Inclusive Budgeting and Financing for Climate Change in Africa

ASSESSING GENDER AND CLIMATE BENEFITS

Piloting a methodology in the agriculture and energy sectors: Presentation of results and key lessons

DISCUSSION PAPER

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Contents

Tables, boxes and figures ____ *iii*

Acknowledgements ____ *iv*

Acronyms and abbreviations ____ *v*

Executive summary ____ **vi**

1. Introduction ____ **1**

2. Objectives and approach ____ **2**

2.1 Objectives ____ 2

2.2 The approach ____ 2

3. Brief description of the agriculture and energy programmes selected for piloting ____ **6**

3.1. Agriculture programme ____ 6

3.2 Energy programme ____ 9

4. Application of the methodology ____ **11**

4.1 Participants and process ____ 11

4.2 Assessing benefits and sensitivity ____ 11

5. Results and lessons learned ____ **13**

5.1 The case of the agriculture programme ____ 13

5.2 The case of the energy programme ____ 16

5.3 Conclusions relevant to both programmes ____ 20

6. Refining the scoring of sensitivity ____ **22**

7. Lessons learned ____ **23**

8. Strategic lessons learned ____ **25**

References ____ *26*

Annex 1: Steps taken during the piloting of the methodology ____ *27*

Annex 2: Agricultural and energy programmes budgets in FCFA (1000) ____ *29*

Annex 3: List of people met ____ *30*

Tables, boxes and figures

Box 1 Interpreting the percentage scores in GCCIA 3

Table 1: Results of the analysis of additional effects (co-effects) due to the integration of climate change and gender effectsin the agriculture programme 14

Table 2: Results of the analysis of additional effects (co-effects) due to the inclusion of climate change and gender effects inthe energy programme 17

Figure 1: Selected programme share of sector budgets 6

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Acronyms and abbreviations

CT	Action on Climate Today
CABRI	Collaborative Africa Budget Reform Initiative
CBA	cost benefit analysis
CC	climate change
CCIA	climate change impact assessment
DAC	development assistance committee
DGB	Directorate-General for the Budget
DPSELF	Directorate for the Preparation and Monitoring of the Execution of the Finance Act
GCCF	Global Climate Change Foundation
GCCIA	gender and climate change impact assessment
MAEP	Ministry of Agriculture, Livestock and Fisheries
ME	Ministry of Energy
MTEF	medium-term expenditure framework
OECD	Organisation for Economic Cooperation and Development
PNIASAN	National Agricultural Investment and Food and Nutritional Security Plan
PSDSA	Strategic Plan for the Development of the Agricultural Sector
SDGs	Sustainable Development Goals
SPB	Programming and Budgeting Department
UNDP	United Nations Development Programme
UPTABC	Steering Unit for Improving Budget Transparency and Communication

Executive summary

The Collaborative Africa Budget Reform Initiative (CABRI), through the Inclusive Budgeting and Financing for Climate Change in Africa (IBFCCA) programme, has been supporting stronger links between climate change policy, gender and the budget process. Working closely with the government of Benin, a new methodology for gender and climate change impact assessment (GCCIA) in projects and programmes was developed and piloted in the agriculture and energy sectors. This case study details this experience, which will be shared with officials from across Africa working in finance, budget, gender and environment/climate ministries and agencies, at a virtual event on Gender and Climate Change in Programme Design and Appraisal.

The objectives of the approach to GCCIA are to provide a framework for debate about the nature of climate change and gender benefits arising from a programme of expenditure, and to compare the importance of these benefits with routine development benefits. The scoring matrix helps structure the debate and then record the results of the debate for dissemination and wider consideration (including funding negotiations). The approach assumes that routine development benefits are already taken into account when designing and appraising the programme and that spending ministries and ministries of finance are interested in having an estimate of how much more valuable the programme becomes when gender and climate benefits are included.

A scoring method that combines elements of multi-criteria analysis and cost-benefit analysis was developed. The method identifies the various expected component benefits of selected agriculture and energy programmes and then assesses the extent to which these benefits increase (or decrease) when gender and climate change are taken into account. The method is based on structured scoring and is reliant on expert opinion. In developing this case study, extensive consultations took place with the relevant experts in Benin, including representatives from the budget preparation directorates in the Ministry of Finance, the Ministry of Energy and the Ministry of Agriculture, Livestock and Fisheries.

The assessment for the agriculture programme suggested that taking climate change into account results in changes to benefits of about 26 percent, while taking gender into account changes benefits by 30 percent. For the energy programme, the changes in benefits are estimated at about 11 percent for climate change and 27 percent for gender. These results are further evidence of the government's commitment to take into account the effects of climate change and gender in the development of public policies, particularly in the agriculture and energy sectors.

The methodology supports the ongoing efforts of Benin to take into account both climate change and gender as part of the design of their expenditure programmes. The assessment was applied to two existing programmes that are already funded. It reflects how the design of these programmes took into account climate change and gender and the benefits these perspectives bring about.

The assessment justifies the funding allocation to the programmes and reinforces the work done by the ministries in integrating climate change into their programme design through the application of the Climate Change Law, as well as gender, building on the work done by the Ministry of Finance and the gender focal points in each ministry.

The pilot indicated that climate change and gender represented a significant component of the estimated benefits. However, the methodology piloted only provides a broad measure of the gender and climate sensitivity of selected programmes. The discussions in the case study focused on the vulnerability of beneficiaries to climate change and gender considerations, with the understanding that the programmes were designed to address this vulnerability. The methodology could be further developed to require a more explicit discussion of the ways in which the programme reduced vulnerability, which would be especially useful when applied at the design and appraisal stage. This analysis may help related programmes to negotiate higher budget allocations or to protect them from potential reductions in spending and therefore contribute to achieving the Sustainable Development Goals (SDGs).

