

KANDADJI

Project

A Development
Perspective



Project background

80% of Niger's labor force is engaged in agriculture and livestock, accounting for 40% of the GDP. However, productivity and yields are low due to limited use of inputs and lack of infrastructure, including irrigation and roads. This large, landlocked, mostly desert country in Africa's Sahel region is crossed by the Niger River, on which depend a vast majority of the rural population. However, this population is increasingly facing the effects of climate change, including recurrent droughts and floods, as well as chronic food and power shortages.

Located 189 km northwest of the capital city Niamey, the Kandadji dam project, aims to increase food production, generate more electricity, boost jobs, and create economic opportunities for families and communities in the Sahel.

LACK OF ELECTRICITY ACCESS, WATER SCARCITY AND FOOD INSECURITY

Niger has one of the lowest electrification rates in the world, at 10% of the population (less than 1% in rural areas). Huge investments are needed to increase access. The country is also ranked 189 out of 189 on UNDP's Human Development Index and 3rd to last on the World Bank Human Capital index.

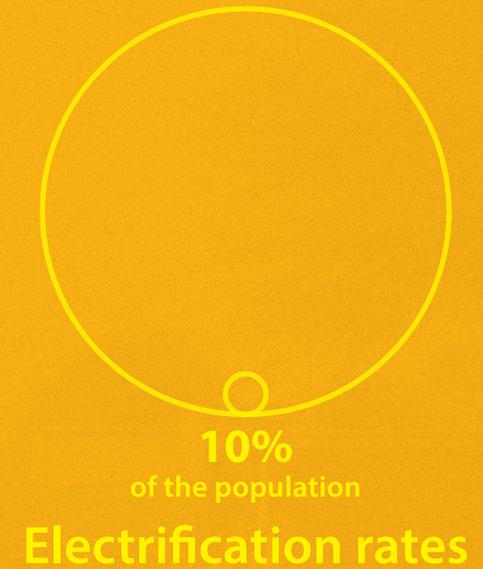
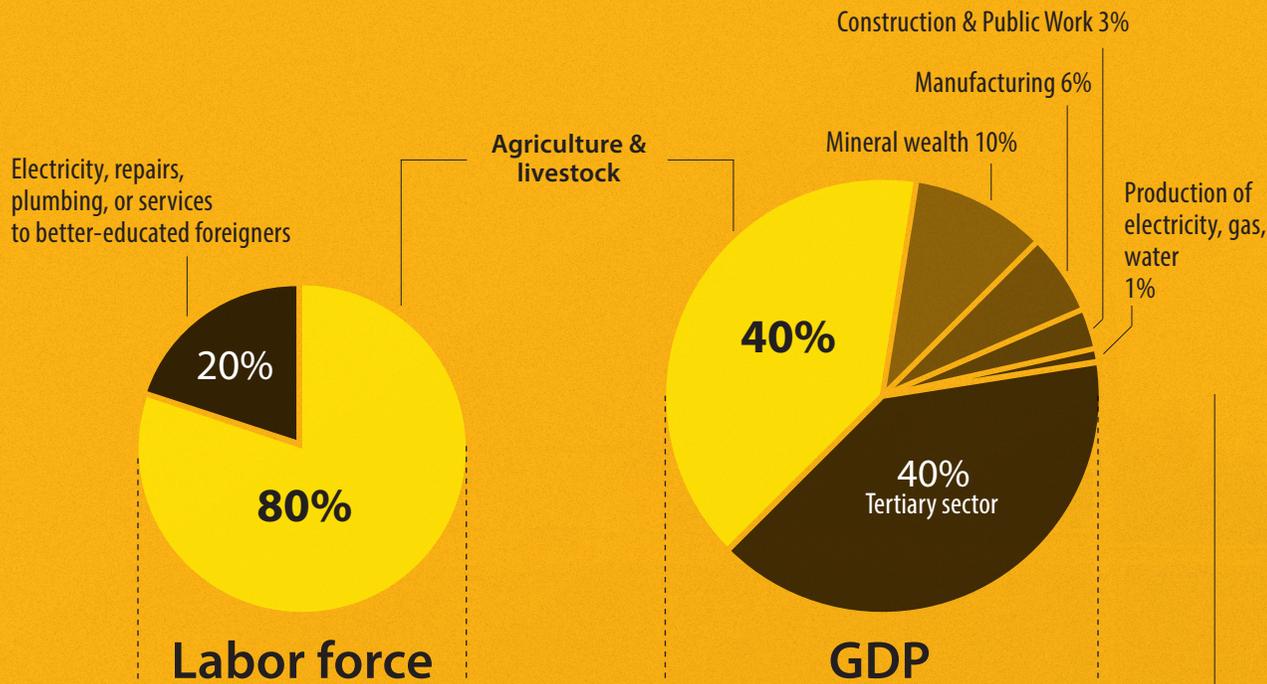
Extreme poverty remains very high, at an estimated 41.5% in 2019, affecting more than 9 million people. It also faces many challenges to increase access to sanitation and potable water, particularly in rural areas where access to water is 44.2% and 7% for sanitation. 42% of children are stunted in Niger, and so at risk of cognitive and physical limitations that can last a lifetime. According to the Food and Agriculture Organization, 51.7% of the population (11.1 million people) suffers from severe food insecurity (2016-2018), whereas the average for Sub-Saharan Africa is 25.1%.

