SUSTAINABLE ENERGY ACCESS AND CLIMATE ACTION PLAN

EXECUTIVE SUMMARY

Subdivisional Council of Kribi 1, Cameroon

CoM SSA is co-funded by:

European Union

Co-implemented by:

giz
SUSTAINABLE ENERGY ACCESS AND CLIMATE ACTION PLAN

EXECUTIVE SUMMARY

Subdivisional Council of Kribi 1, Cameroon
## Content

1. **Foreword by the Mayor of Kribi** ................................................................. 2

2. **Kribi 1: Municipality’s profile** ................................................................. 4

3. **SEACAP+ methodological approach** ................................................... 5

4. **In brief: Kribi 1 SEACAP+** ..................................................................... 7
   - **4.1 Mitigation Pillar** ............................................................................. 8
   - **4.2 Adaptation Pillar** .......................................................................... 10
   - **4.3 Energy Access Pillar** ................................................................. 14
FOREWORD BY THE MAYOR OF KRIBI 1

Rising sea levels, storms, fog and floods: in recent years, extreme weather conditions have severely tested our seaside town. These occurrences have shown us that the climate emergency does not only concern future generations or faraway lands. Like all cities, the municipality of Kribi 1 has an essential role to play in building a world that bases its future on a less polluted environment, with solutions for adapting to the effects of climate change.

While Kribi 1 is positioned today as one of the future locomotives of development in Cameroon and Central Africa, our seaside city appears to be more vulnerable to the phenomena of coastal erosion and flooding, which are likely to increase in the coming decades if nothing is done. As a result, Kribi 1 has a duty to set an example in implementing the main principles of the CoM SSA and the Paris Agreement within its territory.

With 30 actions to be implemented, our Climate Plan sets out the path towards a more resilient and sustainable seaside city by 2030. It’s up to us to speed up implementation by doubling our efforts in waste management, protecting our coasts and ecosystems from erosion and flooding, sustainably exploiting our fishery resources, strengthening the energy component, and developing renewable energies. At the same time, we must ensure that we support all sections of the population in these transformations because the ecological transition must be socially equitable.

To make the transition to a less polluted city a success, we need all of Kribi 1’s driving forces. We need the support of the sectoral ministries, the young people of the «Climate Generation» who have provided remarkable support for the territorial diagnostic work and the assessment of risks and vulnerabilities. We need our senior citizens, who are concerned about future generations, civil society, and the private sector, just as we need our technical and financial partners.
My deepest gratitude goes to the Covenant of Mayors in Sub-Saharan Africa (CoM SSA), an initiative co-financed by the European Union and the German Federal Ministry for Economic Cooperation and Development (BMZ), whose activities are implemented by GIZ, as well as all the other technical partners who supported us with their expertise in the elaboration of our Climate Plan.

As a local elected official and head of the Kribi 1 municipal executive, I am aware of my responsibility to speed up the implementation of the measures set out in this important document, to deal with the emergency and avoid irreversible disruptions that would be dramatic for everyone.

So, let us act today, together, for the climate in Kribi 1.

Kribi, April 10th 2023
Augustine Diyo Ndoni Keller

Our Climate Plan maps out the path towards a more resilient and sustainable seaside resort by 2030. It is up to us to accelerate its implementation.
Kribi is a port city located at the bottom of the Gulf of Guinea and is the capital of the Ocean Department in the South Region of Cameroon. Located in the middle of a vast, highly agricultural territory, its position as a port city means that it is both a collection centre for agricultural raw materials and a distribution centre for manufactured goods landing at the port or transported from Douala.

Since 2007, the city of Kribi has been an Urban Community comprising two municipalities: Kribi 1 and Kribi 2.

The Municipality of Kribi 1, whose principal town is Massaka, is a multicultural community made up of 11 villages and 10 districts, including: Bongahele, Bongandoue, Bwambe, Ebomé, Eboundja I, Eboundja II, Lende-Dibe, Lobe, Lolabé, Louma, Massaka, Mbeka’a, Mboa-Manga, Mokolo, Mpangou, New-Town I, Ngoye administratif, Petit-Paris, Talla and Zaïre.