1. Introduction

Gender is a central organising principle of societies, often dictating power relations, dynamics and governing processes for productive and reproductive work around the world. For this reason, understanding and applying a gender-responsive/sensitive approach is foundational to any planning, policies and processes if equitable outcomes and benefits are to be expected. Gender-responsive approaches are anchored in many of the decisions of the United Nations Framework Convention on Climate Change and in its Gender Action Plan, including under Articles of the Paris Agreement. The Paris Agreement points to countries recognising that climate actions – mitigation and adaptation – must follow a "country-driven, gender-sensitive, participatory and fully transparent approach". Financing is a key component for climate action, with Article 9 of the Paris Agreement emphasising the need for increased availability of climate finance and for transparent commitments of financial support from developed to developing countries. Within climate finance, however, there remains still a need to integrate gender considerations and to distribute resources equitably. Since gender is a key characteristic of societal organisation, gender-responsive approaches and budgeting are essential to meet the determined outcomes of adaptation and mitigation, ensuring that the climate crisis does not reinforce inequalities and continue to disproportionately impact on women, their lives and economic activities.

Recognising the importance of gender considerations in climate financing, the need to advance gender-responsive solutions to the climate crisis, and the value of taking climate change into account when designing and delivering programmes to reduce gender inequality, the Collaborative Africa Budget Reform Initiative (CABRI) is leading a policy dialogue[1] to strengthen knowledge in this area and support the integration of related reforms. This is part of the Inclusive Budgeting and Financing for Climate Change in Africa (IBFCCA) programme, a partnership between CABRI, the United Nations Development Programme (UNDP), the International Budget Partnership (IBP) and the International Institute for Environment and Development (IIED). The objectives of the programme are to promote climate resilience in Africa and to help governments transition to a just and low-carbon, sustainable future by supporting the integration of climate change (CC) and gender into budgeting processes.

[1] The policy dialogue approach includes research, peer learning and exchange, and capacity building in the form of follow-on training or a country review.

2. Objectives and approach

This section provides a brief outline of the objectives and approach of the GCCIA developed and piloted in Benin.

2.1 Objectives

The role of the methodology is to provide a framework for debate about the nature of climate and gender benefits arising from a programme of expenditure, and to compare the importance of these benefits with routine development benefits. Tables 1 and 2, provided in section 5, help structure the debate and then record the results of the debate for dissemination and wider consideration, including in funding negotiations. The approach assumes that routine development benefits are already taken into account when designing and appraising the programme and that spending ministries and ministries of finance are interested in having an estimate of how much more valuable the programme becomes when gender and climate change benefits are included.

The approach is an example of double-mainstreaming because it enables and encourages both gender and climate change to be taken into account during programme design and appraisal, using an approach that facilitates comparison between the two. As applied, it is only partial double-mainstreaming because it treats the benefits of gender and climate change separately, and does not explicitly identify the 'overlap' in benefits from gender and climate.[2] The approach could be expanded to focus on the overlap in benefits, but this would add complexity and is best done as a second phase, to avoid confusion.

2.2 The approach

The proposed analytical approach for GCCIA builds on the climate change impact assessment (CCIA) methods developed by Climate Scrutiny (2021) and UNDP, GCCF, ACT (forthcoming). These CCIA methods were developed as part of the climate mainstreaming initiatives originally undertaken in South East and South Asia. The early initiatives based their classification of public expenditure on versions of the OECD development assistance committee (DAC) Rio markers, which identified expenditure that included climate change as a primary or secondary objective and assigned percentage scores to these categories. This approach provided an easily understood common basis for classifying expenditure. However, there were obvious challenges to the reliability and objectivity of the classification, which were of particular concern to ministries of finance sceptical about the risks of 'greenwashing'. The initial response to these challenges was to use cost benefit analysis (CBA) to quantify the extent to which benefits (i.e. the realisation of objectives) were increased when climate change was taken into account.[3] This provided a more

[2] This could include the potential increase in adaptation benefits that occurs when women are included in management, or the extent to which adaptation benefits improve gender equality.

[3] For example, a programme that provides protection against floods has strong development benefits under current climate conditions. The benefits of flood protection increase as the frequency of floods increases with climate change and this increase in benefit is the adaptation benefit. It is important to make the distinction explicitly because the programme may already be justified on the basis of its development benefits (i.e. under current climate conditions) and become even more justified when climate change is taken into account. Or it may not be justifiable under current

robust method of classification which informed a more reliable percentage score. However, CBA is a demanding technique and is usually only applied for large programmes. There can also be challenges in assigning monetary values to qualitative benefits. The qualitative scoring of component benefits evolved as a rapid method of conducting CBA that captured the major issues quickly, without requiring the technical skills needed for quantitative CBA. It is a mixed method, using both qualitative and quantitative techniques. As far as we are aware, this case study is the first time that the mixed qualitative and quantitative scoring method used in CCIA has been applied to both gender and climate change in Benin. The Climate Change Law and the focus on gender in Benin have been strong and therefore support this approach.

Box 1 describes the logic behind the scores used in the case study. Further details are provided in the two guides referred to in the previous paragraph.

Box 1 Interpreting the percentage scores in GCCIA

The results of the CCIA and GCCIA analysis provide a percentage score which is an estimate of the value of the gender and climate benefits relative to total benefits. The method was developed to help governments assess the additional climate benefits of existing expenditure that had been approved as a part of routine development expenditure. This evidence can then be used to help guide marginal shifts in expenditure in response to new policy concerns about climate change.

The percentage scores can be computed in several ways, with slightly different interpretations. The most intuitive way of computing the score is to treat it as the percentage increase in benefits when gender or climate are taken into account. In this formulation, the CC%/GE% is estimated as C/A, where C is the additional climate/gender benefits and A is the routine development benefits. This works for most climate/gender expenditure. However, there are a few programmes that are dedicated exclusively to climate/gender and have zero development benefits if climate/gender concerns are ignored. These mostly related to 'soft' research and capacity building that improve institutional effectiveness (e.g. studies of the impact of climate change or the drivers of gender inequality). Defining the CC%/GE% as C/A would then produce an error as A=0. To overcome this problem, the normal practice has been to compute the CC%/GE% as (B-A)/B, where B is the total benefits (i.e. C+A). This is the approach used in this case study.