EXPECTED BENEFITS FOR PEOPLE IN NIGER

The Kandadji Project is expected to support poverty alleviation efforts by bringing electricity to homes and businesses, and by improving the management of the Niger River. Better basin management will enhance environmental flows in the dry season and ensure a reliable municipal water supply for Niamey.

The Project is part of the larger Niger Basin Water Resources Development and Sustainable Ecosystems Management Program. The dam and reservoir will support irrigation of up to 45,000 hectares of land, which will increase agricultural production, boost food security, and improve living conditions downstream.

It will also strengthen Niger's energy security through the production of electricity from the hydropower plant. In addition, it will supply clean and safe drinking water to those living nearby and create jobs – especially for young people and women – by providing opportunities for people to learn and develop new skills and supporting livelihoods.



Extreme poverty

47.5% in 2019, affecting more than **9 million people**

The Project at a glance

PROJECT TOTAL COST

US\$ 1,286,7 million

WHERE

The Kandadji dam will be constructed on the Niger River, 187 and 489 kilometers upstream from the capital city, Niamey, and the Nigerian border respectively, and 60 km downstream from the Malian border.

WHEN

The first stage of construction of the dam at a height of 224 m started in March 2019 and is expected to end in 2025 or 2026 with the filling of the reservoir at a level of 224 m inside Niger. The second stage of construction of the dam at a height of 228 m is expected to start in 2026 and to end in 2031 with the filling of the reservoir at a level of 228 m inside Niger and Mali.

