RRI

RISK REDUCTION INDEX

IN WEST AFRICA

CAPE VERDE - GAMBIA - GHANA - GUINEA - NIGER - SENEGAL

ANALYSIS OF THE CONDITIONS AND CAPACITIES
FOR DISASTER RISK REDUCTION

DARA

DARA and the Risk Reduction Index (RRI)
Risk Reduction Index (RRI) in West Africa
Analysis of the conditions and capacities for Disaster Risk Reduction
Cape Verde, Gambia, Ghana, Guinea, Niger, and Senegal

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LIST OF ACRONYMS

GENERAL

- Africa Adaptation Programme **(AAP)**
- African Development Bank **(AfDB)**
- African Urban Management Institute **(IAGU)**
- African Urban Risk Analysis Network **(AURAN)**
- Climate Change Adaptation **(CCA)**
- Country Policy and Institutional Assessment **(CPIA)**
- UK Department for International Development **(DFID)**
- Disaster Risk Management **(DRM)**
- Disaster Risk Reduction **(DRR)**
- Early Warning System **(EWS)**
- Economic Community Of West African States **(ECOWAS)**
- European Union **(UE)**
- Food and Agriculture Organization of the United Nations **(FAO)**
- Global Alliance for Resilience Initiative **(AGIR)**
- Global Environmental Facility **(GEF)**
- Global Facility for Disaster Reduction and Recovery **(GFDRR)**
- Hyogo Framework for Action **(HFA)**
- International Federation of Red Cross and Red Crescent Societies **(IFRC)**
- International Fund for Agricultural Development **(IFAD)**
- Millenium Development Goals **(MDGs)**
- National Adaptation Program of Action **(NAPA)**
- Non Governmental Organisation **(NGO)**
- Office for the Coordination of Humanitarian Affairs **(OCHA)**
- Organisation for Economic Co-operation and Development **(OECD)**
- Organization of the Petroleum Exporting Countries **(OPEC)**
- Poverty Reduction Strategy Paper **(PRSP)**
- Principal Components Analysis **(PCA)**
- Representative Territorial Unit **(RTU)**
- Risk Reduction Index **(RRI)**
- Spanish Agency for International Development Cooperation **(AECID)**
- Union économique et monétaire ouest africaine **(UEMOA)**
- United Nations **(UN)**
- United Nations Children's Fund **(UNICEF)**
- United Nations Development Assistance Framework **(UNDAF)**
- United Nations Development Programme **(UNDP)**
- United Nations Educational, Scientific and Cultural Organization **(UNESCO)**
- United Nations Environment Programme **(UNEP)**
- United Nations Framework Convention on Climate Change **(UNFCCC)**
- United Nations Human Settlements Programme **(UN-HABITAT)**
- United Nations Industrial Development Organisation **(UNIDO)**
- United Nations International Strategy for Disaster Reduction **(UNISDR)**
- United States Agency for International Development **(USAID)**
- Water and Sanitation Projects **(WASH)**
- World Bank **(WB)**
- World Development Index **(WDI)**
- World Food Programme **(WFP)**
- World Health Organization **(WHO)**
- World Meteorological Organization **(WMO)**

CAPE VERDE

- Conselho Nacional de Proteção Civil **(CNPC)**
- Environmental Information System **(EIS)**
- Integrated Water Resource Management **(IWRM)**
- Serviço Nacional de Proteção Civil **(SNPC)**
- Sistema de Inventário e Análise para a Avaliaçao de Riscos na Africa Occidental **(SIERA)**

THE GAMBIA

- Early Childhood Development **(ECD)**
- Emergency operation **(EMOP)**
- Gambia Environmental Action Plans **(GEAP)**
- Gambia Priority Employment Programme **(GAMJOBS)**
- Global Climate Change Alliance **(GCCA)**
- National Disaster Management Agency **(NDMA)**
- National Disaster Management Council **(NDMC)**
- National Disaster, Emergency Relief and Resettlement Committee **(NDERRC)**
- National Environmental Agency **(NEA)**
- Participatory Integrated Watershed Management project **(PIWAMP)**
- Programme for Accelerated Growth and Employment **(PAGE)**
- Protracted Relief and Recovery Operation **(PRRO)**
- Public Enterprises Committees **(PAC/PEC)**
- Regional Disaster Management Committees **(RDMC)**

GHANA

- Accra Metropolitan Authority **(AMA)**
- Environmental Protection Agency **(EPA)**
- Free Compulsory Universal Basic Education **(FCUBE)**
- Ghana Growth and Poverty Reduction Strategy **(GPRS)**
- Ghana Shared Growth and Development Agenda **(GSGDA)**
- Ghana Statistical Service **(GSS)**
- Livelihood Empowerment Against Poverty **(LEAP)**
- Microfinance and Small Loans Centre **(MASLOC)**
- Ministry of Food and Agriculture **(MOFA)**
- Ministry of Health **(MoH)**
- Ministry of Interior **(MoI)**
- Ministry of Local Government and Rural Development **(MoLGRD)**
- National Climate Change Adaptation Strategy **(NCCAS)**
- National Commission on Civic Education **(NCCE)**
- National Development Planning Commission **(NDPC)**
- National Disaster Management Organization **(NADMO)**
- National Disaster Management Plan **(NDMP)**
- National Youth Employment Programme **(NYEP)**
- Public Housing Census **(PHC)**

GUINEA

- Assistance Technique et Coopération **(ATC)**
- Association Sauvons les Enfants Déshérités **(ASED)**
- Guinea Current Large Marine Ecosystem **(GCLME)**
- Master Plan for Mangrove Management **(SDAM)**
- National Agriculture Investment and Security Plan **(PNIASA)**
- National Environmental Policy **(PNE)**
- Réseau Guinéen pour la Traction Animale et Développement **(RGTA)**
- Rural Council of Bissikirima **(FDD)**
- Secours Rapide Rural **(SRR)**
- Service National de l'Action Humanitaire **(SENA)**
- Support to Rural Development in North Lower Guinea Project **(PADER-BGN)**

NIGER

- Autorité du liptako gourma **(ALG)**
- Bureau for Crisis Prevention and Recovery **(BCPR)**
- Centre des Crises Alimentaires **(CCA)**
- Comité inter-état de lutte contre la sécheresse au Sahel **(CILSS)**
- Communes et des Systèmes Communautaires d'Alerte Précoce et de Réponses aux Urgences **(SCAP-RU)**
- Early Warning and Hazards Management System **(SAP)**
- Early Warning System Coordination Unit **(CC/SAP)**
- Economic and Social Development Plan **(PDES)**
- Groupe de Travail Inter-Disciplinaire du Systeme d'Alerte Précoce **(GTI-SAP)**
- High Authority for the Fight Against Corruption and Related Offences **(HALCIA)**
- High Intensity Labour Works **(HIMO)**
- National System for Disaster and Crisis Prevention and Management **(DNPGCC)**
- Plan National de l'Environnement pour un Développement Durable **(PNEDD)**
- Regional Committees for Disaster Prevention and Management **(CR/PGCA)**
- Small Grants Program **(SGP)**
- Sub-regional Committees for Disaster Prevention and Management **(CSR/PGCA)**

SENEGAL

- Comité Permanent Inter Etats de lutte contre la Sécheresse dans le Sahel **(CILSS)**
- Direction de la Protection Civile **(DPC)**
- Fédération des Associations Paysannes de Louga **(FAPAL)**
- Grande Offensive agricole pour la nourriture et l'abondance **(GOANA)**
- Groupement d'Intérêt Economique **(GIE)**
- Millennium Villages Project **(PVM)**
- Millennium Water and Sanitation Program **(PEPAM)**
- National Agency Return to Agriculture Programme **(Plan REVA)**
- Organisation des Secours **(ORSEC)**
- Plan de Contigence National **(PCN)**
- Plans d'occupation et d'aménagement des sols **(POAS)**
- Société d'Aménagement et de Promotion des Côte et Zone Touristiques du Sénégal **(SAPCO)**

DARA / Ana Rodríguez

INTRODUCTION

THE CHALLENGE

Disasters often grip the imagination, particularly those that are of high intensity and low recurrence, such as the 2004 Indian Ocean Tsunami, the 2010 earthquake in Haiti or the 2011 tsunami and nuclear disaster in Japan. While disasters of this scale hardly go unnoticed, others are of a 'slow' (or 'hidden') character, such that they barely attract attention from the international community – mainly donors and the media. These are often of a more recurrent nature, such as droughts in the Horn of Africa or floods in West Africa or Pakistan.

What many of these recent disasters have in common is that while much could have been done to save lives and economic resources, few initiatives have had sufficient time-span and sectoral breadth to adequately prepare populations to face natural hazards or to help prevent the occurrence of significant losses.

Today disasters cause ever more severe economic losses (even in OECD countries) and for some vulnerable countries disasters can significantly hamper economic progress and erode hard-won development efforts.

While mortality rates associated with low recurrence, weather-related hazards have decreased globally, extensive losses are increasingly concentrated in low-income countries, where risk management capacities remain low.

Evidence shows a correlation between low-income countries and low governance capacity to deal with risk management, amongst other risk factors. The result is that many of these vulnerable low-income countries have only very limited resources to mobilise in order to prevent hazards from turning into disasters.

Vulnerable populations are those that suffer the most from these events, particularly women and children. Recurrence of events means that coping mechanisms are often stretched and social-nets - be they clan or ethnic relations or community support structures - can no longer support those affected.

Responses to such challenges are complex and there is a growing recognition that effective risk management is most successful when interventions are designed to include multiple sectors and to cover a geographical scope that is sufficiently wide and accurately defined in terms of risk type. There is nonetheless a tendency for many interventions to be either focused on a specific sector or of a limited geographical area (i.e. municipality or district administration). They also often remain uncoordinated, and thus may not address the multiple factors that are often related to risk.

These challenges are to some extent captured in the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters (HFA), a framework adopted by 168 countries at the World Conference on Disaster Reduction in 2005. Under its fourth priority for action, the HFA highlights the need for more integrated actions to address the so-called underlying risk factors. While this is a recognised challenge among a wide range of organisations working in the field of disaster risk reduction (DRR) and climate change adaptation (CCA), the vast majority of field interventions have yet to employ more integrated approaches.