In CCIA, the 'high' category is often assigned a score of 30% because the most common adaptation measure is protection against flood, drought and rainfall irregularity and the IPCC Special Report on Extreme Events (SREX) concluded that the frequency of all forms of irregular rainfall will roughly double by 2050 in most tropical countries (IPCC, 2012). Thus, if a programme is providing routine development benefits of 10 units with current climate conditions, these benefits will gradually rise to 20 units by 2050 and the average annual benefit over the period will rise from 10 to 15 units. There is therefore an increase in benefits of 50% (using the C/A computation) and the additional climate benefits are 33% of the total benefits

climate conditions and become justifiable when climate change is taken into account. The position of the programme in budget negotiations should be different in the two cases.

(using the (B-A)/B computation method). The assignment of 30%, rather than 33% is partly justified by the fact that discounting delivers a lower score and partly because a round number avoids giving an impression of precision that goes beyond what is justified by the evidence. Expenditure that is dedicated fully to climate or gender would have a CC% or GE% of 100% using the (B-A)/B method.

The gender scoring used the same percentages as the climate scoring to keep the method simple. Further work is required to calibrate the scores used for gender scoring more accurately. This could be based on the extent to which gender inequality is reduced by a programme that is fully focused on women and delivers benefits only to women.

The Benin case study introduced a 'very high' category, with a score of 40% to refer to programmes that were particularly strongly focused on climate or gender. This can be justified by the fact that the programmes included a mix of 'high' category expenditure (with CC%/GE% of 30%) and some fully dedicated expenditure (with CC%/GE% of 100%).

In line with the CCIA method, the benefits or advantages related to climate adaptation were determined as those that lead to an avoidance of future economic, social and environmental losses. The CCIA method can be applied in different ways. In the case study, the main types of benefits, analysed for each programme, have been categorised as follows:

- Economic growth
- Social development
- Environment
- Mitigation
- Adaptation.

These five dimensions of sustainable development represent the total benefits (i.e. 100 percent) of a given programme. The framework above was extended to include the benefits of gender mainstreaming, taking into account climate change. These were determined by considering the following questions:

- Income: does the project/programme lead to an increase in women's income while the effects of climate change are present?
- Workload/time management: is the project/programme likely to lead to a reduction in women's current workload, leaving them more time for other activities, despite climate change?
- Financial inclusion: does the project/programme create additional economic opportunities for women, for example through microfinance, other forms of credit and/or training/capacity building?

- Gender-based violence: does the project/programme include activities that will protect women from gender-based violence?

Two publicly funded programmes were selected from the agriculture and energy sectors (details on the programmes selected are in the following section). The assessment was conducted in collaboration with sector ministry experts who provided a measure indicating the contribution of climate change adaptation or mitigation and gender mainstreaming to improving general development benefits of the selected programmes. The CCIA method involves using a table to disaggregate the component benefits, assess the relative importance of these benefits and then assess the extent to which the benefits change when climate change is taken into account. Several different versions of this table have been applied. The table records the assessment in an explicit manner that can be reviewed and refined if additional insights and evidence become available.

The method is designed to produce comparable results (in the form of weights) across sectors, allowing for decision-making in the planning and preparation of the annual budget and medium-term programmes. The added value of gender mainstreaming has been integrated in a way comparable to that of climate change,[4] as part of gauging the 'developmental' value of the programme. It is therefore a qualitative method, based on the assessments of sector climate, gender and public finance experts in a particular country. More specifically, this approach contributes to:

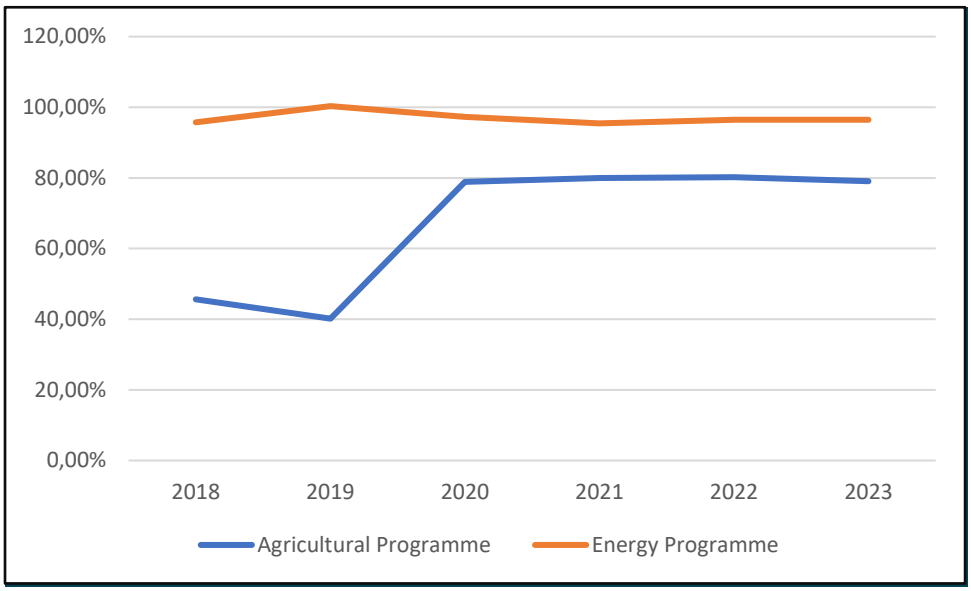
> helping government departments design and evaluate their actions and so improving their chances of obtaining funding, in the budget or from other funds; helping ministries in charge of planning and finance, and fund managers to select the highest priority actions to fund; providing one of the key building blocks to enable national and local governments to assess what proportion of the CC and gender challenge they are likely to address. (Climate Scrutiny 2021, p. 1)

[4] The weights used for climate change are based on evidence of the impact of climate change. Ideally, these should be calibrated using the latest climate science for the country concerned but standard international reference weights can be used for a rapid assessment. In the case study, the different categories (i.e. high/mid/low) have been assigned the same for both gender and climate, to keep the task as simple as possible. In theory, it would be possible, and appropriate, for different weights to be used for gender (e.g. reflecting the level of inequality and the extent to which a focus on gender will reduce that inequality).

