

M53. Hydraulic dams, conflict and risk of water conflicts in West Africa

Source: HSM/IRD



M54. Farming irrigated systems in West Africa

Source: BM 2001, OCDE 2007



WATER, A RESOURCE REQUIRING BETTER GOVERNANCE IN WEST AFRICA

West Africa has a relatively large number of major rivers. Irrigation and hydroelectricity are gaining ground in the region, but are still far from reaching their full potential. Possibilities exist for meeting food and energy demands from the rapidly growing populations and economies. International river basin agencies are responsible for coordinating investment and resolving disputes.

• Untapped potential and growing demands

West Africa has a number of different climate zones ranging from the Saharan fringe to the Gulf of Guinea. Major fluctuations in rainfall in the 20th century were the cause of several serious food crises. For the future, climate forecasts remain hesitant: most models predict a slight increase in rainfall that will not offset the increase in evaporation caused by higher temperatures.

Surface water and groundwater are relatively abundant in the region. The south, which is wetter, suffers from regular flooding and the aquifers are relatively productive. In the North, which is far more arid, the Senegal, Niger, Volta and Chari rivers support high population densities thanks to floodplain meadows, to flooded, flood recession and irrigated cropping, and to fishing. These rivers are currently being regulated by dams and should be able to respond more effectively to rapidly growing demand.

Despite significant national differences, population growth in the 15 West African countries is indeed high (at around 3% per year) and economic growth in these countries is sustained

(at around 5%), a situation which is generating a rapid increase in water and energy requirements for households, industries, mines and services, but also for agriculture. However, governments are struggling to satisfy this demand and the Millennium Development Goals for drinking water have not been achieved, in spite of considerable progress. Less than 2% of cultivated areas are irrigated and hydroelectric installations fall far short of the region's high potential. Just under 45% of the population has access to electricity, around 40% of which is generated by dams.

• Major water engineering projects, a come-back?

After a break between the 1980s and the 2000s further to the structural adjustment plans, water engineering projects, some of which are quite old, are being dusted off. This return is explained by soaring demand for electricity and food requirements that make irrigation necessary, but also by more frequent flooding, which requires new hydraulic works. Finally, the decline in public debt is providing leeway for new investments. While Western countries are increasingly reluctant due to the cost and the social and environmental impacts of dams, China seems to be willing to finance and carry out major engineering projects.

The major hydro-agricultural installations have been criticised in the past because of their poor returns on investment. Progress has nevertheless been made in the Senegal River Valley and the Office du Niger (Mali), where yields are increasing and rice cultivation is becoming competitive with Asian rice imports.

Projects for the expansion of large-scale irrigation schemes are therefore being revived.

At the same time, small-scale private irrigation is continuing its expansion: hundreds of thousands of smallholder farmers are settling along rivers and reservoirs or are digging wells where groundwater is accessible. They produce irrigated fruits and vegetables through manual water lifting or inexpensive motor pumps. Deep aquifers are still untapped, but their use could intensify with the development of electrification. Proper regulation will be required in order to avoid their overexploitation.

• Better governance is needed to address risks

The authorities and civil society are concerned about the environmental and health situation in the water sector. First, water-borne diseases still have serious impacts on populations, especially chronic diarrhoea due to the lack of drinking water and/or sanitation (which also concerns cities that are often subject to water cuts). Second, the major wetlands, such as the Inner Niger Delta, Lake Chad and the flood valleys, have seen their surface areas drastically reduced and their biodiversity significantly degraded. Marine deltas, especially those of the Niger, Senegal and Gambia rivers, are being disrupted by sea level rise, river regulation by large dams and climate change, which are endangering their fragile ecosystems.

Dam building and hydraulic works have given rise to a number of cross-border conflicts that have generally remained of low intensity, with the exception of the one between Senegal and Mauritania (between 1989 and 1991) concerning the irrigable land of the Senegal River. Today, Ghana is taking Burkina Faso to task over its 1 500 small reservoirs, which are reducing the production of its major hydro-electricity dams. Engineering projects are ringing alarm

bells in neighbouring countries: Nigeria, which has traditionally sold its electricity at a low cost to Niger in order to avoid the construction of a dam upstream on the river, is concerned about the Kandadji dam. The Fomi dam in Guinea will have a significant impact on the Inner Niger Delta in Mali and downstream.

The construction of new dams leads to people being displaced against their will. Conflicts over access to land are exacerbated in irrigable areas, because the states foster the installation of national and international private investors in order to improve food production, fuelling concerns and opposition among local farmers and their organisations. Irrigated land also reduces water access corridors for animals, generating incidents that are often violent, whereas pastoral conflicts over access to wells are diminishing due to the creation of consultative bodies.

Better governance of water resources will therefore become a necessity and should result in an increase in international cooperation. There are several inter-state river basin agencies in operation. Their effectiveness is highly variable and their capacities could be strengthened. They nevertheless provide a basis for effective solutions to sharing the water from the major rivers, anticipating tensions and settling disputes.

**Bruno Barbier, Alioune Kane,
Bega Ouedraogo, Jean-Yves Jamin,
Jean Christophe Poussin**