

C A S E S T U D Y

KINGUÉLÉ AVAL ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT



■ **ESIA COST:** CA. 1.0 % OF PLANNED CAPEX

ESIA DURATION: 14 MONTHS

PROJECT IMPACT REDUCED: SIZE OF RESERVOIR DIVIDED BY 2

TAKING A HANDS-ON APPROACH

Meridiam as a principal investor is promoting the development of the Kinguélé Aval hydroelectric plant in the Gabonese Republic – leading a comprehensive Environmental and Social Impact Assessment to ensure the project develops in the right way.

Pristine rainforest still stretches over large areas of the Gabonese Republic in West Africa, largely due to the creation of 13 national parks across the country. One of these is the Crystal Mountains National Park, covering an area of 1200km² (460 square miles) in the north west of Gabon.

As the name suggests, this is a mountainous area. Dense rainforest clings to steep hillsides while numerous streams and rivers carve their way through the landscape – perfect conditions for generating hydroelectric energy.

The **Crystal Mountains National Park** was created namely to prevent the area from being cleared for logging and to preserve it for developing hydroelectricity. Two plants at Kinguélé and Tchimbélé on the Mbé River were built in the 1960s and 70s respectively and now plans are afoot to build a third hydroelectric facility – the Kinguélé Aval project.

This is a scheme characterised by efforts to aid development in an appropriate, sustainable manner. Gabon needs to exploit its potential for generating its own renewable energy, to both support economic development and reduce the country's reliance on power that is produced from fossil fuels. It also needs to protect its valuable natural environment.

Multiple studies have been carried out over recent decades, investigating how and where best to build a third hydroelectric plant on the Mbé River. The latest and one of the most comprehensive so far, a full Environmental and Social Impact Assessment (ESIA) has been produced by Meridiam and their partner FGIS (the Gabonese Sovereign Fund).

Conventionally, it would be a project authority such as an asset owner or government agency that would produce an ESIA before delivery partners are appointed. But it is Meridiam, as a principal investor and in partnership with the Gabonese sovereign fund FGIS, that is promoting the Kinguélé Aval project.

“As a business we are evolving to take on a greater role in helping to initiate and develop sustainable infrastructure projects – to help bring about schemes that meet countries’ sustainable development goals. In Africa and elsewhere **we are becoming involved at the very early stages of projects**, from the instigation of feasibility studies,” says

Meridiam's head of Environmental, Social and Governance (ESG), Ginette Borduas.

“We are working very closely with the Gabonese authorities in helping to develop this project. During such early stages, performing an ESIA study is a standard procedure for a project of this size as part of scheme development, to optimise the design before authorities make their final decision on whether to allow the project to go-ahead.”

“This is a very hands-on approach for an investor to manage this process, but for Meridiam, it makes sense to retain this much control, to get a project that is bankable and environmentally and socially sustainable.”

The ESIA study carried out for Kinguélé Aval is remarkably thorough. Overseen by Meridiam and FGIS, it drew upon the expertise of numerous different specialist environmental and social consultants and agencies. Specifically, the services of a consortium composed of Artelia, Electricité de France (EDF) and Biotope were retained.

Based on previous preliminary studies and the first results of the detailed ESIA work, **Meridiam and FGIS decided to reduce the initial design of the hydroelectric plant almost by half**, from 60MW to 35MW in capacity.

“The location of the new plant was selected outside the Crystal Mountains National Park to minimise





its environmental impact. Similarly, other project facilities will be located on a brownfield site, previously occupied by local quarrying activity. But as hydroelectric plants require a reservoir of water, impact on the local environment would be inevitable to some extent,” says Meridiam Project Developer, Emmanuel Mundela. “At the very beginning of our involvement, we tasked the design team and the environmental and social consulting team with finding **the optimum equilibrium between maximising energy production and minimising the environmental and social impacts.**”

Ginette adds: “The reasons for reducing the size of the project came from a mix of technical, economic and environmental impact studies, allowing detailed comparative analysis of different design options. When we looked at everything, it made sense to reduce the project to a size that minimises its impact while keeping it economically viable. We reached the best possible scenario.”

From that point, the ESIA study reinforced the rationale for the scope of the project selected, with studies of the extent of the scheme’s hydrological impact upstream and downstream of the plant. Detailed investigations were also carried out on the project’s effects on water quality, soil erosion and sedimentation and greenhouse gas emissions, as well as the impact of changing the physical environment.

The report also delves deeply into the project’s impact on the area’s natural environment, its wildlife and its **human population**. In terms of scope and procedure, the ESIA for Kinguéle Aval has been carried out in accordance with Gabonese law and to the standards of the International Finance Corporation and the IFC’s Sustainable Development Framework.

“When planning an ESIA, the challenge lies in gauging the full scope and making sure nothing is left out,” Ginette says. “Having a very good understanding of the project is important. Normal procedures and regulations will ensure general items of importance are studied, such as impacts on wildlife and the natural environment. Plus, it’s vital to consider the views of all stakeholders, to engage with and consult local communities, to visit the site – **the teams spent more than 3 months on the ground-** and to ask all relevant authorities what is important to cover. This is how we plan an ESIA,” she adds.