3. Brief description of the agriculture and energy programmes selected for piloting

Figure 1 below indicates the share of the agricultural and energy programmes selected in their respective sector budgets.[5] Both programmes account for a significant proportion of the total sector budgets. Please see Annex 2 for more information on the amounts allocated to these programmes.

Figure 1: Selected programme share of sector budgets



3.1 Agriculture programme

According to the 2025 Strategic Plan for the Development of the Agricultural Sector (PSDSA) (MAEP, 2017) Benin's agriculture remains mainly rain-fed and is therefore vulnerable to climate change, which represents an unprecedented threat to food security and living conditions, particularly for the most vulnerable groups. The consequences for the agricultural sector include the negative impact on agricultural production and productivity, food and nutritional security, the spread of diseases and the appearance of new epizootics.

In response to this strong climatic constraint, notably the persistence of the effects of climatic variability (rainfall deficit, extreme droughts and floods), the government has undertaken to implement actions to adapt to climate change, provide quality climate information and take actions related to the sustainable management of natural resources. In addition, the 2025 PSDSA includes provisions to reduce the pressure on natural resources and promote good agro-ecological practices.

[5] See additional budget information on selected programmes in Annexes 2 and 3.

In accordance with the requirements of the framework Law on the Environment, an environmental and social impact assessment (ESIA), accompanied by an environmental and social management plan or an environmental impact statement, is carried out before the implementation of specific projects and programmes.
With regard to gender, it should be noted that the approach of the National Agricultural Investment and Food and Nutritional Security Plan (PNIASAN) (MAEP, 2017) recommends specific support for women, girls and young people to enable them to have better access to productive resources and markets. The possible negative effects of the implementation of the PNIASAN on these vulnerable social groups will be taken into account in the environmental and social management plans.

Despite the predominance of family farming, modern agricultural enterprises are increasingly present in the sector. However, their presence remains insufficient to address the food deficits, especially with regard to meat and fish products. Indeed, the current production of meat, milk, eggs and fish is insufficient to meet the nutritional needs of the population.

The PSDSA has included in its Axis 3: Strengthening the resilience of farms to climate change and improving the food and nutritional security of vulnerable populations. This axis includes four components, namely:

- Component 3.1: Agricultural innovations for the benefit of men and women for resilience to climate change and its mitigation.
- Component 3.2: Sustainable management of land and aquatic ecosystems for men and women.
- Component 3.3: Securing and managing access to land for men and women.
- Component 3.4: Promotion of food and nutritional security for men and women.

Various factors have led to the current performance of the agricultural sector. These include (i) the poor control of technical itineraries, (ii) poor cultivation practices and the impoverishment of soils, especially those in the managed lowlands. Despite the combined investment efforts of the government and development partners, basic infrastructure and equipment needs, such as mechanisation, water control and rural roads, are still not met.

The agriculture programme is a budget programme[6] that serves as a results-based framework for aligning all new interventions in the agricultural subsectors. This reform ensures the coordination of the different actors within the agriculture subsector through a single budget and results framework, and increases accountability within the sector.

The overall objective of the agriculture programme is to develop crop production to (i) contribute to growth, food security and the nutritional security of the population, including both men and women, through efficient production and sustainable management of farms run by men, women and youth (Strategic Objective 1 of the PSDSA); (ii) strengthen the competitiveness of and access to markets for agricultural and agri-food products, including those produced by women and vulnerable groups, through the promotion of plant-based

[6] Benin has been reforming its public finance management, shifting towards a results-oriented budget.

sectors (Strategic Objective 2 of the PSDSA); and (iii) contribute to strengthening the resilience of family farms (Strategic Objective 3 of the PSDSA).

The programme selected for the piloting exercise focuses on three axes of the PSDSA, namely:

- **Improvement of productivity and production of plant products in priority agricultural sectors.** The concrete actions to be carried out under this axis in 2018 were to: (i) strengthen the availability and accessibility of quality seeds and seedlings; (ii) strengthen accessibility to other types of agricultural inputs; (iii) mechanise agricultural activities adapted for and accessible to men and women; (iv) improve access to professional knowledge and technological innovations for men and women; and (v) promote hydro-agricultural developments and infrastructures that allow greater market and other forms of access.

- **Promotion and equitable structuring of value-addition chains.** This axis requires the following concrete actions to be carried out: (i) reinforce the control system of commercial standards and (ii) implement geographical indications (signs indicating the geographical origin of products and their distinctive qualities or characterstics).

- **Strengthening resilience to climate change and improving food and nutritional security of vulnerable populations.** The actions of this axis are to: (i) devise agricultural innovations for the benefit of men and women for resilience to climate change and its mitigation and (ii) implement sustainable land management.

3.2 Energy programme

The energy programme is derived from the strategic development plan for the energy sector. This plan is based, among other things, on (i) the policy and strategy document for the development of the electrical energy sector established by Decree No. 2007-290 of 16 June 2007; (ii) the sustainable recovery plan for the electricity subsector adopted by the Council of Ministers at its meeting of 11 August 2016; (iii) the master plan for the development of the electric power subsector adopted by the Council of Ministers in May 2017; and (iv) the Strategic Plan of the Ministry of Energy 2020–2024 currently under adoption.

The energy programme aims to provide Benin with a platform of quality energy services, in sufficient quantity and under optimal conditions of cost and security of supply; to develop tools for resilience and adaptation to climate change; and to make energy services available according to the population's needs.

Specifically, its objectives are to consolidate energy resources, to promote the diversification of energy sources, and to improve access to energy and knowledge about energy for all.

To achieve the above objectives, two strategic axes are to be included. These are:

- **Diversification and consolidation of energy resources.** The diagnostic analysis of the energy sector reveals that its deficits result from insufficient energy sources and resources. In addition, the management of the available energy potential is not optimal. To remedy these weaknesses, it is necessary to reorganise the production system, combining more efficient management of sources with technologies that

maximise the energy potential and its profitability for economic and social performance. Through this axis, the main actions to be carried out include, among others: (i) the development of infrastructure for the production, transport and distribution of electrical energy, while ensuring a safe environment for the men and women involved in the process of supplying electrical energy; and (ii) the development of renewable energy and energy efficiency.