Kribi 1 covers an area of almost 334.3 km². Population density is approximately 214 inhabitants / km². The municipality of Kribi 1 is bordered to the north by the municipality of Kribi 2, to the south by the municipality of Campo, to the west by the Atlantic Ocean and to the east by the municipality of Lokoundjé.
The municipality of Kribi 1 joined the Covenant of Mayors of Sub-Saharan Africa (CoM SSA) in April 2022. As a signatory to CoM SSA, the municipality is committed to developing and implementing a Sustainable Energy Access and Climate Action Plan (SEACAP).

The SEACAP is a strategic and operational document that defines strategies, plans, and actions for sustainable development with low greenhouse gas (GHG) emissions. It also includes climate change adaptation measures and actions to ensure access to reliable, affordable, and sustainable energy in response to the current and future impacts of climate change.

The climate plan developed by the municipality of Kribi 1 with the technical support of S2 Services Sarl, under the coordination of GIZ, has been labelled “SEACAP+”. In fact, this climate plan was drawn up as a pilot project in line with the municipality’s wish to complete it in a relatively short time, and with a modest budget. The SEACAP+ for Kribi 1 was thus completed in six (06) months, using a fast-track methodology that prioritised the use of data collected directly from households and institutions, and considerably reduced the number of face-to-face participatory workshops.

In line with the standard approach, the Kribi 1 SEACAP+ is structured around three pillars: the mitigation pillar, the adaptation pillar, and the energy access pillar. For each of these pillars, a baseline assessment was established based on literature reviews, interviews, a survey of 286 households, 37 administrative and commercial institutions, and field surveys.

Facilitated by GIZ, a vision, objectives and priority actions were defined by the municipality during two participatory workshops, one face-to-face and the other online, supplemented by interviews with the municipal team.

The Kribi 1 SEACAP+ was drawn up according to the following framework:

**FIGURE 1:** Stages in the development of the SEACAP+ for Kribi 1

1 According to the evaluation carried out by the JRC (Joint Research Center) in November 2022, the average time taken by CoM SSA municipalities to draw up a SEACAP is 28 months.
The SEACAP+ of Kribi 1 is based on existing planning documents such as the Municipal Development Plan (MDP) and the Nationally Determined Contribution (NDC) in its revised version in 2021.

This executive summary outlines the main results, objectives, and priority actions. It is intended for all those wishing to support the municipality of Kribi 1 in its commitment to climate change, to derive maximum benefit for its citizens.

“Through its Sustainable Energy Access and Climate Action Plan (SEACAP), the municipality of Kribi 1 is committed to ensuring its economic and social development while limiting its GHG emissions, adapting to climate change and offering its populations access to affordable, reliable, and sustainable energy.”
IN BRIEF: KRIBI 1 SEACAP+

By 2030, through its Sustainable Energy Access and Climate Action Plan, the municipality of Kribi 1 is committed to:

- reduce its GHG emissions by 40% compared with the status quo scenario, thereby contributing to the objectives of Cameroon’s Nationally Determined Contribution (NDC);
- strengthen the resilience of key sectors of the local economy and vulnerable populations in Kribi 1 to coastal erosion, flooding and other climatic hazards;
- increase the rate of access to electricity while exploiting local renewable energy potential and increase by 80% the rate of access to clean cooking methods.

THE VISION OF KRIBI 1 WAS FORMULATED AS FOLLOWS:

To become a resilient, low-greenhouse gas (GHG) emitting and inclusive seaside city by 2030.

The municipality has set a goal to undertake the rehabilitation of its coastal zone and prepare itself to face up climate change by the year 2030. Its plans include:
Mitigation refers to all actions taken to reduce greenhouse gas (GHG) emissions and their concentration in the atmosphere.