For Kinguéle, study of the area’s wildlife, its flora and fauna was understandably critical. The wider region contains rainforest recognised as some of the most



important in West Africa – a refuge of rainforest of the Pleistocene era. The Crystal Mountains Park contains the wettest rainforest in Gabon due to its altitude and equatorial location close to the Atlantic coast.

A total of 2,557 different tree species were identified in the study area – which at 1,550 hectares, went well beyond the project’s physical footprint of less than 300 hectares – along with 116 species of Dragonflies

and Damselflies (including four newly discovered). 62 species of fish were observed in the study area of the Mbé River and 115 bird species in the Crystal Mountains. Also roaming through the forests of the park is a population of around 1,200 Forest Elephants.

“This is a very exciting project in terms of its environment. It’s a secluded area with enormous biodiversity and the excitement comes from the opportunity to preserve this ecology through an ongoing **Biodiversity Action Plan**. The Crystal Mountains Park was created to reserve the area for hydro power instead of forest industry and as a result there is still very good water quality and protected rainforest,” Ginette says.

Hydrology and water quality were crucial aspects of the ESIA studies. Selection of the Kinguéle Aval site downstream of the existing hydro plants “made sense”, Ginette says, because this meant the new facility would be reusing water that had already been used to extract energy. Downstream of the new dam and

turbines, water flow and quality are expected to be largely unaffected.

“The water regime will change marginally immediately downstream of the project, but the flow will be largely restored lower down. The residual flow is constant, preserving the integrity of river habitats, which was a critical requirement. The project’s area of influence has to be manageable without jeopardising the environment downstream,” says Ginette.

Social impacts constitute a further key element of the ESIA study, which involved several public meetings and private interviews with local community leaders and public officials. Density of the human population is low, with six villages in the project's zone of indirect influence, including only 34 people living in the nearby village of Andock Foula. Very little public infrastructure is in place. Lack of opportunity has led to a lot of people leaving the area in search of jobs elsewhere.



"The Kinguéle Aval project presents opportunity to provide greater support for local people," says Emmanuel Mundela.

The ESIA makes clear that special attention has to be paid to ensuring local customs and traditions can be maintained. It also concludes that there is a lot of opportunity to further engage and mobilise communities as the project develops.

The ESIA makes recommendations for **measures to support local people**, including recruitment, compensation for loss of around 65ha of forest for hunting and fishing, plus access to the construction site for selling goods. These measures and more are detailed in further plans, such as a Local Development Contribution Plan, which proposes electrification of the village of Andock Foula, a local development

fund and 'actions' in fields of health and medicine, education and cultural activities. In similar fashion, the project's Biodiversity Action Plan, directly based on the ESIA outcomes, includes a list of 25 different measures for protecting and promoting local biodiversity.

"The many measures to be developed will include support for the work of local environmental conservation agencies and organisations," Ginette says. "Crucially, we want to ensure the park authorities have sufficient capacity for their work to protect the rainforest, its flora and fauna and endangered species. Data gathered through the ESIA will improve the Park's database."

Work continues on developing environmental and social aspects of the Kinguéle Aval project. A crucial next step, Emmanuel says, is gaining validation of the action plans by the Gabonese environmental authorities. "They have been closely associated with the process along the way," he adds. As have a long list of other relevant organisations and stakeholders including Gabon's Ministry of Energy and its National Agency of National Parks. They and others will have an active role to play in developing the project and its comprehensive **Environmental and Social Management Plan (ESMP)**.

When the project commences, it will be **the ESMP that will become the reference document for ESG activities**, binding the project, its construction and operating companies to the implementation of measures identified in the ESIA.

"At Meridiam we are committed to developing projects in the right way, rooted to a strong ethos of environmental, social and corporate governance - from the start and throughout development, construction and operation," Ginette says. **"As a project sponsor we believe in taking ownership** and

being closely involved in the process of planning and implementing ESG studies. It's the best way of getting projects that ultimately produce positive outcomes for funders and lenders, for the environment and local communities and for meeting overall development goals." ■

KINGUÉLÉ AVAL TECHNICAL DESCRIPTION

The hydroelectric plant at Kinguéle Aval will have an installed capacity of 34.5MW and will produce 200GWh of electricity per annum, from three generators. It will have a reinforced concrete dam measuring 48m high and 470m long across its crest.

Principal promoters Meridiam and the Gabonese Strategic Investment Fund (FGIS) have established the project company Asonha Energie SA for developing the Kinguéle Aval plant. After completion of all due diligences for securing lenders' support, all necessary project approvals and the signing of **a 34-year concession** agreement with the Gabonese Government, Asonha Energie will assume responsibility for delivering and operating the new hydroelectric facility. Construction is expected to start in 2019 with the start of operation due in 2022. ■