- **Increasing access to energy and knowledge about energy for all.** This axis aims to facilitate equitable access to energy for men and women in both urban and rural areas. The major action therefore remains electrification and the use of electrical energy.

4. Application of the methodology

This section outlines the application of the GCCIA methodology to the selected agriculture and energy programmes in Benin. The process involved extensive consultations, which are central to the success of the method.

4.1 Participants and process

The GCCIA qualitative evaluation of selected programmes in the agriculture and energy sectors, as indicated in section 3, is an approach that combines elements of cost benefit analysis and multi-criteria analysis. The assessment was undertaken with experts from the ministries concerned (energy, agriculture, gender), notably (i) the Directors of Planning and Forecasting, (ii) the Gender and Environment units of the ministries,[7] and (iii) the executives of the Directorate-General for the Budget, notably the Directorate of Preparation and Monitoring of the Execution of the Finance Act. For a full list of those involved in the consultations please see Annex 3. It should be noted that the Directorate-General for the Budget is responsible for developing the national framework for gender budgeting in Benin.

The sessions were conducted face-to-face with the local consultant who led the sessions, and by videoconference involving international consultants. The choice of programmes was made by the managers in the sector ministries concerned in collaboration with the experts of the budget preparation department. Please refer to Annex 1 for a full description of the steps involved in piloting the GCCIA method.

4.2 Assessing benefits and sensitivity

The expected benefits of the programmes identified by the experts in the concerned ministries were based on the logical frameworks defined for the programmes. The analysis was limited to the strategic axes outlined in section 3.

The relative importance of each of the component benefits was assessed by the same experts. The component benefits were identified as separate programmes in the budget and the relative importance of the benefits was assumed to be roughly proportional to the level of expenditure allocated for the three-year period 2021–2023 in the medium-term expenditure framework (MTEF).[8]

Establishing the sensitivity of each benefit to climate change (i.e. CC%) was based on the nature and severity of the way climate change would affect (positively or negatively) these benefits. The potential effect of taking gender into account on the benefits (ie GE%) was used to establish the gender sensitivity of the benefit. The categories of climate change sensitivity and gender sensitivity were assigned a weight in a four-way scale of 40%/ 30%/ 20%/ 10%/ 0%, corresponding to the degrees of sensitivity of Very high/ High/ Medium/ Low/ Non-

[7] The Ministry of Agriculture, Livestock and Fisheries; and the Ministry of Energy.
[8] In Benin, the systems for designing, appraising and approving programmes include requirements to take into account the risks of climate change and gender inequality and the assessment assumed that the design had been successful in meeting these requirements.

existent, respectively. For each component benefit, these weights represent the proportion of the total benefits (i.e. development plus climate plus gender benefits) that are attributed specifically to climate and gender. The CC% and GE% for the whole programme is then calculated as the average of the individual CC% and GE% obtained for each component benefit, weighted by the relative importance of each benefit.[9]

[9] A mathematical formulation of this approach is that CC% (or GE%) is determined by (B-A)/B, where A is the development benefits without taking climate (or gender) into account and B is the benefits when climate (or gender) is taken into account.

5. Results and lessons learned

5.1 The case of the agriculture programme

Table 1 below presents the scoring matrix obtained. Columns A to A2 present the benefits of the programmes as designed and their relative importance as agreed between the experts. Columns B and C present the sensitivity as determined for each benefit to climate change and to gender, their degree and scoring. Columns D and E show the benefits without climate change or gender.

Table 1: Results of the analysis of additional effects (co-effects) due to the integration of climate change and gender effectsin the agriculture programme

A Total benefits of the programme (including CC and gender benefits)	A1 Relative importance of total benefits (modalities: high/ medium/ low)	A2 Total benefits score (including climate change and gender)	B Sensitivity of benefits to climate change	C Gender sensitivity of benefits	B1 Degree of sensitivity to climate change (modalities: very high/ high/ medium/ low/ not available)	C1 Degree of gender sensitivity (modalities: very high/ high/ medium/ low/ nonexistent)	B2 Score for sensitivity to climate change	C2 Score for gender sensitivity	D-Benefits without climate change	E Gender-neutral benefits
Increase in agricultural production	high	3	Agriculture remains highly dependent on rainfall which can be erratic as a result of climate change. .Improved technical itinerary helps to conserve soil moisture.	Women do not have the same levels of access to production factors (land, inputs, seeds, etc.). Increasing agricultural production could increase the income gap between men and women.	high	medium	30%	20%	2.1	2.4
Improved agricultural productivity	high	3	Without the programme, the low resilience of producers and their farms (ecosystems) to climatic hazards could affect agricultural productivity.	The low resilience of women and their farms to climatic hazards could impact their productivity.	high	high	30%	30%	2.1	2.1
Promotion and equitable structuring of value-added chains	medium	2	Climate change could affect the promotion and structuring of value chains (slightly). However, the development of the production link is sensitive to climate change.	The low presence of women in the most remunerative parts of the agricultural value chains could affect the equitable promotion of value chains.	low	medium	10%	20%	1.8	1.6
Development of adequate infrastructure for the production, storage,	high	3	CC effects (flooding, high winds, etc.) could affect the life span of the	Women are predominant in the processing and marketing of agricultural products and in market gardening. The impact	medium	high	20%	30%	2.4	2.1

preservation, processing and marketing of agricultural products			infrastructure built.	of climate change on production (hydro-agricultural development), processing (food storage facilities, etc.) and marketing infrastructures (rural access roads, bridges, etc.) could affect women's activities.						
Greater resilience to climate change	medium	2	Adaptation and mitigation measures could greatly enhance resilience to climate change.	Failure to take into account the specific adaptation and mitigation needs of women's activities could affect their resilience.	high	very high	30%	40%	1.4	1.2
Improved food and nutrition security for vulnerable populations	high	3	The effects of climate change (rainfall, high winds, floods, pockets of drought, etc.) could threaten food security.	Women are in precarious jobs with low incomes and have difficulty meeting their basic needs. Improving food security would strengthen their health to take better care of domestic activities, provide better care for children, increase their activity rate and make them less vulnerable.	high	very high	30%	40%	2.1	1.8
Totals		**16**							**11.9**	**11.2**
Climate change co-benefits									**25.63%**	
Gender co-benefits										**30.00%**