DARA'S RISK REDUCTION INDEX (RRI), PHASE II: WEST AFRICA

The Risk Reduction Index (RRI) provides in-depth analysis, carried out within geographically well-defined risk prone areas, of the existing conditions and capacities that either hinder or enable local and national actors to carry out effective risk management.

It identifies aspects of development processes and institutional structures that need to be addressed and engaged in risk management. The RRI aims to influence development processes and promote better integration of DRR into development and poverty reduction strategies and policies.

The RRI has three main objectives:

1 **To inform and guide** practitioners and policy-makers about underlying risk drivers and how they influence or contribute to the generation of risks within determined geographical areas.

2 **To offer** recommendations that will improve risk management at local, national and regional levels.

3 **To generate** baseline data for measuring progress (or setbacks) of how underlying risk drivers are addressed over time.

A first phase of the RRI was carried out in Central America from 2009-2010, where research was conducted in seven countries. In its first phase in Central America, the RRI proved relevant for the following reasons:

- It promoted a multi-stakeholder and inter-sectoral angle to risk management.
- It highlighted the root causes of risks by identifying underlying risk drivers.
- It offered a comprehensive overview of capacities and conditions and steps needed in order to pursue more comprehensive DRR strategies.

DARA decided to undertake a second phase of the RRI, this time with a focus on West Africa, a region presenting a very different typology of risks and developmental characteristics. Through this second phase, DARA seeks to generate knowledge in the West Africa region that will raise awareness among local communities, national governments, and ECOWAS on the need to address the underlying risk drivers, make risk management more effective and, thereby, contribute to an increased resilience of most vulnerable populations.

Unless the underlying risk factors are addressed and taken into consideration in more comprehensive risk reduction interventions, natural hazards will continue to be a serious threat to many countries' development efforts.

In West Africa, where climatic changes are expected to place further challenges on resilience-building efforts, it is crucial that local, national and regional actors understand the links between underlying risk factors, vulnerability, and increased exposure to natural hazards, and take appropriate actions that integrate this level of understanding.

In the chapters that follow, the results of the RRI research carried out in West Africa from 2011-2013 are presented.

Working at the local level in sixteen communities across six different countries—Cape Verde, Gambia, Ghana, Guinea, Niger and Senegal

the RRI findings demonstrate the perspectives and perceptions of people regarding the primary issues they face that increase their level of risk to natural hazards, as well as their own recommendations on what is working and where greater efforts need to be made. Following an explanation of the project's methodology, the RRI includes a regional risk mapping, in order to provide a broader context in which to situate the findings, as well as a fuller picture of risk in the region. Finally, local perceptions and findings are presented by country.

METHODOLOGY

The methodology of the RRI is based on the *Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters (HFA)*. To improve disaster risk reduction, the HFA promotes five Priorities for Action: (1) Ensure that disaster risk reduction is a national and local priority with a strong institutional basis for implementation; (2) Identify, assess and monitor disaster risks and enhance early warning; (3) Use knowledge, innovation and education to build a culture of safety and resilience at all levels; (4) Reduce the underlying risk factors; and (5) Strengthen disaster preparedness for effective response at all levels.

The RRI focuses on risk drivers, that is, the underlying factors that contribute to the generation of risk, in line with HFA Priority for Action Four. In order to ensure a comprehensive analysis of the underlying risk factors, or risk drivers, the RRI uses a two-pronged approach. Firstly, the analytical point of departure is to map the dichotomy between capacities and conditions. Capacities are understood as human resources available to manage risks, while conditions are the frameworks (including norms, laws, legislations, codes and agreements) within which actors perform. These frameworks can be both enabling and disabling. Effective DRR is determined by the relationship between capacities and conditions.

Secondly, capacities and conditions are analysed through four risk drivers. These drivers represent sectors where underlying risks are mainly represented. Inspired by the Global Assessment Report on Disaster Risk Reduction (GAR 2009), and following expert consultations during Phase I in Central America, the RRI identified four risk drivers, each with a respective system of indicators:

The methodology adopted to analyse the risk drivers is fundamentally qualitative, although it also uses quantitative methods. On the one hand, a mixed-method approach with strong qualitative focus is employed to capture and measure perceptions of risk-related conditions and capacities at a local level. The analysis of local perceptions was conducted through field based research in six West African countries. On the other hand, a quantitative approach was applied to analyse data collected from public databases, in order to provide a country comparison across the West Africa region as presented in the West Africa Risk Mapping chapter.

METHODOLOGICAL APPROACH TO LOCAL PERCEPTIONS ON RISK DRIVERS

REPRESENTATIVE TERRITORIAL UNITS (RTUs)

RURAL

URBAN

URBAN EXPANSION

RISK DRIVERS

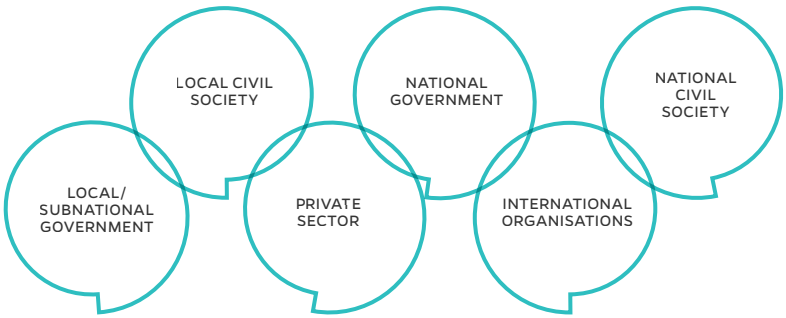
01 DRIVER — ENVIRONMENT AND NATURAL RESOURCES

02 DRIVER — SOCIOECONOMIC CONDITIONS AND LIVELIHOODS

03 DRIVER — LAND USE AND BUILT ENVIRONMENT

04 DRIVER — GOVERNANCE

MULTI-SECTOR APPROACH



PARTICIPATORY APPROACH

QUESTIONNAIRE

RTUs WORKSHOPS

NATIONAL WORKSHOPS

The RRI research measures and analyses local perceptions on risk drivers as a means to obtain a detailed picture of the capacities and conditions affecting DRR and CCA efforts.

The methodology is based on the concepts of Representative Territorial Units (RTUs), Key Informants, Risk Drivers and Country Focal Points. Key informants' perceptions are the core element of the RRI analysis, together with an in-depth review of the main literature on DRR and CCA.

Representative Territorial Units (RTU)

Representative Territorial Unit (RTU) is a new concept that refers to a geographically defined area within a country that is subject to certain hazards and patterns of vulnerability that are representative of other areas in the same country with similar characteristics. A RTU can exceed the limits of a municipality or other political or administrative division within a country, but its boundaries must be clearly defined in terms of risk type.

A number of RTUs (at least two and up to three) are selected in each country to examine the conditions and capacities for DRR and CCA. The criteria used to delimit the RTUs and the kind of risks they represent are outlined here:

RTU Typology

- URBAN AREAS (i.e. marginalised areas within large urban centres, metropolitan areas)
- RURAL AREAS (i.e. with subsistence agriculture and/or livestock)
- URBAN EXPANSION AREAS (i.e. service centres, centres for trade, production and tourism)

Risk Typology

- EXPOSURE TO HIGH INTENSITY, low recurrence threats with potential for intensive losses (i.e. earthquakes, volcanic eruptions or hurricanes that could produce severe losses in small areas)
- EXPOSURE TO LOW-TO-MEDIUM INTENSITY, high recurrence hazards with potential for extensive losses (i.e. floods or landslides that regularly produce limited losses in large areas)
- EXPOSURE TO LOW INTENSITY, low recurrence hazards with potential for extensive losses (i.e. droughts that occasionally produce widespread losses)

Country focal point

Country focal point is a national professional or research organisation selected to lead and coordinate the field research work. This partner is selected on the basis of their experience and expertise in the fields of DRR, disaster management and CCA, and guarantees that a solid understanding of the country is incorporated into the research. The country focal point's experience in the country ensures that the data collection is adequately adapted and counter-balances any potential bias in the survey.

The country focal points are trained by DARA on the methodology of the RRI as well as the data collection tools. This training is also an opportunity to incorporate minor adaptations to each country context in relation to the field research process, as suggested by the country focal points.

The country focal points play a key role in the identification and selection of the RTUs, identification of key informants at local level (RTU) and in conducting the survey. They also act as facilitators in the different workshops at local and national levels. The country focal points guide the desk review phase, in order to provide an overall understanding of the institutional set up and achievements in terms of DRR and CCA at country level.

Key informants

Key informants are the main source of information of this research. Their views and perceptions on conditions and capacities affecting risk at local level (RTU) are collected through a questionnaire. Key informants are identified prior to the data collection phase. They are selected from a cross-section of the community and represent a range of social strata.

ORGANISATION/ SECTOR	CHARACTERISTICS
NATIONAL GOVERNMENT	Direct presence in the RTU
LOCAL/ SUBNATIONAL GOVERNMENT	Balanced representation among departments
INTERNATIONAL ORGANISATIONS	UN agencies, IFRC, international NGOs and regional organisations with a direct presence in the RTU
NATIONAL CIVIL SOCIETY	National NGOs with a presence in the RTU, universities and other research institutions
LOCAL CIVIL SOCIETY	Local NGOs, community leaders and grassroots organisations such as women's groups
PRIVATE SECTOR	Multi-national, national and local enterprises and other associations for productive activities with a direct presence in the RTU

In each RTU, at least 48 key informants (eight from each sector) participate in the process. The key informants also participate actively in the workshops that are conducted at RTU level, where survey findings are presented and validated.

DARA / Soledad Posada

Data collection and analysis

A questionnaire is the main tool used to collect information on local level perceptions on the conditions and capacities for DRR and CCA. The structure of the questionnaire is as follows:

- A short section on key informants' personal information.
- A section containing preliminary questions on natural hazards and climatic conditions.
- The main section divided into four risk drivers:

Risk Driver 1:
Environment and natural resources

Risk Driver 2:
Socioeconomic conditions and livelihoods

Risk Driver 3:
Land use and the built environment

Risk Driver 4:
Governance

The questionnaire contains open-ended questions, polar questions (i.e. yes/no) and closed questions requiring a response based on a likert scale of one to five, where five is the maximum, one is the minimum, and three represents the midpoint. Key informants can also select the "Not applicable (NA)" and "Do not know (DK)" options. The questionnaire is available at:

http://daraint.org/rri/west-africa/survey

A preliminary data analysis of the responses follows the data collection (survey) in order to measure perceptions on the severity of conditions and the effectiveness of capacities. These measurements are based on key informants' score responses, and presented and discussed in-depth in workshops at RTU level.