The definition of mitigation objectives for the municipality of Kribi 1 was based on an Emissions Reference Inventory (ERI). The ERI identifies the most significant emission sources for a given municipality. It enables local decision-makers to determine priority measures and measure their effectiveness, the aim of mitigation being to reduce greenhouse gas (GHG) emissions.

Data collection for the Kribi 1 municipal ERI was carried out using a mixed-methods approach, combining field surveys via some 15 interviews, a survey of 286 households, 37 public institutions, businesses and transport companies, and the use of secondary data from the Proxy Data Tool. The city’s planning documents were also used. The inventory was carried out according to the framework of the Global Protocol for Community-wide Greenhouse Gas Emission Inventories (GPC, 2015). Kribi 1 activity data are thus converted into GHG emission data measured in tons of Carbon Dioxide equivalent (tCO₂-eq).

According to the ERI results, total GHG emissions for Kribi 1 in 2022 are estimated at 44,174 tons of carbon dioxide equivalent (tCO₂-eq), equivalent to 0.94 tCO₂-eq per inhabitant per year.

Kribi 1’s emissions come mainly from three sectors: waste (40 %), stationary energy (36 %) and transport (24 %).

At present (2022), per capita GHG emissions in Kribi 1 are barely ⅓ of the global average. However, without additional climate measures (status quo scenario), Kribi 1’s GHG emissions could double to 86,740 tCO₂-eq by 2030.
As part of its SEACAP+ program, the municipality of Kribi 1 is committed to reducing its projected GHG emissions by 40% by 2030.

This objective is equivalent to a reduction of 17,669.6 tCO$_2$-eq compared with the status quo scenario.

To achieve this objective, the city has identified around fifteen actions covering the waste, stationary energy, and transport sectors. Three of these were deemed urgent priorities for implementation, based on their synergies with priorities already identified by the municipality, the municipality’s technical, financial, and political capacity to implement them in the short and medium term, and their co-benefits in particular:

- **Stationary energy**: Modernization of the community’s street lighting system.
- **Transport**: Development of urban and suburban roads.
- **Waste**: Acquisition of a refuse bin, tricycles, and small equipment for household refuse collection.

<table>
<thead>
<tr>
<th>SECTOR</th>
<th>ACTION</th>
<th>JUSTIFICATION FOR PRIORITISING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stationary energy</td>
<td>Upgrading the public lighting system in the municipality of Kribi 1</td>
<td>Public lighting and energy efficiency are a priority for the municipality of Kribi 1. They offer great potential for reducing GHG emissions, as well as benefits in terms of lowering the municipality’s electricity bill, making public spaces safer, reducing cases of assault and rape, and increasing night-time economic activities.</td>
</tr>
<tr>
<td>Transport</td>
<td>Developing urban and suburban traffic routes</td>
<td>Sustainable urban mobility is a priority for the Kribi 1 municipality. The aim is to make vehicle movements more fluid, thereby reducing transport-related GHG emissions.</td>
</tr>
<tr>
<td>Waste</td>
<td>Purchase a refuse bin, tricycles, and small equipment for household refuse collection</td>
<td>Improving waste collection capacity in the municipality of Kribi 1 can reduce the environmental health risks associated with uncollected household waste, which contributes to water, air, and soil pollution. Collecting waste for treatment also offers opportunities for sorting and recycling.</td>
</tr>
</tbody>
</table>
Adaptation is the set of actions undertaken in anticipation of the effects of climate change. Adaptation aims to prevent or minimise the impacts and damages of climate change.

The adaptation actions and objectives of the municipality of Kribi 1 were defined following a preliminary Risk and Vulnerability Assessment (RVA). The RVA is a study that enables a municipality to identify the climatic hazards affecting its territory, and to determine the sectors and population groups most exposed to the impacts of climate change now and in the future. The aim of this analysis is to plan measures likely to strengthen the population’s resilience to the impacts of climate change.