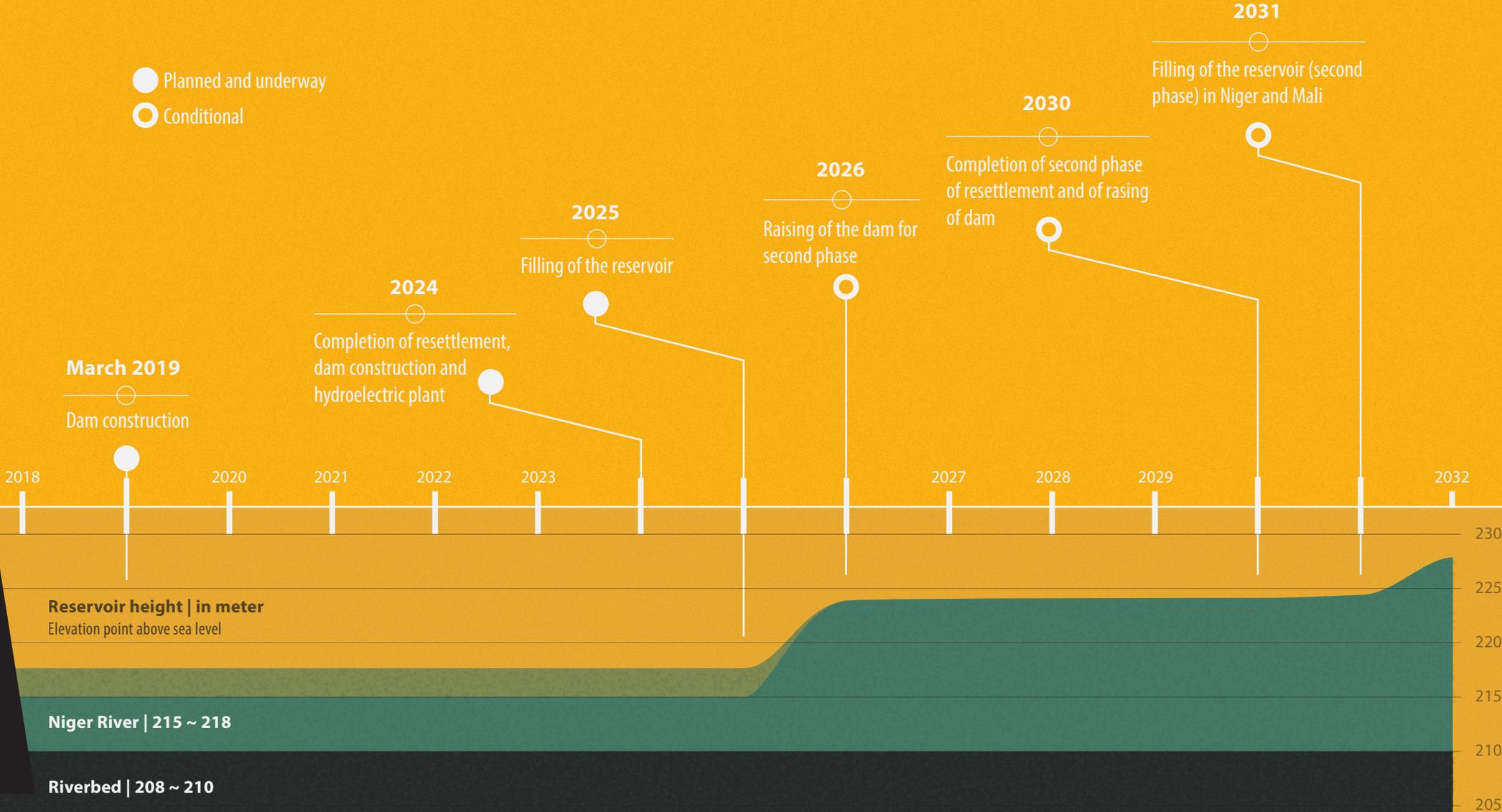
HOW

The Kandadji Program is a complex project with various environmental and social mitigation measures and offsets.