Workshops at RTU and national levels

The objective of the RTU level workshops is to interpret and validate the questionnaire results, promote debate around them and identify the most relevant areas of intervention to promote DRR and CCA, as well as the actors and institutions that should be involved.

A final workshop takes place at national level with the two-fold objective of scaling-up local perceptions of the conditions and capacities affecting DRR and CCA and engaging policy-makers and representatives from national, regional and international institutions in the discussions.

ISSUES SELECTION CRITERIA

How serious are these issues in your region?

In this question respondents were asked to rate the severity of a series of issues on a likert scale of 1-5, where five was the maximum, one was the minimum, and three represented the midpoint. In the analysis, those issues yielding an average score of 3 or above were determined to be serious concerns in that RTU. Nevertheless, other criteria, such as the standard deviation or the percentage of respondents that rated the issue as severe (giving a score of 4 or 5), were also taken into account to ensure that the influence of outliers was limited and that a fairly large percentage of respondents actually considered the issue as severe.

Once the field research is finalised (including the workshops at RTU and national levels), a more detailed analysis is conducted, focused on the answers to the open-ended questions on people's vulnerabilities and household and institutional capacities:

VULNERABILITIES

In what way have these issues increased people's vulnerability to hazards?

Through this question DARA examines people's understanding of how the underlying factors affect their exposure to risk and their vulnerability. The answers are analysed by issue, identifying the different answer patterns to comprehend the general perception and understanding of the population regarding the relationships amongst the different issues and drivers.

HOUSEHOLD CAPACITIES

What actions do households and communities take to deal with these issues?

To analyse this question a coding scheme was defined to group the different types of activities that were undertaken by the households/communities to overcome a hazardous situation once it had occurred or to prevent it. This coding allows DARA to identify which are the more common/relevant activities undertaken by the communities to cope with risk.

INSTITUTIONAL CAPACITIES

Which type of intervention has been done to address the issue? Which agencies provided support? How effective were they? Why were they so effective or ineffective?

In a first step, the set of interventions is grouped by type of executing institution (international, national, regional, and local and community organisations) and, secondly, different types of interventions are identified. Finally the average score by type is calculated based on the scores given by key informants who assessed it.

METHODOLOGICAL APPROACH TO THE WEST AFRICA RISK MAPPING

The result of DARA's quantitative research is the design and calculation of the West Africa Risk Mapping Index that maps the conditions and capacities for DRR and CCA at the national level and allows for a comparison of countries in the West Africa region. This mapping includes a country classification, where countries are grouped together based on similar patterns in terms of the four risk drivers that structure our approach to risk reduction.

The steps taken to produce the West Africa Risk Mapping Index and the country classification can be summarised as follows:

1 A LARGE DATABASE containing up to 60 indicators for all countries was compiled, containing data from publicly available databases, namely the World Development Indicators and the Worldwide Governance Indicators databases of the World Bank, and FAOSTAT, managed by the Food and Agriculture Organization of the United Nations (FAO).

2 THE DATA COMPILED attempted to cover all relevant aspects of the four risk drivers described above, for which comprehensive and up to date data was available for the year 2011. In addition, indicators that were regularly updated were prioritised. An exhaustive list of the aspects considered by driver, the indicators used to measure them and their sources is presented here.

The West Africa Risk Mapping Index is based on 60 indicators selected from an extensive set of over 150 that meet the following criteria:

- *Indicators must capture the essence of the range of existing factors that affect risk reduction;*
- *Indicators must be recognized as official statistics worldwide;*
- *Indicators must be available for a sufficient number of countries;*
- *Indicators must be updated on a regular basis;*
- *Indicators must be available in databases that are accessible on-line and free of charge.*

3 IN ORDER TO CONVERT all the compiled data into useful composite indicators that assess the level of risk exposure of West African countries in terms of the four risk drivers, and useful for undertaking cross country comparative analyses, indicators were normalised in a 0 to 10 scale prior to their aggregation into driver aspects. All indicators, risk driver composite indicators and the Risk Mapping Index are based on a scale from 0 to 10, where 10 means the country is best positioned in terms of risk reduction and 0 means it holds the worst position.

4 DIFFERENT NORMALISATION METHODS were studied, paying particular attention to the criteria of distribution, sensitivity, appropriateness and comparability. The decision was made to use different normalisation methods adapted to the nature

of each indicator and ensure that the impact of outliers would be minimized. It is important to note that while the Risk Mapping Index presented here is calculated for West African countries only, normalisation was done on the basis of a total of 176 countries worldwide. This allows for the proposed method to be expanded in a comparable manner and replicated for other regions of the world.

The 60 indicators that compose the Risk Mapping Index were normalised prior to their aggregation into driver aspects and, consequently, Risk Drivers. Normalisation methods were adapted to each indicator on a case-by-case basis, based on the following criteria:

- *Distribution: The normalised data should be distributed as equally as possible within a range from 0 to 10.*
- *Sensitivity: The normalised data should be sensitive to changes over time.*
- *Appropriateness: The method used should take into account the different characteristics of each indicator and in particular its original scale.*
- *Comparability: The values of similar indicators should not be distorted.*
- *Interpretability: Interpretability of indicators should not be hindered by normalization.*

5 AS STATED ABOVE, indicators were aggregated into driver aspects in the first place, and driver aspects into drivers subsequently. Finally, the four composite indicators describing each of the risk drivers were aggregated into the Risk Mapping Index.

6 THE AGGREGATION of the Risk Mapping Index assigned equal weight to all risk drivers, which implies that all of them are conceived as equally important in contributing to the generation of risk. Other aggregation methods considered included assigning weight in proportion to budget allocations or to experts' judgments, or applying the weight issued from the principal components analysis undertaken -statistical method that computes global weights (either for the indicators or the issues) such that the differences in the resulting total scores are maximized. However, for comparability sake, and to stress the importance of addressing all four risk drivers to reduce the exposure of populations to risk, DARA decided to apply equal weights to all of them.

When aggregated into the Risk Mapping Index, the same weight is assigned to each of the four composite indicators comprising the Risk Drivers, which implies that the same importance must be attributed to all of them when considering the population's exposure to risk at the national level.

7 THE MAPPING includes a country classification that groups countries together based on similar score patterns per risk driver.

INDICATORS AND SOURCES USED IN THE WEST AFRICA RISK MAPPING

	Assessed risk driver aspects		*Indicator*	*Source*
01 RISK DRIVER *ENVIRONMENT AND NATURAL RESOURCES**	ENVIRONMENT AND NATURAL RESOURCES (CONDITIONS)	Air pollution	PM10, country level (micrograms per cubic meter)	World Development Index (WDI)
		Deforestation	Forest area (sq. km)	WDI
		Water scarcity	Annual freshwater withdrawals, total (% of internal resources)	WDI
	ENVIRONMENT AND NATURAL RESOURCES (CAPACITIES)		CPIA policy and institutions for environmental sustainability rating	WDI
			Terrestrial and marine protected areas (% of total territorial area)	WDI

* Conditions on coastal erosion and soil erosion, which are considered in the qualitative research at the RTU level, are not included here due to lack of available up to date data on these issues for the majority of countries in the world. In the global RRI database conditions on desertification and water contamination are measured through indicators on agricultural irrigated land (% of total agricultural land) and organic water pollutant (BOD) emissions (kg per day per worker) respectively, available in the World Development Indicators database (World Bank). Also, in the global RRI database, the measurement of environmental capacities includes an indicator on electricity production from renewable sources (excluding hydroelectric). All of the previously mentioned are excluded in the present analysis, due to a high percentage of missing data in the mentioned indicators for West African countries in particular.

02
RISK DRIVER
SOCIOECONOMIC CONDITIONS AND LIVELIHOODS

Assessed risk driver aspects			Indicator	Source
SOCIOECONOMIC CONDITIONS	HEALTH	Prevalence of HIV/AIDS	Prevalence of HIV, total (% of population ages 15-49)	WDI
		Prevalence of infectious diseases (cholera, malaria, meningitis etc.)	Notified cases of malaria (per 100,000 people)	WDI
			Incidence of tuberculosis (per 100,000 people)	WDI
		Poor level of health (poor nutrition, low life-expectancy)	Life expectancy at birth, total (years)	WDI
			Prevalence of undernourishment (% of population)	WDI
		Limited access to health services	Hospital beds (per 1,000 people)	WDI
			Physicians (per 1,000 people)	WDI
	EDUCATION	Low level of literacy	Literacy rate, adult total (% of people ages 15 and above)	WDI
		Limited access to education/schools	School enrollment, primary (% net)	WDI
			School enrollment, secondary (% net)	WDI
			School enrollment, tertiary (% gross)	WDI
	SOCIAL CONDITIONS	Poverty (low income)	Poverty headcount ratio at national poverty line (% of population)	WDI
			GINI index	WDI
		Food insecurity	Food - Production Index Numbers	FAO STAT
		Migration	Net migration (absolute value, % of total population)	WDI
		Gender inequality	Ratio of girls to boys in primary and secondary education (%)	WDI
			Share of female teachers in primary, secondary and tertiary education	WDI
		Unemployment	Unemployment (% of total labor force)	WDI
			Vulnerable employment (% of total employment)	WDI
SOCIOECONOMIC CAPACITIES	HEALTH	Prevalence of HIV/AIDS	Antiretroviral therapy coverage (% of people with advanced HIV infection)	WDI
		Prevalence of infectious diseases (cholera, malaria, meningitis etc.)	Tuberculosis treatment success rate (% of registered cases)	WDI
		Poor level of health, food insecurity	Vitamin A supplementation coverage rate (% of children ages 6-59 months)	WDI
		Limited access to health services	Health expenditure per capita, PPP (constant 2005 international $)	WDI
	EDUCATION	Limited access to education/schools	Public spending on education, total (% of government expenditure)	WDI
	EDUCATION and HEALTH	General	CPIA building human resources rating	WDI
	SOCIAL CAPACITIES	Poverty (low income)	GDP per capita growth (annual %)	WDI
			CPIA equity of public resource use rating	WDI
		Gender inequality	CPIA gender equality rating	WDI
		Unemployment	CPIA social protection and labour	WDI