Source: Agricultural programme description and results of the evaluation by the sector experts

5.1.1 Results of the agriculture programme exercise

- As mentioned earlier, the inclusion of climate change and gender effects in programme budgeting is accompanied by additional effects (or co-benefits) that are over and above the initial sustainable development effects of the programme. For example, in the agriculture programme, taking climate change into account results in an additional benefit of 25.63%, while taking gender into account improves development results by 30%.[10]

- Taking into account the effects of climate change and gender through Axis 3 of the PSDSA,[11] the total benefits of the agriculture programme, (i.e. including development, climate and gender-related benefits) were assessed as 16 points according to the methodology adopted.

- The benefits of the agriculture programme without considering the effects of climate change total 11.9 points. Thus, the additional effect of the programme taking climate change into account is: 16-11.9 = 4.1 points corresponding to the weight of 4.1/16 = 25.63%.

- Similarly, it is shown that considering the gender effects of the agriculture programme increased the effects of the programme by 16-11.2 = 4.8 points corresponding to a weight of 4.8/16 = 30%.

- In total, the agriculture programme takes into account climate change adaptation and mitigation on the one hand, and structural barriers and power imbalances faced by women and men in Benin (i.e. gender) in food and nutrition security on the other. The GCCIA method requires these drivers and processes to be described in the qualitative columns and then the relative importance of the processes to be assessed in the categories of sensitivity assigned. Initially, the interpretation of the method tends to focus on the resultant score and the implications for the budget. However, the wider objective of applying the method is to draw attention to the qualitative nature of sensitivity.

5.2 The case of the energy programme

Table 2 below presents the scoring matrix obtained for the energy programme. Columns A to A2 present the benefits of the programmes as designed and their relative importance as agreed between the experts. Columns B and C present the sensitivity as determined for each benefit to climate change and to gender, their degree and scoring. Columns D and E show the benefits without climate change or gender.

[10] These benefits are expressed as a percentage of the total benefits, not an increase from development benefits to total benefits.
[11] Axis 3: Strengthening the resilience of farms to climate change and improving the food and nutritional security of vulnerable populations.

Table 2: Results of the analysis of additional effects (co-effects) due to the inclusion of climate change and gender effects inthe energy programme

A Total benefits of the programme (including CC and gender benefits)	A1 Relative importance of total benefits (modalities: high/ medium/ low)	A2 Total benefits score (including climate change and gender)	B Sensitivity of benefits to climate change	C Gender sensitivity of benefits	B1 Degree of sensitivity to climate change (modalities: very high/ high/ medium/ low/ not available)	C1 Degree of gender sensitivity (modalities: very high/ high/ medium/ low/ nonexistent)	B2 Score for sensitivity to climate change	C2 Score for gender sensitivity	D Benefits without climate change	E Gender-neutral benefits
Increased availability of electrical energy (fewer outages, more power)	high	3	Increasing temperatures due to climate change and irregular rainfall would affect the production of electricity (from hydroelectric dams).	The greater availability of electricity would allow women to use it to preserve perishable food products, thus saving money.	low	high	10%	30%	2.7	2.1
Increase in the number of subscribers to the electricity network	medium	2	The effects of climate. change including high winds and excessive flooding would affect the electricity network and therefore affect the number of subscribers.	The access of women (head of household) to electrical energy would improve their working conditions (reduction of the arduousness of unpaid care work) and would allow them to devote themselves to other income-generating activities that are sources of wealth.	low	medium	10%	20%	1.8	1.6

Increased share of renewable energy in the total energy supply	high	3	The irregular evolution of temperatures induces a variation of the sunshine time which would affect the energy produced from renewable energies.	Renewable energy can be deployed in rural areas without conventional electricity connections, where there are more women than men. The increase of this renewable energy would allow income-generating activities for women, even late at night.	medium	high	20%	30%	2.4	2.1
Increased national electricity coverage	high	3	The effects of climate change, including high winds and excessive flooding would affect the development of the electricity network in some localities.	Improving national electricity coverage enhances security through the installation of street lights, allowing income-generating activities for women, even late at night.	low	high	10%	30%	2.7	2.1
More equitable access to energy for men and women	high	3	The effects of climate change, including high winds and excessive flooding would affect the electricity grid and therefore affect the accessibility of electricity to men and women.	Few women in Benin have access to electricity. Equitable access would increase the proportion of women with access to electricity and thus the possibility to improve their income.	low	high	10%	30%	2.7	2.1

Conservation of wood resources	medium	2	Climate change, through excessive temperature rise, could lead to fires in forests and affect the conservation of wood resources.	When women no longer cut wood from the forests for charcoal production and cooking, these uncut forests could be used for other purposes, such as beekeeping.	low	medium	10%	20%	1.8	1.6
Reduction of public health problems caused by smoke	medium	2	Not applicable	Women's use of wood and charcoal for cooking exposes them and members of the household to health problems due to smoke inhalation. Reduced use of wood resources would save women time and resources in treating smoke inhalation diseases.	does not exist	medium	0%	20%	2	1.6
Totals		**18**							**16.1**	**13.2**
Climate change co-benefits									**10.56%**	
Gender co-benefits										**26.67%**

Source: Energy programmes description and results of the evaluation by the sector experts

5.2.1 Results of the energy programme exercise

- In the case of the energy programme, the sustainable development benefits of this programme without taking into account the effects of climate change total 16.1 points. If the additional effects (co-benefits) of taking into account the effects of climate change are included, this results in 18 points. This shows that taking the effects of climate change into account increases the energy programme's additional benefit (co-benefit) by 18-16.1 = 1.9 points, corresponding to a weighting of 1.9/18 = 10.56%.