Program timeline

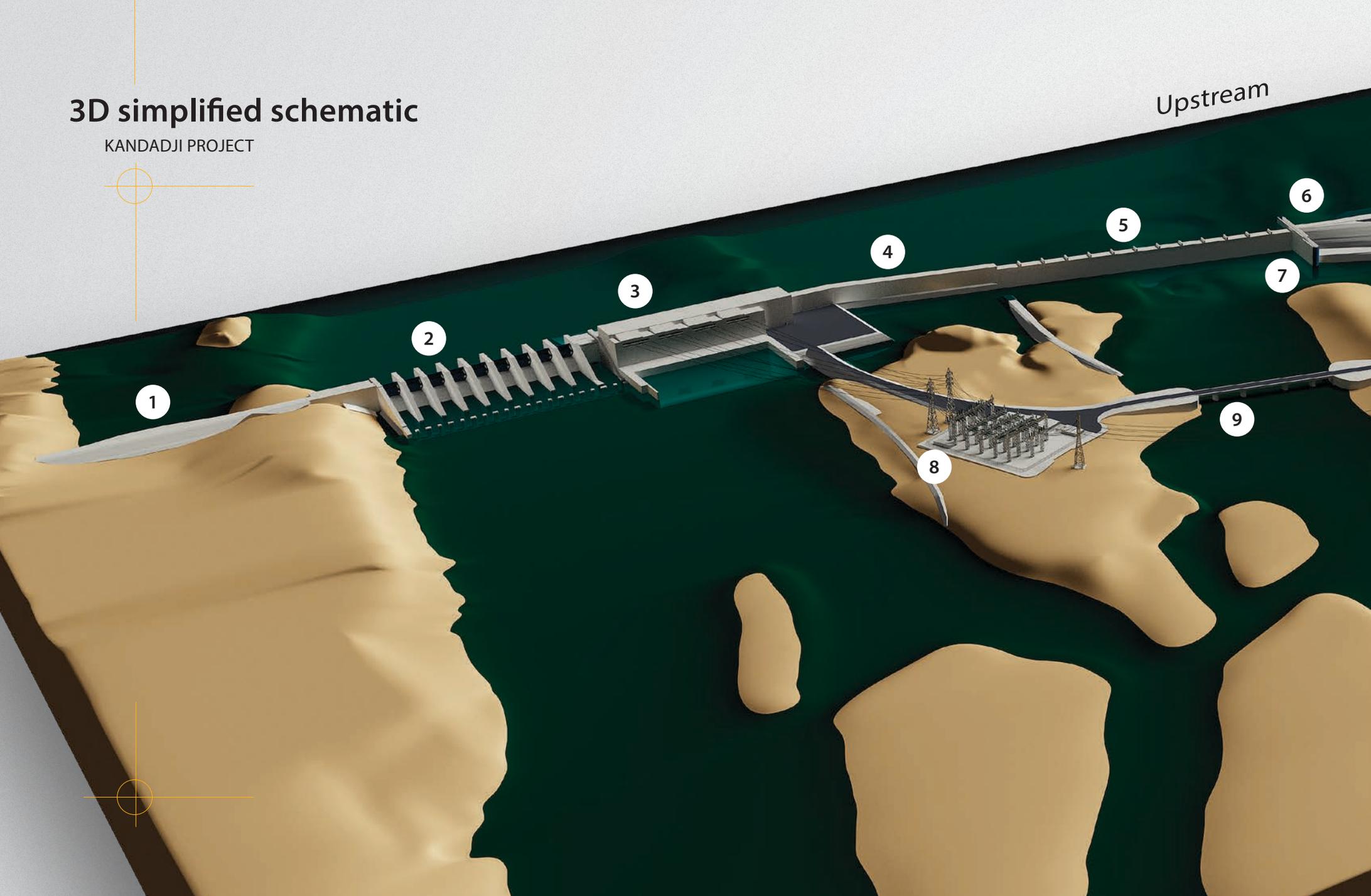
- Planned and underway
- Conditional

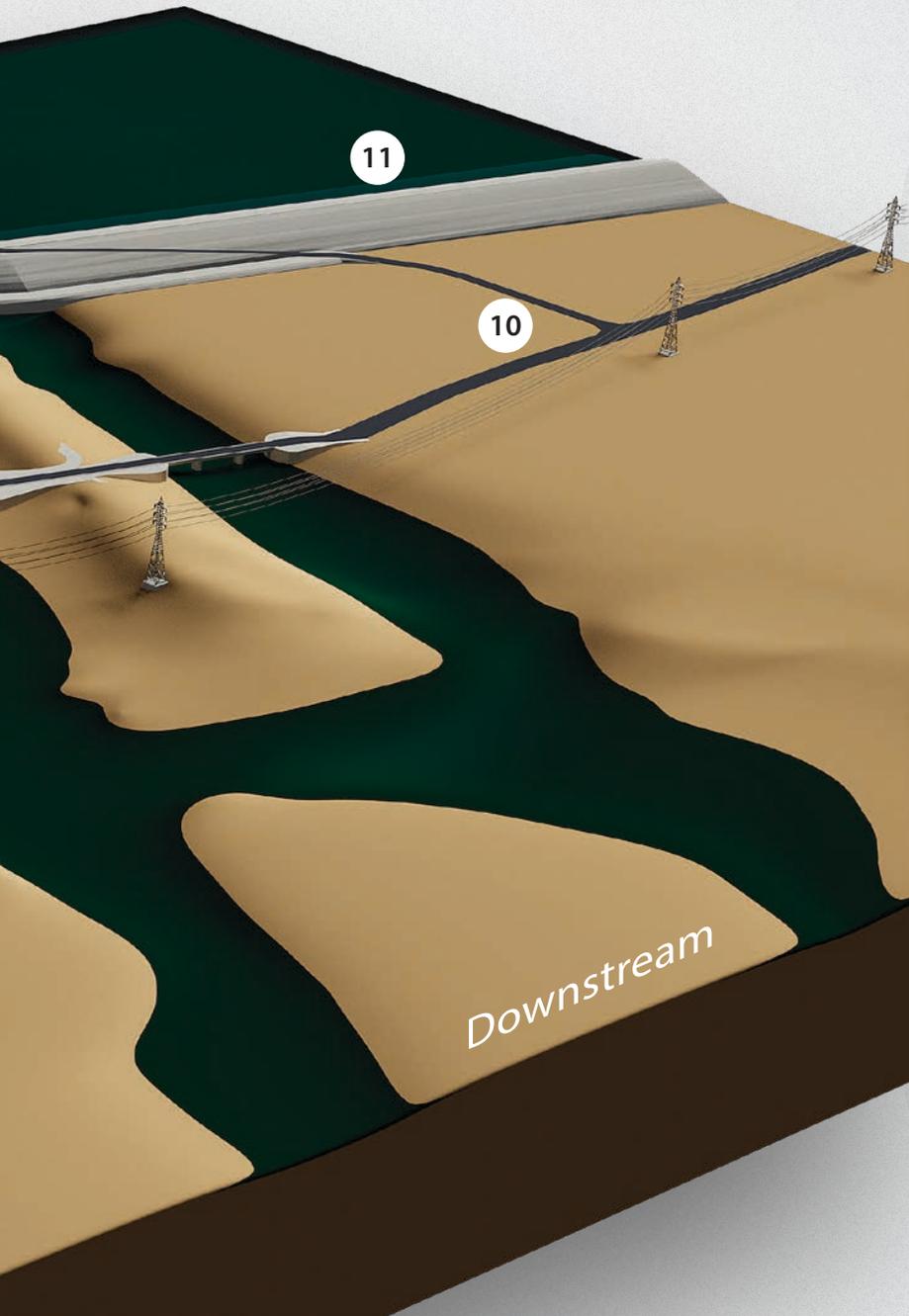


3D simplified schematic

KANDADJI PROJECT

Upstream





- 1 - Saddle dam
- 2 - Spillway & outlet works
- 3 - Powerhouse | x4 turbines
- 4 - Concrete dam