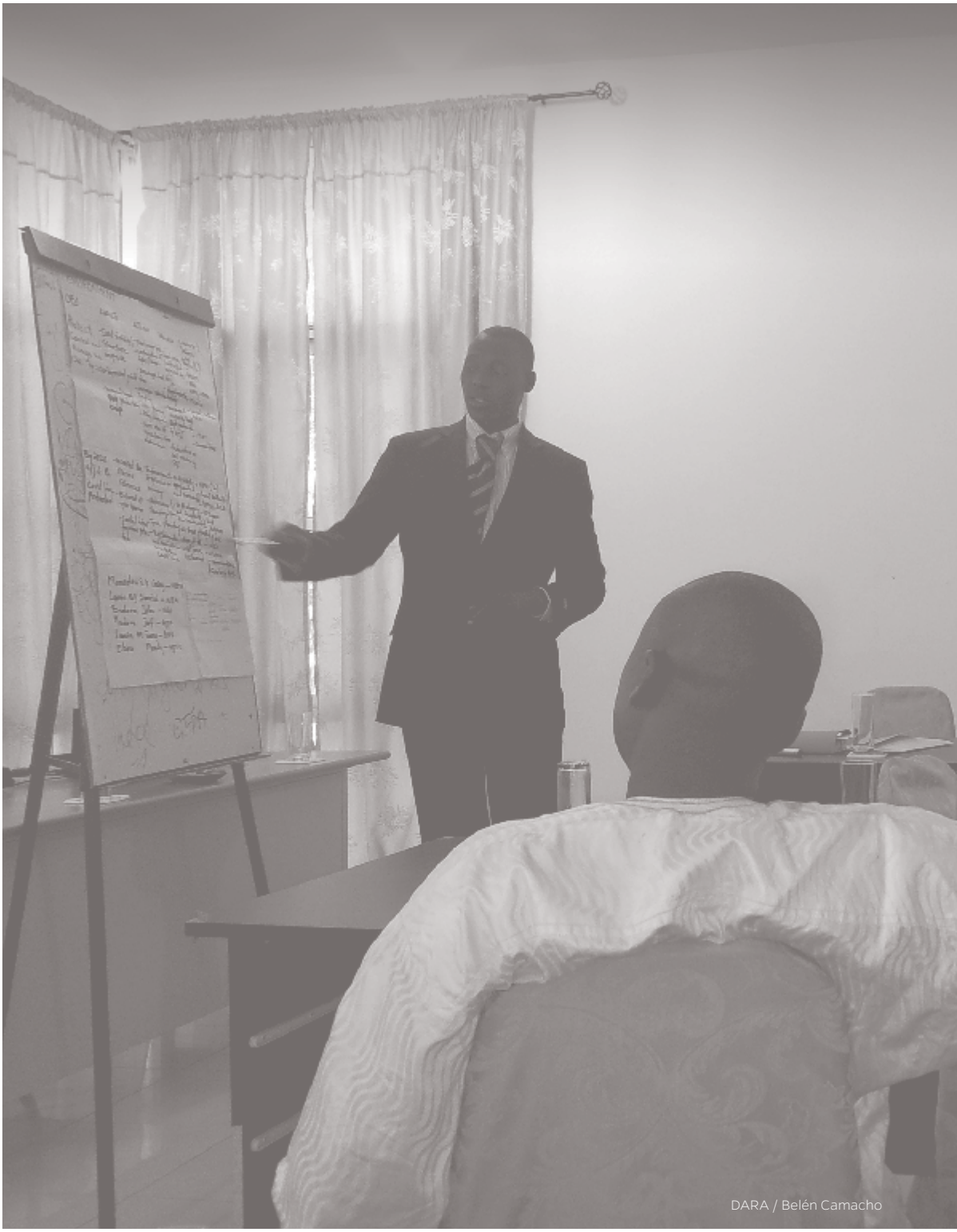
03 RISK DRIVER
LAND USE AND BUILT ENVIRONMENT*

	Assessed risk driver aspects		*Indicator*	*Source*
	RURAL	Overcrowded conditions	Rural population growth (annual %)	WDI
		Limited access to water supply	Improved water source, rural (% of rural population with access)	WDI
		Poorly built critical public facilities	Improved sanitation facilities, rural (% of rural population with access)	WDI
	URBAN	Overcrowded conditions	Urban population growth (annual %)	WDI
		Limited access to water supply	Improved water source, urban (% of urban population with access)	WDI
		Poorly built critical public facilities	Improved sanitation facilities, urban (% of urban population with access)	WDI
		Poorly built housing	Proportion of urban population living in slums	Millenium Development Goals (MDGs) website
	RURAL and URBAN	Overcrowded conditions	Population density (people per sq. km of land area)	WDI
		Housing in dangerous locations	Population living in areas where elevation is below 5 meters (% of total population)	WDI
		Poorly built basic infrastructure	Roads, paved (% of total roads)	WDI
			Power outages in firms in a typical month (number)	WDI

* In the global RRI database the composite indicator on poorly built basic infrastructure (rural and urban context) includes, in addition to the indicator on paved roads and power outages, an indicator on electric power transmission and distribution losses, available in the World Development Indicators database (World Bank). However, due to a high percentage of missing data in the latter for West African countries in particular, it has not been included in the present exercise.

04 RISK DRIVER
GOVERNANCE

	Assessed risk driver aspects		*Indicator*	*Source*
	DEMOCRACY	Exclusion of women from decision-making processes	Firms with female participation in ownership (% of firms)	WDI
			Proportion of seats held by women in national parliaments (%)	WDI
		Lack of civil society participation in decision-making processes, media censorship	Voice and Accountability	Governance Matters
	GOVERNMENT EFFECTIVENESS	Lack of human capacity	Government Effectiveness - Regulatory Quality	Governance Matters
		Lack of accountability	CPIA transparency, accountability, and corruption in the public sector rating	WDI
		Inefficient bureaucracy	Regulatory Quality	WDI
		Limited financial capacity	CPIA debt policy rating	Governance Matters
	RULE OF LAW	Non-compliance with law	Rule of Law	Governance Matters
		Conflict (armed, localized, etc.)	Political Stability	Governance Matters
		Corruption	Control of Corruption	Governance Matters



DARA / Belén Camacho

WEST AFRICA RISK MAPPING

MAPPING RISK IN WEST AFRICA

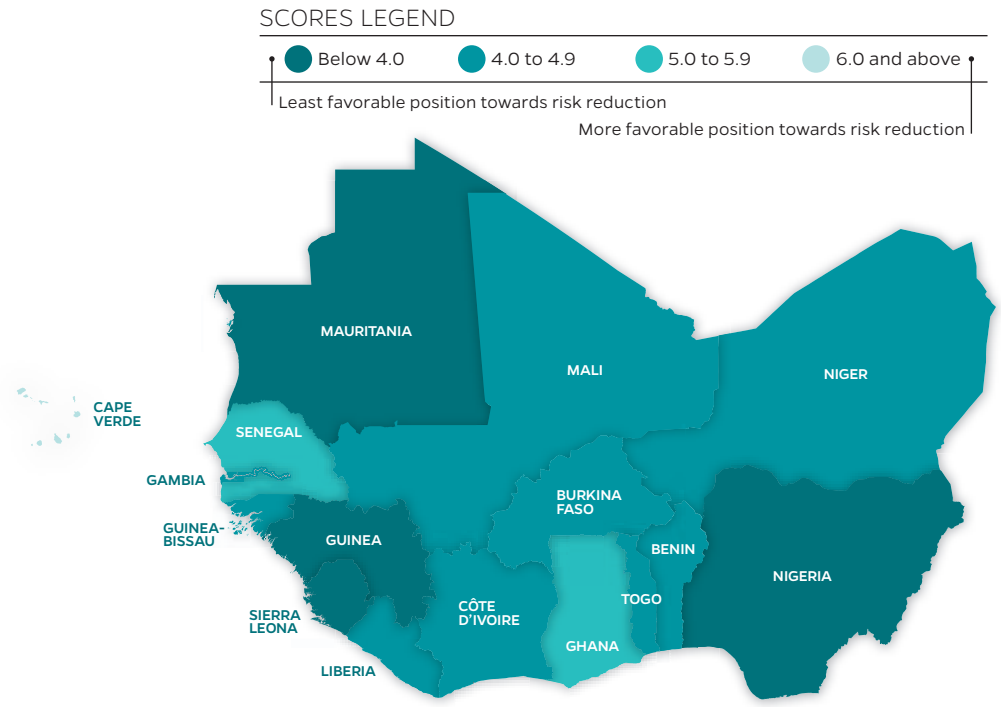
The HFA has significantly contributed to a change in the way in which we view disasters. Instead of accepting them as an inevitable consequence of nature and beyond our control, DRR allows for a more integrated approach to dealing with potential disasters. In doing so, we recognise that the level of a society's development is a major contributing factor to the loss and damage produced when a natural hazard strikes, hence the need to analyse underlying risk factors when considering a country's level of overall risk exposure and vulnerability should a natural hazard occur.

The aim of this West Africa Risk Mapping Index is to contribute to the ongoing debate on how risk drivers contribute to increased disaster risk by analysing and presenting evidence on the state of a country's conditions and capacities across four Risk Drivers at the national level. The approach is largely quantitative.

The West African region is characterised by low human development levels (UNDP, Human Development Report, 2013). With the exception of Cape Verde and Ghana, all the countries in the region are classified as such, given their position in the bottom quartile of the Human Development Index world distribution.

From the West Africa Risk Mapping Index, countries in West Africa hold some of the poorest positions in terms of their conditions and capacities for risk reduction. This is largely due to their socioeconomic realities (Risk Driver 2) and the characteristics of their land use and built environments (Risk Driver 3).

The Risk Mapping Index is based on the aggregation of 60 indicators, presented on a scale of 0 to 10, where 10 indicates that the country presents the most favorable conditions and capacities for risk reduction and 0 implies that the country's capacities and conditions are the least favorable. The scale was calculated at the global level. West African country scores range from 3.84 (Mauritania) to 5.77 (Cape Verde) on this scale.



