



World Food Programme

SAVING
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LIVES

WFP Critical Corporate Initiative: Climate Response Analysis for Adaptation

Guinea-Bissau

Alliance



RESEARCH PROGRAM ON
Climate Change,
Agriculture and
Food Security



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Key messages

CONTEXT

Guinea-Bissau is a low-income, food-deficit country with significant development challenges and high vulnerability to climate change. High levels of poverty, political instability, a general absence of employment opportunities, and a lack of basic services especially in rural areas dominate the socioeconomic profile of the country. The adaptive capacity of the largely poor and food-insecure rural population is low, yet climate change impacts already manifest in increasing occurrences of droughts, flooding, and waterlogging. To better respond to and anticipate the needs of the local population under current and future arising climate challenges, the present report provides an assessment of future projections of climate change impacts on food and nutrition security and vulnerability indicators and elaborates recommendations for climate adaptation response programming for World Food Programme (WFP) operations in four livelihood zones (LZs): the eastern highlands (LZ1), northeastern plains (LZ2), northern coastal zone (LZ3), and southern coastal zone (LZ4).

PROJECTED CLIMATE CHANGE IMPACTS THROUGH 2050

- **Although Guinea-Bissau is small, projected climatic changes and recommendations for adaptation responses differ according to the LZ and agroecological conditions.** While climate projections suggest a general warming trend across the whole country, precipitation will likely become more erratic and unpredictable, with some parts receiving more and other parts less precipitation in the future. There is a general precipitation increase projected in the near future (2030) and a subsequent decrease in the medium-term future (2050). The decrease is highest in the northeastern plains and lowest in the southern coastal zone. Accordingly, the flood and waterlogging risk increases in the future particularly in the southern coastal zone and eastern highlands (LZ1 and LZ4), whereas the drought risk increases significantly in the northern part of the country, particularly in the northern coastal zone and northeastern plains (LZ2 and LZ3). With high and increasing temperature levels across the whole country, thermal heat stress is already elevated and will continue to impact human and animal health, being particularly detrimental for livestock productivity.
- **Both coastal zones (LZ3 and LZ4) will also likely be affected by sea level rise in the future.** Sea level rise will impact both the northern and southern coastal zone (LZ3 and LZ4); the southern zone will be most affected, especially around Catió, Cufar, and in estuaries along the border with Guinea. In the north, projections indicate future permanent flooding of a few areas adjacent to estuaries, mainly around Cacheu. Crop production will be impacted by permanent loss of land due to sea encroachment and by increases in flooding and the salinization of fields.
- **Despite projected climatic changes in temperature and precipitation and the related occurrence of droughts and flooding, the suitability of most assessed key crops is projected to remain high throughout Guinea-Bissau.** In particular, the entire country is classified as highly suitable for the cultivation of rice, cashews, and millet in past and future projected scenarios, whereas suitability for cassava is projected to continuously decline from highly suitable to medium-suitable, particularly in eastern parts of Guinea-Bissau towards 2030 and 2050. This trend, however, can be counteracted by adopting heat-tolerant cassava varieties, which will keep suitability in future projections at a high level throughout almost the whole country, except the southern part of the southern coastal zone.

ECONOMETRIC ANALYSIS OF CLIMATE CHANGE IMPACTS OF AVAILABILITY AND STABILITY OF FOOD SUPPLY THROUGH 2050 (IMPACT)