- 5 - Auxiliary spillway in Roller Compacted Concrete
- 6 - Water intake for agriculture
- 7 - Pirogue sluice
- 8 - Substation
- 9 - Access bridge
- 10 - Access Road
- 11 - Earthfill dam

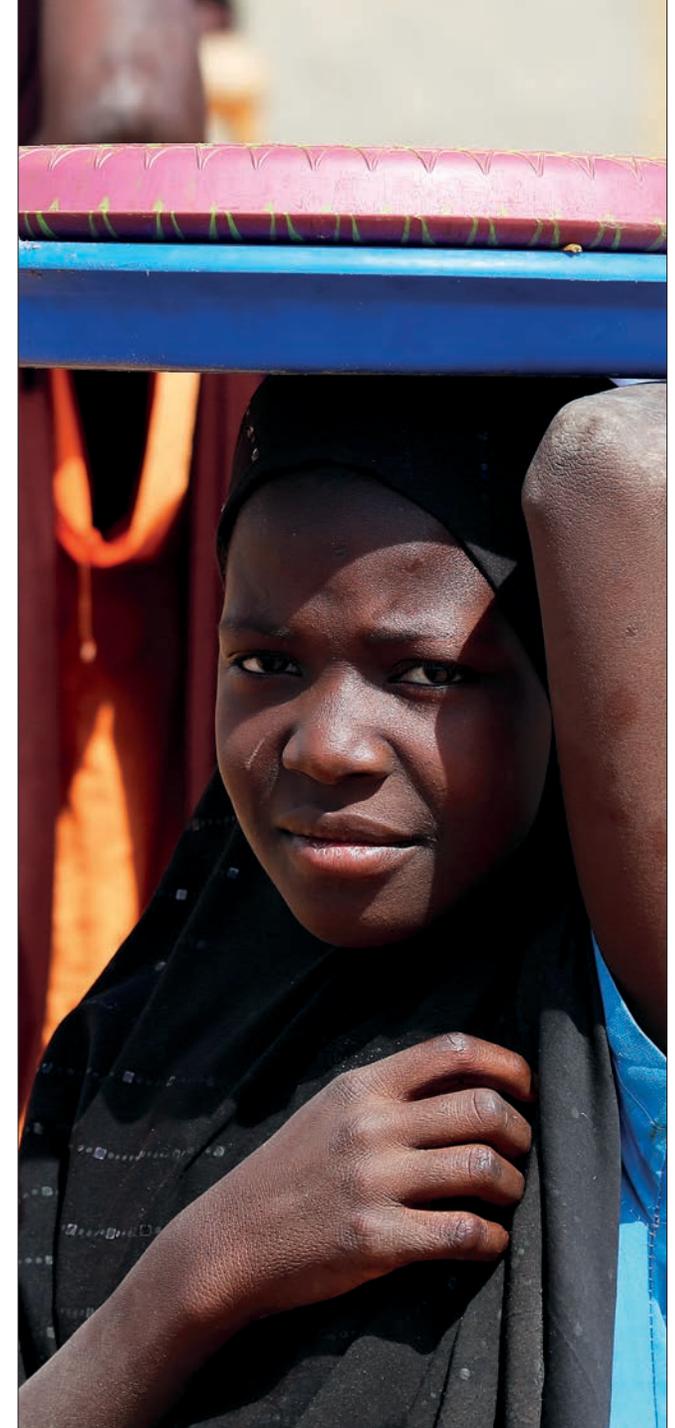
Reservoir Resettlement & Livelihood Restoration