INTERRELATION OF RISK DRIVERS

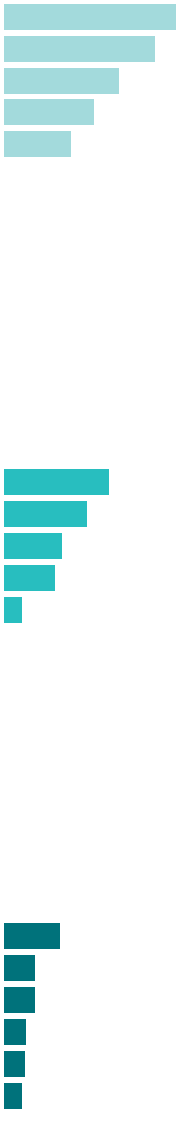
Risk drivers are not isolated factors. Instead, they are interrelated and can even have a multiplied impact as opposed to an aggregated impact in terms of risk generation. While impact is beyond the scope of this research, what DARA does explore here is the present state of each driver in West African countries and the existing interrelations of risk drivers. After assessing the situation of each of the risk drivers through the study of the indicators of the West Africa Risk Mapping Index, DARA carried out an analysis to see which drivers present similarly (and oppositely) high or low score values in a significant percentage of these countries. This can be summarised in Figures A and B, which present how each country in the West African region is positioned with regard to risk generation in terms of the different risk drivers.

The West Africa Risk Mapping Index has found a positive correlation between Risk Driver 2 (Socioeconomic Conditions and Livelihoods) and Risk Driver 4 (Governance). West African countries presenting relatively better (or poorer) scores in one of these drivers have a tendency to present relatively better (or poorer) scores in the other.

The mapping of risk in the region, including analysing how drivers are linked, has resulted in a country classification, which is based on shared driver indicator score patterns. Countries are grouped together based on having similar scores across the four drivers assessed.

WEST AFRICA RISK MAPPING. COUNTRY GROUPS BY STATE OF RISK DRIVERS*

COUNTRY	GROUP	CHARACTERISTIC DRIVER SCORES	MAIN CHARACTERISTICS	RISK MAPPING INDEX
Cape Verde	1	*Relatively better scores in Risk Drivers 2 and 4*	*Countries relatively less risk exposed in terms of their social conditions and capacities and governance characteristics*	5.77
Ghana				5.49
Senegal				5.05
Burkina Faso				4.73
Mali				4.46
Benin	2	*Relatively better scores in Risk Driver 3*	*Countries relatively better positioned toward risk in terms of their land use and built environment*	4.92
Côte d'Ivoire				4.65
The Gambia				4.35
Liberia				4.27
Mauritania				3.84
Guinea-Bissau	3	*Relatively poorer scores in Risk Drivers 2 y 4*	*Countries relatively more risk exposed in terms of their social conditions and capacities and governance characteristics*	4.30
Niger				4.01
Togo				4.00
Sierra Leone				3.90
Guinea				3.88
Nigeria				3.86



* Due to the fact that the West Africa Risk Mapping is based on data from 2011, before the outbreak of conflict in Mali, the country presents a set of governance characteristics that are relatively favorable to risk reduction as compared to other countries in the West African region. More recent developments in the country, however, must be taken into account.

The statistical analysis of driver scores undertaken by DARA is based on a Principal Components Analysis (PCA), which explored similarities among countries in terms of the risk driver score patterns, followed by a hierarchical classification that allowed for the identification of groups of countries that share the same characteristics in terms of risk drivers.

Figures A and B, as produced by the PCA, best summarize the variability of countries in terms of risk driver scores. In these figures, countries that are close to each other are similar in terms of risk driver scores, while countries that are far apart from each other are different in terms of risk driver scores. Countries in the center of the graph are the most "typical" countries, while those positioned far from the center are unique in terms of the risk driver scores they yield.

FIGURE A. WEST AFRICAN COUNTRIES IN TERMS OF THEIR SOCIAL CONTEXT, GOVERNANCE AND ENVIRONMENT AND NATURAL RESOURCES

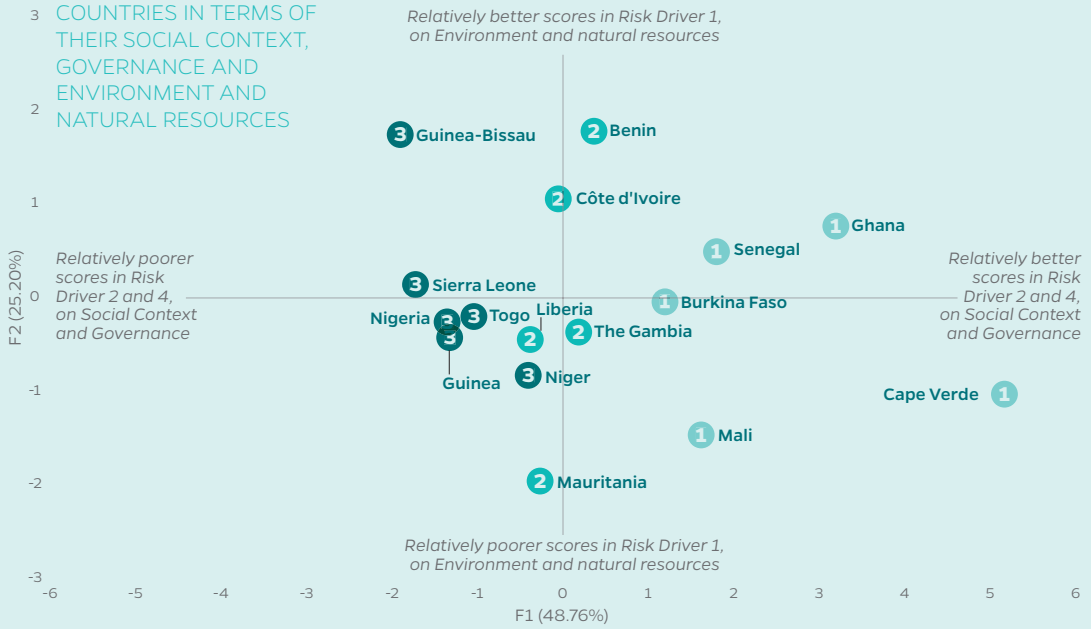
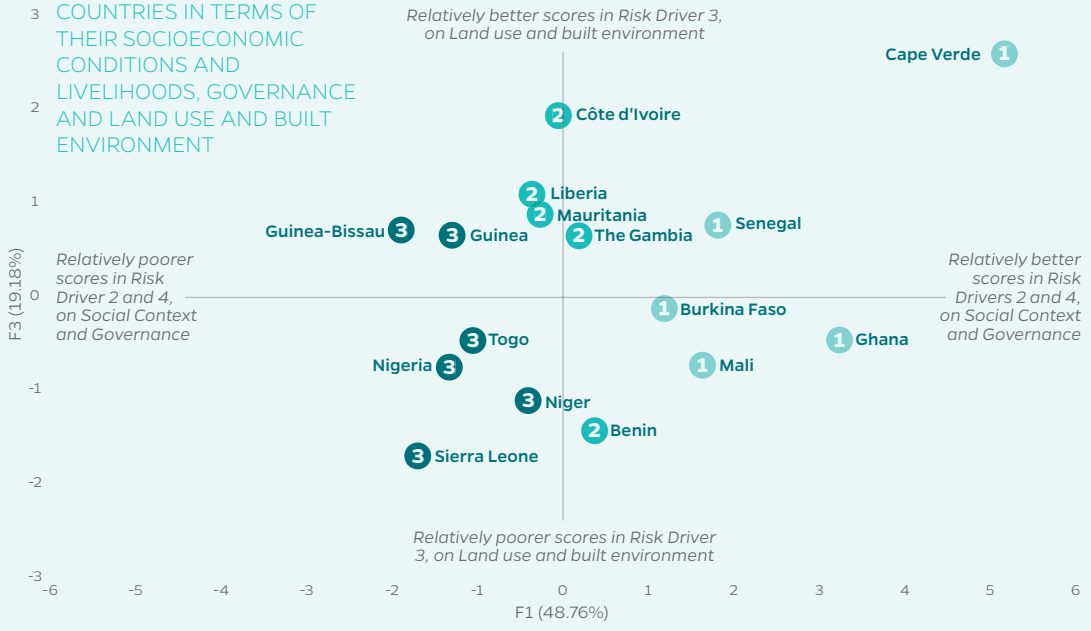


FIGURE B. WEST AFRICAN COUNTRIES IN TERMS OF THEIR SOCIOECONOMIC CONDITIONS AND LIVELIHOODS, GOVERNANCE AND LAND USE AND BUILT ENVIRONMENT



RISK DRIVER 1

ENVIRONMENT AND NATURAL RESOURCES

FACTORS under Risk Driver 1 include environmental conditions such as air and water quality, forest areas, and conservation levels, as well as the country's natural resources and its capacities to sustainably manage its own ecosystems.

BECAUSE of the nature of the indicators selected under Risk Driver 1, these were more readily classified according to whether they represented capacities or conditions for risk reduction, as presented below. It should be noted, however, that due to the great variety of aspects quantified in the database, charting capacities versus conditions was not always the best way to assess the other three risk drivers. Instead, indicators are grouped according to relevant thematic issues and charted in a way that is relevant for that risk driver. For a more complete picture of indicators by risk driver, please refer back to the table of indicators in the Methodology chapter.