- **According to an economic analysis based on a future scenario involving high global carbon emissions, few mitigation efforts, and improved technology, improvements in agricultural productivity and yield are projected to increase the availability and stability of food supply through 2050.** These increases are likely to decrease levels of hunger and undernourishment by increasing caloric availability and consumption. While these gains are in line with socioeconomic trends, they are due to rapid industrialization, technological innovation, and improving education levels rather than better climatic conditions. On the contrary, agricultural gains will be suppressed by negative climatic trends that prevent the sector from reaching maximum potential productivity. In Guinea-Bissau, the negative climate impact is especially pronounced for groundnuts, and relatively slight for rice, millet, and sorghum. Harvested area, meanwhile, is projected to be considerably higher under climate change (CC) than under the no climate change (No-CC) benchmark, resulting in higher production of these crops under CC despite lower yields. Cassava exhibits considerable resilience, with a projected yield that is higher under CC than under the No-CC benchmark.
- **Additionally, these gains may be distributed unevenly, leading to pockets of entrenched deprivation.** A geospatial hotspot analysis of eight vulnerability dimensions finds different types of vulnerability occurring in tandem across all LZs, with areas facing a high number of overlapping vulnerabilities commonest in the western parts of the northern coastal zone as well as in pockets spread across the remaining LZs, particularly in the northeastern plains and eastern parts of the southern coastal zone. Without effective intervention, current vulnerability indicates a preponderance for future vulnerability, suggesting that national-level gains in agricultural productivity or socioeconomic development may be felt less fully in these areas.



RECOMMENDATIONS AND OPPORTUNITIES FOR FUTURE WORLD FOOD PROGRAMME PROGRAMMING, PARTNERSHIPS, AND FUNDING STREAMS

- **Adaptation recommendations for WFP programming focus on promoting agricultural production measures against droughts, particularly in the northeastern plains and northern coastal zone; against flooding and waterlogging, particularly in southern coastal zone and eastern highlands; and against sea level rise, high tides, and the salinization of crop fields, particularly in coastal areas.** Adaptation measures should be implemented both at household and community level as well as at landscape level. Household- and community-level practices focus on climate-resilient agricultural and livestock production, such as by promoting crop varieties tolerant of droughts or waterlogging, water-saving irrigation, or short-cycle livestock breeds. Landscape-level recommendations, on the other hand, revolve around forest conservation, reforestation, and sustainable use of forest resources. In addition, adaptation recommendations are also given at the policy and institutional level, supporting community- and landscape-level activities with institutional systems and processes including early warning systems, forecast-based finance, mainstreaming of climate change into national and provincial-level policy documents, and improving education and awareness campaigns around climate resilience (Table 2).
- **Adding climate adaptation programming into their portfolio also increases opportunities for WFP to access international climate financing mechanisms for their work in Guinea-Bissau.** Existing climate resilience projects and proposals in the pipeline from other organizations are relatively few yet represent a good indication of suitable funds to approach. These include international funds like the Global Environment Facility, the Green Climate Fund, the Adaptation Fund, the Least Developed Countries Fund, the International Fund for Agricultural Development, the European Union (EU) Global Climate Change Alliance Plus Initiative, and the West African Development Bank. WFP should seek strategic partnerships with organizations to develop joint climate adaptation-focussed project proposals and

Acronyms and abbreviations

AEZ	Agroecological zones
AF	Adaptation Fund
CC / No-CC	Climate Change / No-Climate Change
CGIAR	Consortium of International Agricultural Research Centres
CIAT	International Centre for Tropical Agriculture
CLEAR	Consolidated Livelihood Experience for Analysing Resilience
CSP	Country Strategic Plan
DENPARP II	Second National Poverty Reduction Strategy Paper
EU	European Union
FAO	United Nations Food and Agriculture Organization
FNSMS	Food and Nutrition Security Monitoring System
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
HDI	Human Development Index
IFAD	International Fund for Agricultural Development
IMPACT	International Model for Policy Analysis of Agricultural Commodities and Trade
INE	Instituto Nacional de Estadística (National Statistics Institute)
IUCN	International Union for the Conservation of Nature
KIIs	Key Informant Interviews
LDC	Least Developed Country
LDCF	Least Developed Country Fund
LPDA	Letter of Agricultural Development Policy
LZ	Livelihood Zone
NAPA	National Adaptation Program of Action
NGO	Non-Governmental Organization
ODA	Overseas Development Aid

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