Primarily tropical climate with two seasons (dry and rainy). There are three climatic areas: the Sudanian zone with extensive rainfalls during the rainy season; the Sudano-Sahelian zone, located in the center; and the Sahelian zone with a very short and moderate rainy season. The climatic situation of Burkina Faso includes long dry periods and therefore causes serious water supply issues. ² |
| Topography | Mostly flat to dissected, undulating plains; hills in west and southeast ¹ |
| Rain Pattern | The dry season lasts eight months in the North and six months in the South. ¹ Irregular rainfall, 400 –1000 mm/year ³ |

Electricity sector overview

The national electricity company Société Nationale d'Électricité du Burkina Faso (SONABEL) ensures electricity generation as the main vertically-integrated operator, with a national monopoly on the generation and distribution in the country's urban centres. Generation is based upon 24 thermal (diesel) plants and 4 hydropower plants (32 MW).⁴ Forty-five per cent of the electricity is imported from neighbouring countries, especially Ivory Coast (figure 1).

The national electrification rate of Burkina Faso is 14.6 per cent.⁵ Coopératives d'électricité (COOPEL) works with the rural electrification fund Fonds de développement de l'électrification (FDE) under the Electricity for All Programme. Local cooperatives produce and distribute electricity and are part of an umbrella organization, the National Union of Electric Cooperatives in Burkina Faso (Uncoopel / B).⁶

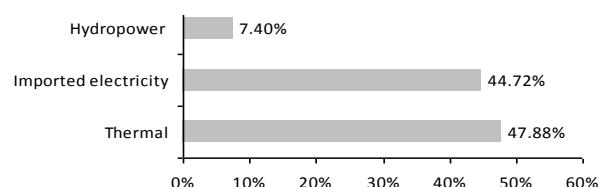


Figure 1 Electricity generation in Burkina Faso

Note: Data from 2012. The numbers do not include self-generation by private industrial companies (total capacity of 13.45 MW), mainly from thermal sources.⁴

Small hydropower sector overview and potential

In 1999, nine small hydropower sites with 36 MW were identified.^{3 7} Currently, two small hydropower plants exist: Tourni (0.5 MW) and Niofila (1.5 MW), which together produce about 1 GWh/year.⁷ Both plants were built in 1996. Furthermore, there is a 2.5 MW small hydropower scheme to be implemented at Samendeni Dam which will produce 25 GWh/year, and two additional mini hydropower plants are planned, including Bonvale.⁸

A survey of hydropower sites was carried out within the Électricité de France SONABEL, National Centre of Hydraulic Equipment (Centre National d'Équipement Hydraulique). The study covers large-scale hydropower sites as well as small-scale installations. The capacities range between 65 kW and 550 kW, and 550 to 1,700 kW. The hydropower potential of rural areas is sufficient for decentralized electricity production. Some identified sites have estimated production costs between CFAFⁱ 100 and 175 per kWh, several other sites have estimated costs of at least CFAF 200 per kWh.²

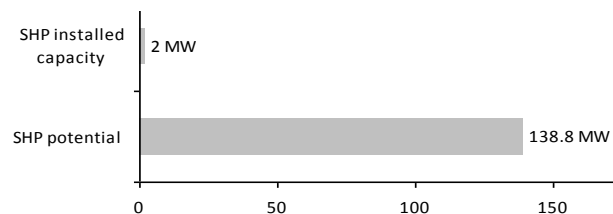


Figure 2 Small hydropower capacities in Burkina Faso

Source: Burkina Faso Ministère des Mines, des Carrieres et de l'Énergie⁷

All in all, 70 potential small hydropower sites have been identified with a total potential capacity of 138.8 MW (figure 2).⁹

Renewable energy policy

The Strategy for Rural Electrification supports solar energy for the electrification of rural areas currently lacking connection to the SONABEL grid. There are currently no policies or strategic directions for the use of renewable energy.¹⁰

Barriers to small hydropower development

Barriers to renewable energy include lack of local technical expertise and lack of financing, especially for capital-intensive technologies.² Apart from that, irregular rainfall pattern (400–1000 mm/year), the remoteness of the small hydropower sites to the sites of consumption, as well as cost depreciation for rural small hydropower projects hinder development.³

Note

i. CFA stands for Communauté Financière d'Afrique (Financial Community of Africa) or Communauté Financière Africaine (African Financial Community). In several central African states, the Central African CFA franc, which is of equal value to the West African CFA franc, is in circulation. They are both the CFA franc.

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