COUNTRIES located in the northern portion of West Africa,

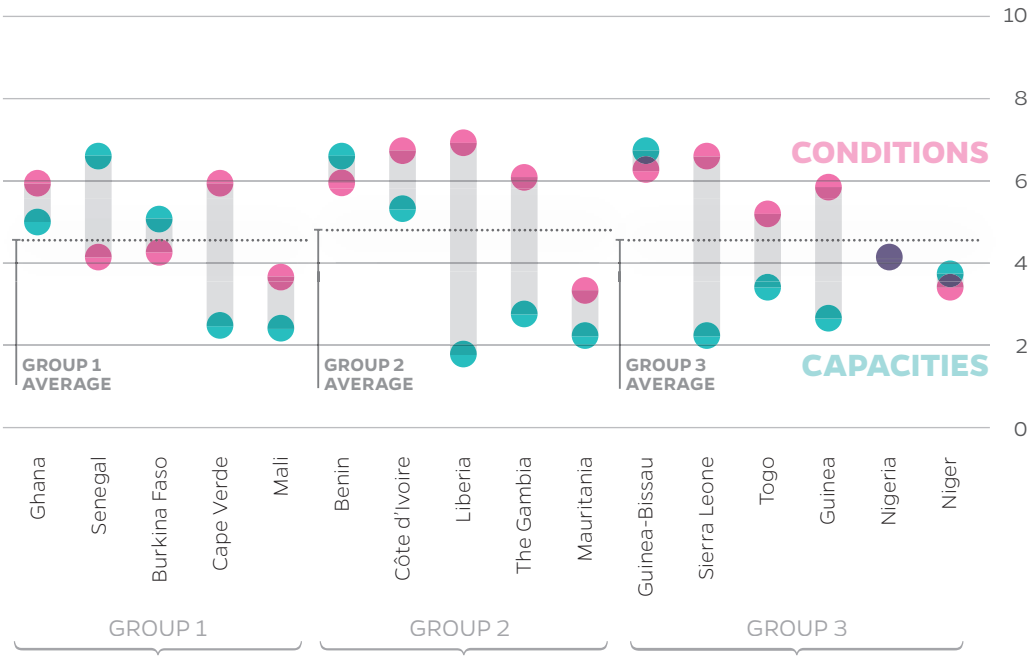
SCORES LEGEND

Below 4.0 | 4.0 to 4.9 | 5.0 to 5.9 | 6.0 and above

Least favorable position towards risk reduction

More favorable position towards risk reduction

CONDITIONS AND CAPACITIES RELATED TO ENVIRONMENT AND NATURAL RESOURCES IN WEST AFRICAN COUNTRIES



namely Mauritania, Mali and Niger, present worse conditions in terms of their natural environment. This is due to the presence of the Sahara desert within their boundaries, which translates into higher levels of water scarcity and risk of desertification.

DATA from 2011 demonstrates a tendency towards a deterioration of natural resources in the West Africa region. Land erosion and silt formation, sand bank formation and water pollution all contribute to low soil fertility levels and loss of biomass.

RAPID population growth has a direct impact on environmental issues. The rapid population growth that West Africa has experienced has caused a loss of habitat and has affected biodiversity. In 2000 West Africa's population stood at 234 million people. By 2010 the population had grown to 305 million. By 2020 it is estimated that the region's population will surpass 400 million, resulting in a 30% increase in ten years. Population growth has led to an increased demand for potable water. It has also implied an increased need for food production, leading to the expansion of cultivated land, including the use of marginal lands subject to erosion for agriculture. A consequence of this has been soil erosion and depletion of soil nutrients, leading to a decline in soil fertility.

RISK DRIVER 2

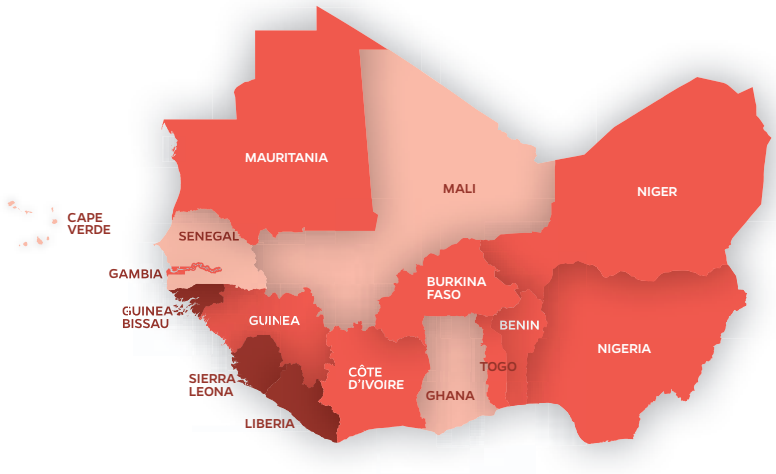
SOCIOECONOMIC CONDITIONS AND LIVELIHOODS

SCORES LEGEND

Below 4.0 | 4.0 to 4.9 | 5.0 to 5.9 | 6.0 and above

Least favorable position towards risk reduction

More favorable position towards risk reduction

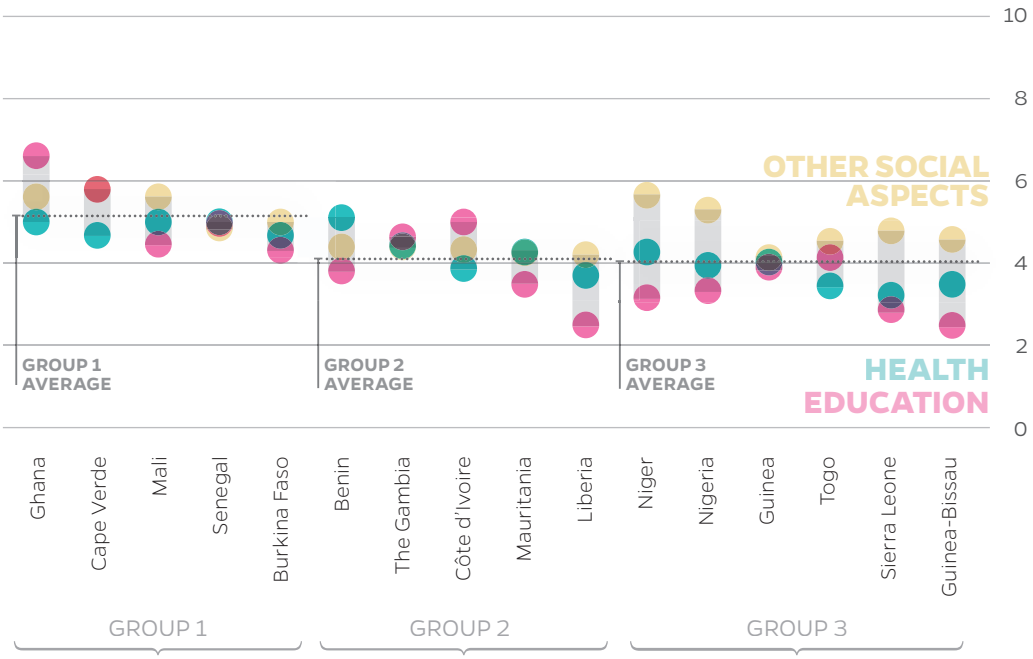


FACTORS under Risk Driver 2 include conditions and capacities regarding health, education, poverty, employment and gender equality.

COMPARED to other areas of the world, countries in West Africa present extremely poor scores for indicators on access to health and access to education. High levels of poverty, food insecurity, gender inequality and vulnerable employment also affect the region, combining to make West Africa one of the world's most vulnerable regions in terms of socioeconomic conditions. Access to education and literacy are vital in the process of reducing people's exposure to risk. Health-related issues receive some of the lowest scores in the West Africa region, as compared to other regions of the world. African countries have the lowest scores worldwide for health-related indicators, especially related to access to health services. In fact, even in Ghana and Cape Verde access to health still receives the lowest scores for indicators in this driver.

CAPE VERDE and Ghana are the only two

STATE OF HEALTH, EDUCATION AND OTHER SOCIAL ASPECTS IN WEST AFRICAN COUNTRIES



countries in the region that are not classified as Least Developed countries according to the UNDP's World Development Report (2013). The rest of the region presents low levels of socioeconomic conditions overall, with 4 being the maximum score attained (indicating deficient conditions on the 0-10 range).

THE WEST AFRICA region presents the highest rates of gender inequality in the world, especially when measured in terms of school attendance rates and access. Gender inequality, particularly in terms of exposure to risk, is complex to capture. Women have more limited access to means of production, including credit, inputs like seeds, fertilizers, farming equipment and land. Land tenure systems also pose discrimination in relation to property rights. Poor rural women in West Africa and the Sahel normally undertake much more strenuous tasks and work for longer hours than men.

RISK DRIVER 3

LAND USE AND THE BUILT ENVIRONMENT

SCORES LEGEND

Below 4.0 | 4.0 to 4.9 | 5.0 to 5.9 | 6.0 and above

Least favorable position towards risk reduction

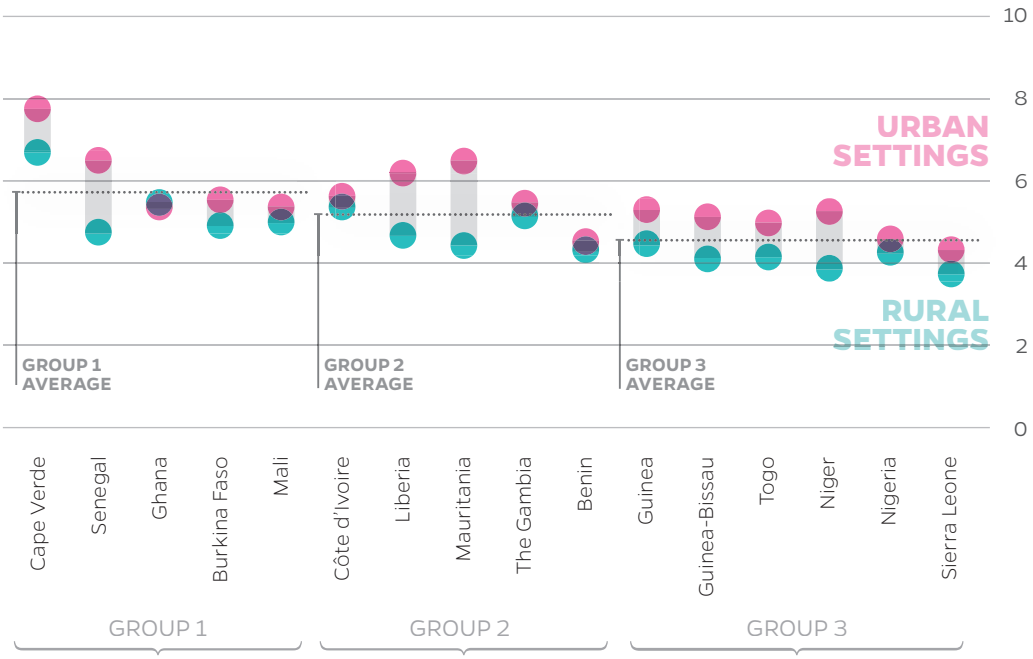
More favorable position towards risk reduction

RISK DRIVER 3 takes into consideration factors including infrastructure, building codes and standards, rehabilitation and reconstruction practices, development plans and monitoring mechanisms. Here an important distinction is also made in the analysis between urban and rural settings.