- Similarly, the results in Table 2 above show that taking gender into account in the energy programme increases the benefit score of this programme by 18-13.2 = 4.8 points, which corresponds to a weight in the total benefit of 4.8/18 = 26.67%.

5.3 Conclusions relevant to both programmes

- Benin's agriculture remains predominantly and essentially rain-fed and therefore vulnerable to climate change, which represents an unprecedented threat to food security and to the living conditions of the most vulnerable socioeconomicgroups of Benin's population, particularly women and girls. The consequences for the agricultural sector include a negative impact on agricultural production and productivity, food and nutritional security, the spread of diseases and the appearance of new epizootics.[12] In the face of such climate constraints, it seems important to achieve the objectives set for the agricultural sector: to adopt agriculture practices that respond simultaneously to adaptation, mitigation and food security needs while preserving the environment to the extent possible. Indeed, the protection of agricultural livelihoods, and thus food and nutrition security, depends on reducing the influence of risk factors affecting the sector. The negative impact of natural hazards can be reduced, mitigated, or prevented through investments in sustainable food production models and the application of appropriate agricultural techniques and practices that increase yields and build resilience to production shortfalls (MAEP 2017). The government's clear commitment to take into account the effects of climate change on the agricultural sector in the MTEF has resulted in significant additional impacts in terms of both climate change and gender equality.

- Similarly, it should be noted that the expenditure in the energy programme also takes into account, on the one hand, adaptation to and mitigation of climate change and, on the other hand, the structural barriers and gender power imbalances in Benin that result in unequal access to energy, and improved working conditions, such as reducing the arduous nature of women's unpaid care work. Taking into account these gender inequalities also allows women better access to electrical energy for the conservation of perishable food products, which enables them to save money and time, this increasing the opportunities to carry out additional income- generating activities, and to do so safely.

[12] Here agriculture is referred to in its broad sense, including fishing and livestock.

- The simultaneous consideration of gender and climate change issues in programmes through climate- and gender-responsive budgeting is a real promotion of sustainable and inclusive development actions and a stimulating factor for growth and the achievement of the Sustainable Development Goals (SDGs).

- In general, the agriculture and energy programmes take into account the effects of climate change and gender inequalities. However, it should be noted that:

  - Both programmes are more sensitive to gender than to climate change. This could be justified by the fact that since 2016, the government has increasingly adopted aspects of gender-responsive budgeting in view of the social inequalities that persist between men and women, and girls and boys.

  - The agriculture programme takes climate change and gender better into account than the energy programme, largely due to the prominence of agriculture in the national adaptation plan and nationally determined contributions documents that have been developed and are under implementation. This would also be justified by the greater sensitivity of the agriculture sector to the effects of climate change on women and girls in terms of food and nutrition security.

6. Refining the scoring of sensitivity

The assessment in these two pilot programmes reported on the extent to which climate change adaptation or mitigation and gender mainstreaming contribute to protecting programme benefits from vulnerability to CC or the risks of increased gender inequality. It assumed that the programmes would be successful in reducing vulnerability, since protection should be integrated into the design of the programmes. Future applications of the methodology could include an explicit focus on whether programmes have actually been designed and implemented to reduce the risks identified. This would inform the future design and financing of programmes and add to the quality of the debate over the definition of benefits and the scoring of sensitivity.

7. Lessons learned

The following lessons were drawn from the application of the methodological approach used for the analysis. It is clear that both the initially designed GCCIA methodology, and how it was applied to the two programmes in Benin, require further development. Critically, the methodology should cater both for programmes at the design stage and for assessing programmes at the financing stage. When applied during evaluation, there is a tendency to focus on the extent to which climate and gender may generate losses for the programme (i.e. from loss and damage and increased gender inequality). In contrast, when applied during design and appraisal, the tendency is to focus on the nature and extent of the way the programme avoids these losses. It is, therefore, necessary to clarify that the focus of the work is to understand the benefits derived from reducing losses. In order to do this, it is necessary also to understand the potential losses and then focus on their reduction. This is particularly applicable in countries like Benin, where climate change mainstreaming is a legal requirement and gender budgeting is increasingly becoming an area of dedicated effort.

With regard to the understanding of the analytical and methodological approach used:

- The methodological approach was clear and well understood but should in future provide more guidance on how to better reflect the experts' opinions about the level of importance of the various benefits, and their sensitivities to climate change and gender effects.

- A collegial approach involving sector experts in addition to experts in climate change, gender and budget is necessary to reduce subjectivity: the exercise can only be validated when it is carried out by a group of experts across the sector (or subsector) and cross-cutting experts. Therefore, the preparation of the assessment needs to be specific to each programme, highlighting programme-specific key aspects of climate change and gender, and their likely changes over time.

- As the method is based on sector knowledge and practice, it is necessary to repeat the exercise several times in order to master it and ensure its ownership by the experts. Such iteration may be useful in translating the methodology into user-friendly operational tools and guidelines for ministries.

- Sector ministries propose to link the exercise to budgeting through programme performance indicators and their target values. This would require further development but will help in justifying a yearly assessment and better connecting to multi-annual and annual budgeting processes.

With regard to the application of the methodology used for other programmes in the planning and budgeting process:

- The two pilot ministries (agriculture and energy) indicated that the methodology appears to be applicable and very useful in the context of mainstreaming cross-cutting themes (gender, environment, and SDGs) into sectoral public policies.

- The methodology is replicable to other programmes and sectors. To this end, better guidance and filled in tables with concrete examples can be used at each stage of the implementation of the methodology to better explain the assignment of scores and results.

8. Strategic lessons learned

- Those who are implementing the exercise must be highly aware of climate change and gender concepts, both generally and within the sector, familiar with the specificities of both elements in the particular country/region, and guided by specific sector assessments.

- Conducting the assessment can be done at different stages of the programming and budgeting cycle. The tools may be further developed to be specifically used during programme design.

- Assessing how positively or negatively development benefits change when taking climate change and gender into account needs to be well defined at the programme design stage in order to provide a rating against which the programmes can be assessed.

- Information on climate change and gender disaggregated data need to be made available, otherwise the analysis will remain generic.

- Training and capacity building is necessary, and must be a continuous exercise.