In addition to construction of the Kandadji dam across the Niger River, the project includes building new access roads, the rebuilding of the town of Ayorou, and construction of a dozen new resettlement villages along the shores of the future reservoir.

Funds supporting the Kandadji Project will help provide water storage along the Niger River to ensure supply during times of drought, irrigation capability, renewable electricity, and jobs for people in the Niger Basin communities.

The completed resettlement program for 9,000 people at the dam site and the planned reconstruction of Ayorou and resettlement programs for 50,000 people in the reservoir area represent important, multi-faceted development opportunities for impoverished local communities, including:

- New roads, electricity, drinking water, schools, clinics, markets and other community infrastructure and services
- 8,000 hectares of irrigated perimeters for displaced farmers
- Over 10,000 new houses
- Extensive agricultural and non-agricultural livelihood restoration programs, including training and employment opportunities related to construction of new resettlement sites
- Improved employment opportunities, including jobs for women and youth
- Improved water infrastructure that will lead to improved health and education outcomes, contributing to increased human capital.





A fully functional grievance redress mechanism (GRM) is being put into place by the ABK with World Bank assistance to address ongoing and future concerns raised by the project.

For more information, please visit:

<https://www.worldbank.org/en/country/niger/brief/kandadji-project>

Proactive communications, public consultation and assistance to displaced persons so as to restore and, where possible improve their standards of living are key interventions during implementation. A community communications strategy has been adopted by the implementing agency, the Agence du Barrage de Kandadji (ABK), since 2017 and has been recently updated. This includes regular project information dissemination and exchanges through ABK's website and community radio stations supported by the project as well as annual communication events with local community organizations to promote understanding around the project.





Impact on Environment

Through regeneration and conservation of the Niger River, there will be:

- More protection against flooding, more consistent water flows and improved access to water upstream and downstream of the Kandadji dam
- The dam will produce far less greenhouse gas emissions than a thermal power project of the same capacity, meaning less harmful pollutants will enter the atmosphere
- The project will also help to maintain and enhance valued biodiversity through the establishment of the Kandadji National Nature Reserve and Hippopotamus Sanctuary

In addition to this, the Environmental and Social Impact Assessment (ESIA) and Management Plan (ESMP) prepared for the Kandadji Program provide for specific actions to regenerate ecosystems for local fauna and flora, including in particular:

- Plantation of bourgou pastures along the river for hippopotami and livestock
- Creating permanent habitats for hippopotami around newly created islands after raising of the reservoir
- Eucalyptus plantations
- Creating bird nesting areas for avifauna
- Building locks or fish ladders for fish migration
- Controlling the proliferation of invasive aquatic plants





WORLD BANK GROUP
Water