COMPARED to the rest of the world, the West African region presents an overall deficiency in its infrastructure. As an example, only about 10 percent of the overall population has access to electricity. In rural areas this figure can be as low as 1 percent. The lack of adequate development plans through which risk could be better managed in both rural and urban settings needs to be addressed.

IN THE CONTEXT of West Africa, Risk Driver 3 indicators are critically affected by the phenomenum of rural exodus or out-migration. This has translated into the migration of 14 million people from rural to urban areas every year in subsaharan Africa, of which 70% move into slums, as estimated in a U.N. Habitat report. Indeed, the

LAND USE AND BUILT ENVIRONMENT IN RURAL AND URBAN SETTINGS IN WEST AFRICAN COUNTRIES



region is witnessing rapid growth in its urban population: from 90.2 million people living in cities in 2000, to 135.3 million (an almost 50% increase) in 2010. It is estimated that in 2020 the region will reach 195.3 million city dwellers, and that in 2030 West Africa will become predominantly urban. This is already the case in Cape Verde, Côte d'Ivoire, The Gambia, Ghana and Liberia.

THE CONSEQUENCE is that West Africa now must face the challenges of urbanisation and related increased risk across a number of its cities. These include Porto Novo (Benin), Ouagadougou (Burkina Faso), Accra (Ghana), Niamey (Niger), Lagos (Nigeria) and Lomé (Togo). Indeed, overcrowding, high unemployment rates, the expansion of unplanned settlements, and urban poverty can contribute to social tensions and ethnic or racial conflict. In addition, the response to rapid urban population growth may lead to rapid changes in land use and deteriorating environmental conditions.

RISK DRIVER 4
GOVERNANCE

SCORES LEGEND

Below 4.0 | 4.0 to 4.9 | 5.0 to 5.9 | 6.0 and above

Least favorable position towards risk reduction

More favorable position towards risk reduction

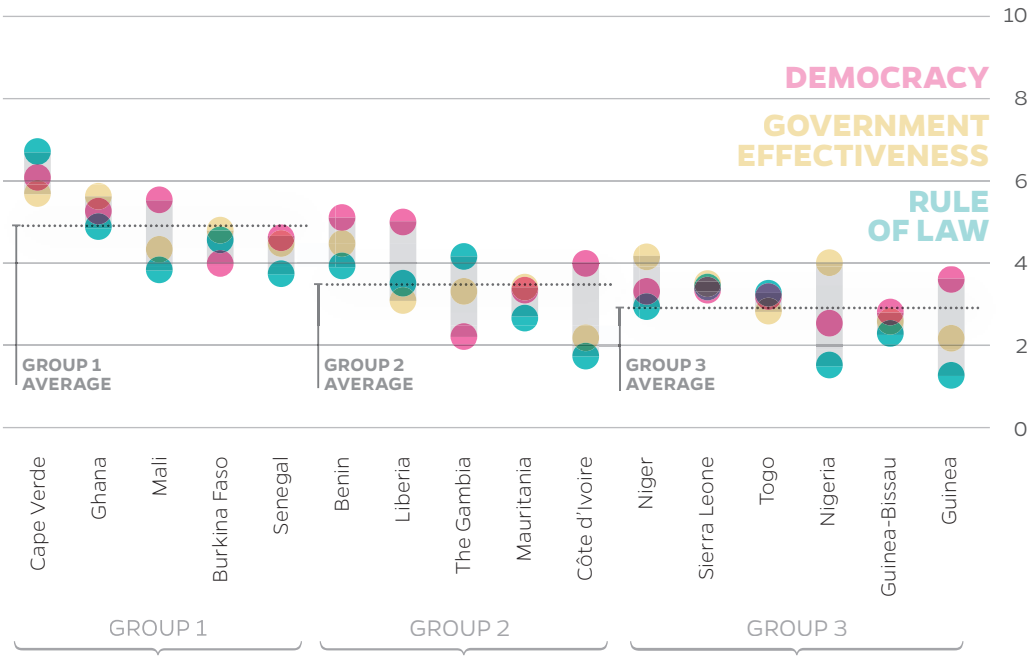
FACTORS considered under Risk Driver 4 are mainly related to democracy, government effectiveness and rule of law.

BASED on the composite indicator for the Risk Driver 4 on Governance, governance in West Africa is weak, and on par with levels in East Africa and South and Central Asia.

HIGH LEVELS of illiteracy and lack of access to education, with an enrolment gender gap favouring men in West Africa, are linked to poor governance and less meaningful political participation.
Rule of law received the worst scores among the indicators considered for most countries in the region. Here Cape Verde and The Gambia are exceptions; both received their highest governance-related scores in this indicator. Democracy appears to require greater commitment as well, with all countries except Cape Verde, Ghana, Mali, Benin and Liberia scoring below 5 for this indicator.

IN THE CONTEXT of governance in West Africa, issues of conflict and protracted crisis situations also must

DEMOCRACY, GOVERNMENT EFFECTIVENESS AND RULE OF LAW IN WEST AFRICAN COUNTRIES



be taken into account. Côte d'Ivoire, Guinea, Liberia and Sierra Leone are 4 out of a total of 22 countries in the world that were facing a protracted crisis in 2010, meaning that they are susceptible to repeated natural disasters and/or conflicts in a context where there are long-term food crises, breakdown of livelihoods and insufficient institutional capacity to respond. Nigeria and Mali have also experienced conflict within their boundaries. In addition, population movements across the region, including significant numbers of refugees and internally displaced people in Côte d'Ivoire, Liberia, Mali, Niger, Nigeria, Senegal and Togo, contribute to increased levels of both instability and vulnerability.

LOCAL PERCEPTIONS

CAPE VERDE

THE COUNTRY IS
MOST SUSCEPTIBLE TO
DROUGHT, TROPICAL STORMS,
AND EPIDEMICS

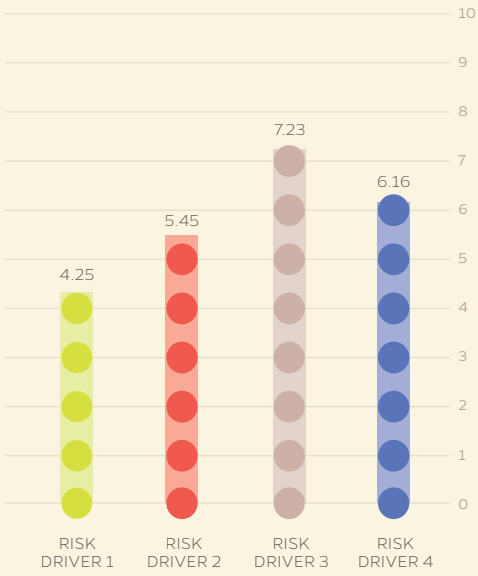
EPIDEMICS
HAVE CAUSED THE GREATEST
LOSS OF LIFE,
WHILE **DROUGHT** HAS
AFFECTED THE MOST
NUMBER OF PEOPLE

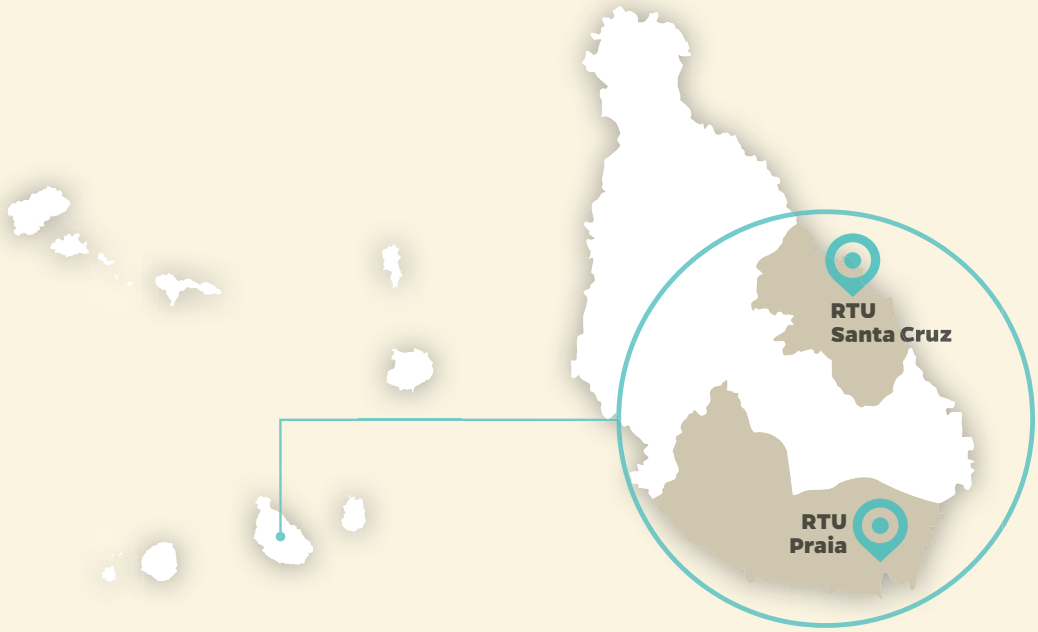
STORMS
HAVE INFLICTED THE LARGEST
ECONOMIC DAMAGES,
AND ALSO RANK SECOND
IN TERMS OF LIVES LOST

THE ISLAND OF FOGO
EXPERIENCES ACTIVE
VOLCANIC ACTIVITY

Source: EM-DAT (CRED)

CAPE VERDE SCORES FROM WEST AFRICA RISK MAPPING





INSTITUTIONAL Capacity for DRR

DRR Institutional Setup
AND LEADERSHIP

The Serviço Nacional de Proteção Civil (SNPC-National Civil Protection Service) was established under the 1999 Civil Protection Law. It serves as focal point for the National Platform for DRR, created in 2007, and is governed by the Conselho Nacional de Proteção Civil (CNPC-National Civil Protection Council). The SNPC is also the Hyogo Framework for Action (HFA) focal point, and has become a key player in terms of disaster preparedness and prevention at both municipal and national levels.