- The officials undertaking the exercise should be made aware of the potential benefits of undertaking it, since doing so could lead to increased efficiency in the allocation of funds, with programmes receiving higher scores securing more funding.

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Annex 1: Steps taken during the piloting of the methodology

1. Scoping session and launch of the evaluation by videoconference on Thursday 22 July 2021: in the presence of representatives from the agriculture and energy sectors, executives from the budget directorate, the local consultant and CABRI's international experts, the scoping session enabled everyone to understand the objectives and urgency of the work CABRI had requested in Benin, to facilitate better decision-making.

2. The director of the Preparation and Monitoring of the Execution of the Finance Act (DPSELF) convened the sector experts' committees on Friday 23 July 2021 to select the case study programmes. At the end of this session, the two programmes – agriculture and energy – were selected and diverse documents about them handed over to the local consultant (with a copy to CABRI) for analysis.

3. This was followed by a literature review on the methodological approach based on the documents provided and the proposal of an analytical framework with an Excel file sent to the national authorities (agriculture, energy and the budget directorate) for amendment.

4. After amendment and final adoption of the analytical framework, several meetings were held to apply the methodology:

   (i) Zoom meetings to present the analytical framework and the use of the evaluation tool for the two selected programmes and to collect questions and comments, and then for the different stakeholders to collectively approve the analytical framework.

   (ii) Face-to-face meetings at each ministry and application sessions. The application sessions always started with an explanation of the assessment framework, the example contained in the analytical framework document, the effects of climate change and gender aspects, and the tool designed for this assessment. Thus, on Thursday 29 July 2021, from 10:00 to 15:00, the analytical framework document to be used for the agriculture programme was finalised on behalf of the Ministry of Agriculture, in the presence of the executives of the gender and environment unit and of the monitoring-evaluation service. The ministry's Director of Programming and Forecasting and his deputy (who were not present in the ministry at the time) followed the session by videoconference.

5. Logical framework documents, the agriculture sector strategic plan and other internal evaluation documents were used by sector professionals to identify the various benefits (intended effects) of the agriculture programme.

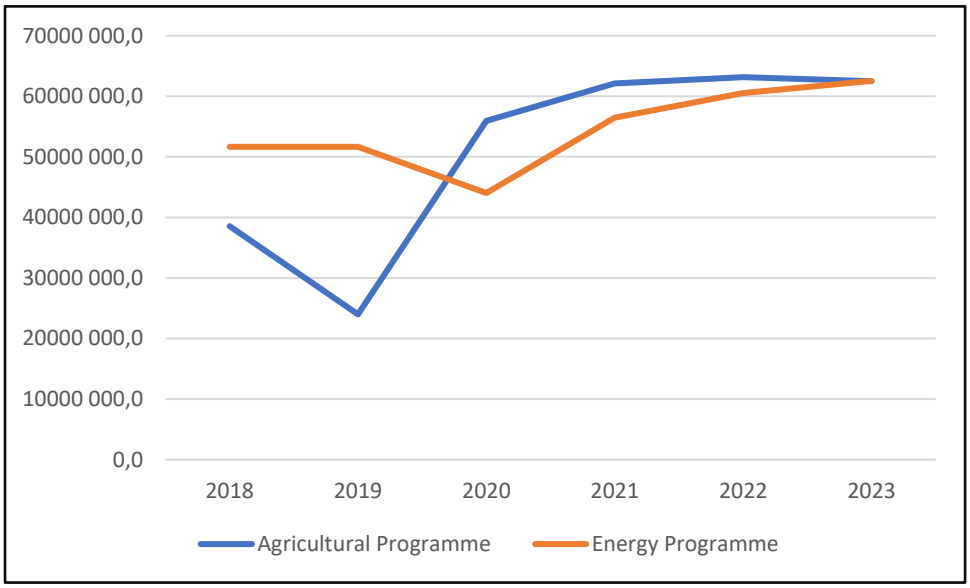
6. For each benefit, the different headings in the assessment tool were carefully filled in. As the assessment was qualitative, each person, based on their knowledge of the sector and their professional experience, assigned a value (high/average/reliable or

very high/high/average/low/non-existent) before arriving at a joint assessment in the light of the sector's performance and the projections made for the coming years (budget developments included in the sector's MTEF).

7. The same session, with the same approaches, took place face-to-face on the same day from 16:00 to 18:00 at the Ministry of Energy. This session was followed by videoconference and was attended by the Director of Programming and Forecasting and the Head of the Monitoring and Evaluation Department of the ministry. As filling in all the information for the assessment tool was not completed, the session resumed on Friday 30 July 2021 at 10:00.

8. The results were sent on Saturday 31 July 2021 (in Excel format) to the different agriculture and energy ministry sectors, as well as to the Budget Directorate, for comments and observations.

Annex 2: Agricultural and energy programmes budgets in FCFA (1000)



	2018	2019	2020	2021	2022	2023
Agricultural programme	38 555 394	23 997 338	55 929 025	62 117 566	63 154 980	62 493 034
Energy programme	51 651 726	51 651 726	44 029 492	56 467 092	60 546 218	62 546 218
	2018	2019	2020	2021	2022	2023
Agricultural programme	45.66%	40.16%	78.88%	79.94%	80.21%	79.03%
Energy programme	95.78%	100.32%	97.28%	95.44%	96.47%	96.49%

Annex 3: List of people met

Ministry	Function
Ministry ofEnergy (ME)	Director of Planning and Forecasting (DPP)
	Head of the Monitoring and Evaluation Department (CSE)
Ministry ofAgriculture, Livestock andFisheries (MAEP)	Director of Planning and Forecasting (DPP)
	Head of the Monitoring and Evaluation Department CSE)
	Assistant to the Director of Planning and Forecasting
	Executive in the Gender and Environment Unit
Directorate-General for the Budget (DGB)	Director of the Preparation and Monitoring of the Execution of the Finance Act (DPSELF)
	Staff member, Programming and Budgeting Department SPB
	Staff member, Steering Unit for Improving Budget Transparency and Communication UPTABC
	Resource person