Data collection for the RVA of the municipality of Kribi 1 was based on scientific and community sources, including scientific data from NASA, a literature search based on existing national and local planning and strategy documents, a face-to-face participatory workshop with relevant local stakeholders, field surveys, online exchanges, a survey, and community consultations.

According to the RVA conducted in 2022, 17 climatic hazards affect the municipality of Kribi 1:

- Extreme heat
- Extreme precipitation
- Stormy rains
- Fog
- Hail
- Swamps
- River flooding
- Groundwater flooding
- High winds
- Tornados
- Lightning/storms
- Land fires
- Land subsidence
- Waterborne/vector-borne diseases
- Chemical changes
- Sea water intrusion
- Coastal erosion

Kribi 1 is currently affected by different types of climate hazards. The three with the greatest impact on the municipality are:

- Sea level rise
- Fog
- Flooding
Their current and future effects on the population of Kribi 1 include reduced fishing activity and scarcity of fishery resources, coastal erosion, saltwater intrusion and destruction of infrastructure, soil impoverishment and reduced agricultural yields, increased deaths from respiratory diseases, etc.

**Participatory mapping of climate risks**

The participatory risk and vulnerability assessment (RVA) workshop held in August 2022 enabled the mapping of areas particularly affected by flooding during periods of heavy rainfall.

According to the participants in this exercise, the areas most exposed to flooding are the coastal zone in its entire stretch, the urban part of the municipality which also includes informal housing, the riverside area of the Kienké River, and, on the inland side, the villages bordering the tributaries of the Kienké.

The RVA also revealed that certain groups of the population are more exposed than others to the impacts of climate change. These groups include people with disabilities, elderly people, people living in substandard housing, and low-income households.
THE ADAPTATION VISION OF KRIBI 1

Build the resilience of key sectors of the local economy and vulnerable populations of Kribi 1 against coastal erosion, flooding, and other climatic hazards by 2030.

Adaptation actions were formulated in a participatory manner based on existing strategic documents and local and national plans, with a view to achieving the adaptation objective defined for Kribi 1.

Ten (10) adaptation actions covering the nine priority sectors were selected by the city of Kribi 1 to be implemented by 2030. Three (03) of these were deemed to have priority and their implementation was declared urgent within the framework of the SEACAP+. These are:

- **Health Sector**: Develop a strategy for the prevention and management of health risks linked to the spread of waterborne diseases.
- **Emergency and civil protection sector**: Implementation of flood early warning systems.
- **Water sector**: Develop a strategy to preserve freshwater resources.
<table>
<thead>
<tr>
<th>SECTOR</th>
<th>ACTION</th>
<th>JUSTIFICATION FOR PRIORITISING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>Develop a strategy to prevent and manage health risks related to the spread of waterborne diseases</td>
<td>Reducing the health risks associated with the spread of waterborne diseases is a priority for the municipality of Kribi 1. In addition, hazards such as coastal erosion, heavy rainfall and flooding have an increasing impact on available water resources, contributing to the spread of waterborne diseases.</td>
</tr>
<tr>
<td>Emergency and civil protection</td>
<td>Implementation of flood early warning systems</td>
<td>The city of Kribi 1 has identified the installation of an early warning system as a priority to strengthen the community’s resilience to flooding. This action will particularly benefit households living in informal housing in flood-prone areas.</td>
</tr>
<tr>
<td>Water</td>
<td>Developing a strategy to preserve freshwater resources</td>
<td>The preservation of freshwater resources and access to drinking water is a major challenge for the municipality of Kribi 1. Hazards such as coastal erosion and flooding have a growing environmental effect on available water resources.</td>
</tr>
</tbody>
</table>
Energy access is understood as a household's access to a reliable source of energy at an affordable cost. Energy access includes access to electricity and access to clean cooking energy.

Following a survey of 286 households, an Energy Access Assessment (EAA) was carried out for the Kribi 1 municipality in August 2022.

Regarding access to electricity, the household survey revealed that 94% of the population has access to grid electricity and 1% to off-grid electricity in 2022. Despite this high percentage, due to frequent power cuts, the cumulative number of hours without electricity is 1224, or 51 days a year.

Furthermore, the percentage of electricity from renewable energy sources is 0% for on-grid households and 1% for off-grid households. The percentage of the population able or willing to pay for electricity is 100%.

In terms of access to clean energy for cooking, the EAA revealed that the percentage of households with such access in 2022 was 32%. The percentage of households relying on the traditional use of biomass for cooking (firewood, charcoal, sawdust, pieces of wood) remains high, at 49.65%.

Finally, the percentage of households able and willing to pay to switch to a clean cooking method is 46%.

On average, electricity is unavailable once a week due to power outages.

94% of the population in Kribi 1 currently has access to grid electricity. The remaining 6% of the population do not use electricity as there is either no access to electricity infrastructure or they cannot afford it.

1% of the population is off-grid and uses solar home systems or generators.

49.65% of households use biomass for cooking.

32% have access to clean cooking.

Average expense for firewood in Kribi 1: 6 260 XAF per month (equivalent to 1 gas bottle).

46% of households are willing to pay for an improved stove, clean coal, or other clean energy for cooking.

Average distance to collect firewood in Kribi 1: 1 km in urban areas and 6 km in rural areas.
THE ENERGY ACCESS OBJECTIVE OF KRIBI 1

Increase the rate of access to electricity to 100% while exploiting local renewable energy potential by 2030. Increase access to clean cooking methods in Kribi 1 by 80% by 2030.

Energy access objectives for Kribi 1 have been formulated in a participatory manner. Thus, Kribi 1 is committed to achieving two major objectives, one for each of the two key sectors linked to energy access mentioned above. The objectives are as follows:

Five (05) actions linked to energy access (based on existing local and national strategies and plans), aimed at achieving the sectoral objectives defined for Kribi 1 in terms of energy access, were formulated in a participatory manner. Three (03) of these were identified as priorities, and their implementation was deemed urgent under SEACAP+. These are:

- **Access to electricity**: Installation of solar street lamps.
- **Access to clean cooking energy**: Promotion of improved stoves and smokers.
- **Access to electricity**: Construction of a mini solar power plant.

### SECTOR ACTION JUSTIFICATION FOR PRIORITISING

<table>
<thead>
<tr>
<th>SECTOR</th>
<th>ACTION</th>
<th>JUSTIFICATION FOR PRIORITISING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access to electricity</strong></td>
<td>Installation of 1,000 solar-powered street lamps</td>
<td>Public lighting and energy efficiency are a priority for the municipality of Kribi 1. They offer great potential for reducing GHG emissions, as well as benefits in terms of lowering the municipality’s electricity bill, making public spaces safer, reducing cases of assault and rape, and increasing night-time economic activity.</td>
</tr>
<tr>
<td><strong>Access to clean cooking energy</strong></td>
<td>Promotion of improved stoves and cookers</td>
<td>Improving the efficiency of traditional cooking methods offers great potential for reducing GHG emissions, as well as significant economic, social, and ecological benefits for the municipality of Kribi 1.</td>
</tr>
<tr>
<td><strong>Access to electricity</strong></td>
<td>Construction of a mini solar power plant</td>
<td>The promotion of renewable energies is seen by the municipal authorities of Kribi 1 as an opportunity to facilitate access to electricity for the city’s inhabitants, particularly the most disadvantaged. This initiative will considerably reduce the municipality’s emissions while helping to popularise renewable energies.</td>
</tr>
</tbody>
</table>
For further information, please contact:
CoM SSA Technical Helpdesk: helpdesk@comssa.org
Visit our website:
www.comssa.org
Follow us on Facebook & Twitter:
Covenant of Mayors in Sub-Saharan Africa (@CoMOSSAfrica)
This initiative is open to all cities and local governments in Sub-Saharan Africa.