The government of Cape Verde created a commission in 2007 (headed by the Ministry of Internal Administration) to explore how to pursue DRR. Different sectors were assigned responsibilities in the commission, including responsibilities related to coordination during emergencies. Such sectors include the national police, firefighters, armed forces (military), the Red Cross, air and maritime authorities and health services.

The commission published the National Contingency Plan for Disasters in 2010, which focuses on identifying different sectors (government, public, and private) that should work together as key actors for risk reduction and/or prevention. It also identifies the need to develop sector specific laws to strengthen technical and institutional capacities in order to improve management in disaster situations.

As part of its mandate on disaster preparedness, the SNPC carries out emergency drills in schools, hospitals, and the airport. It is also collaborating in the preparation of their respective emergency plans. However, it has been noted that there is a need for more training on internal emergency planning in the education and health sectors.

The SNPC and the UN Office in Cape Verde have partnered to launch an awareness-raising campaign on different risk topics annually. In 2010, the two collaborated in developing the first training on Rapid Humanitarian Needs Assessment, along with targeted training to education professionals, and municipal councils participated in the initiative. Nevertheless, communication constraints between islands need to be improved zand training measures should be updated and implemented.

On the legislative side, Cape Verde's Government has promoted various laws and regulations aimed at ensuring the sustainable usage of natural resources, maritime activities, territorial planning and forestry. Laws addressing specific environmental interests have also been announced.

According to the UN, the Parliamentarian Network on Environment Desertification and Poverty has played a significant role in the adaptation of existing legal environmental frameworks, in compliance with multilateral agreements on biodiversity, climate change and desertification. Environmental governance is further supported by the implementation of the Environmental Information System (EIS) website and capacity development efforts.

Capacity building and technical assistance in DRR is being introduced, and most municipalities are equipped with emergency centres as part of decentralisation efforts that aim to bring prevention and protection issues closer to local populations. Part of this process has also included providing local staff with the appropriate tools and knowledge that will enable them to prepare and respond more quickly in the case of an emergency. The UN has praised these initiatives on preparedness and response; however, limited capacity in enforcing laws remains a challenge.

There remains a need for Cape Verdean authorities to move beyond solely contingency planning and a strictly disaster preparedness mode, to incorporate a more comprehensive understanding of DRR that includes addressing underlying risk.

Strategic

DOCUMENTS AND PLANS

Cape Verde has developed a Strategic Plan for DRR 2015, seventeen municipal emergency plans, three Special Emergency Plans (volcanic eruption, drought and wildfires), and specific plans for the oil industry, hospitals and education facilities. The government has adopted the HFA and its National DRR Platform is operational. In addition, a preliminary National Hazard Profile was conducted, as was an analysis of disaster risk assessment in the country. Twenty-two emergency centres, one in every municipality, are now equipped to assess and respond to disasters. However, certain municipalities feel unprepared and lack appropriate equipment to face certain calamities.

In 2006, the first annual report on the Poverty Reduction Strategy Paper (PRSP) was released. Although DRR is not specifically included as such, the fourth aim of the PRSP is highly relevant, which is to "improve and develop basic infrastructures, promote land management, and conserve the environment." Accomplishments within this aim relate to DRR, specifically in regards to water and sanitation. The country reported successes in the construction and rehabilitation of reservoirs and wells, the installation of water and sewage piping, and the construction of sewage pumping stations. However, at the time of writing this report, only Praia and Mindelo had functioning sewage treatment systems as construction challenges had been encountered in other municipalities. Furthermore, the goal of 40% coverage for solid waste collection has not been reached.

Cape Verde still lacks cross-sectoral collaboration and mainstreaming of DRR into sectoral plans, except perhaps in education where modules have been introduced into the national curriculum as part of the government's efforts to raise awareness among the population. There remains a need for Cape Verdean authorities to move beyond solely contingency planning and a strictly disaster preparedness mode, to incorporate a more comprehensive understanding of DRR that includes addressing underlying risk.

According to Cape Verde's National Progress Report (2009-2011) on the Implementation of the HFA, some achievements have been made while constraints are acknowledged as well, specifically in terms of financial resources available and operational capacities. Cape Verde launched the National Platform for DRR with the aim of integrating DRR into national development policies and strategies with adequate and defined responsibilities. While the National DRR Platform is supported by Portugal and United Nations International Strategy for Disaster Reduction (UNISDR), there have been certain constraints related to its implementation given the country's fragmented territory, the high geographic dispersion of municipalities and institutions' insufficient knowledge of the HFA. This reveals a need for further training on this matter.

National and local risk assessments have been prepared in line with regional guidelines. However, the SNPC has identified the language barrier as a main limitation as Cape Verde is located within a francophone area. Additionally, its isolation as an island nation has posed a problem for other national civil protection services in the sub-region when engaging with Cape Verde, and vice versa.

The HFA progress report affirms that an important challenge to implementing DRR is the need to define a strategy that aims to build synergies with the various stakeholders involved and allocate sufficient resources to DRR, taking into account the increasing size of the country's vulnerable population. Targeting DRR information campaigns to decision makers could be an essential step towards the adoption of effective DRR measures. Mobilising human and material resources is

also necessary to reach this goal.

Cape Verde has produced a National Adaptation Program of Action on Climate Change (NAPA). As each of the NAPA objectives is related to building resilience to climate change, each is relevant to DRR. The three objectives are to: 1) Improve integrated water resource management (IWRM); 2) Develop adaptability of agro-silvo-pastoral production; and 3) Protect and prevent degradation of coastal zones. The NAPA also identifies cross-cutting strategies to accomplish these objectives, such as capacity-building, increased investment at the national level, information campaigns, and action research (i.e. transferring local lessons learned to the national, decision-making level). The country's National Strategy Action Plan against Climate Change focuses primarily on the reduction of greenhouse gas emissions.

In accordance with aforementioned reports and efforts, prioritised actions include the construction of water system infrastructure, modernisation of irrigation systems, implementation of renewable energy projects, rehabilitation of coastal protection infrastructure, and the diversification of activities for populations that live off the land. The consensus between these documents and government actions demonstrates a clear understanding of and a commitment to DRR.

Other actions worth noting are the Sistema Nacional Integrado de Socorro, the Projecto de Cartografia de Riscos, Projecto SIERA (Sistema de Inventário e Análise para a Avaliaçao de Riscos na Africa Occidental), and the Observatório Vulcanológico de Cabo Verde. The SIERA project is being implemented by SNPC, the United Nations Development Programme (UNDP) and research partners to define an Inventory and Risk Assessment system, which will include the creation of a database of the major risks affecting Cape Verde, a Disaster Observatory and a risk profile of the country.

International

ENGAGEMENT AND SUPPORT

Cape Verde benefits from a strong One United Nations Programme, which includes a DRR component. Environment, Energy, Disaster Prevention and Response is the third thematic axis of the One UN Program mandate in Cape Verde. Of the $14.3 million in UN expenditures in 2011, 32% ($4.55 million) was dedicated to efforts in this axis, the most spent on any one axis. Several accomplishments have been made under the objective that "national and civil society ensure effective management in disaster response." UN funding has also been utilised to build adaptive capacity and resilience to climate change, including the construction of water reservoirs and check-dams for soil conservation and salt reclamation. United Nations Environment Programme (UNEP) has engaged in a Climate Change Vulnerability Assessment, while UNDP has worked to rehabilitate coastal zones.

UNDERLYING Risk Factors: Local Perceptions

RTUs Selected

AND SUPPORTING RATIONALE

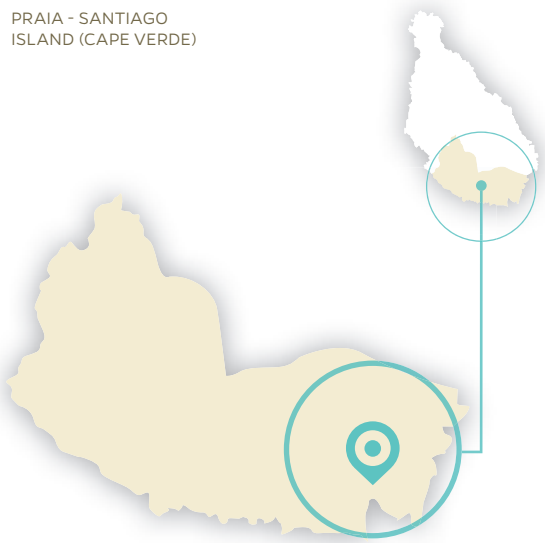
The RRI in Cape Verde looked at two RTUs, each of which represented a different risk typology—Praia, the capital (urban), and Santa Cruz (rural). While both RTUs are located on the island of Santiago, each presents a distinct profile in terms of hazards, environmental concerns and risk typology. The rural versus urban locations also provide a more comprehensive picture of the underlying risks affecting the people of Cape Verde and the conditions in which they live that make them more or less vulnerable to natural hazards.

Praia

Praia is the capital of Cape Verde and the country's largest city with a population of more than 120,000 inhabitants, about one-fourth of the country's total population. Praia is located between plateaus and valleys to the north and an extensive coastline to the south. Its development began following Cape Verde's independence in 1975, and the city has grown consistently since then, receiving a large population influx from rural areas in search of job opportunities. Facilitated by the high remittances from Cape Verdeans living abroad, Praia has experienced a boom in construction. Praia is an important example of the challenges related to urbanisation, including rapid and uncontrolled expansion, inadequate basic services, and housing in hazardous locations. From 1990 to 2000 more than half of Cape Verde's population moved to urban areas. One consequence of this migration trend has been a rise in the number of female-headed and single-parent households.

The climate of Praia is arid with a limited but intense rainy season. With an estimated 260 millimetres of rain annually, the island has a significant water deficit, which particularly affects agricultural activities. The national government, together with international partners, has worked to equip the island with water drainage systems and dams to respond to both drought crises and irregular rainfall. Praia is subject to intense rains, floods, and mass movements on a regular basis. Urbanisation, due to rural out-migration, internal migration from other islands, and immigration from the sub-region, has increased the level of risk posed by natural hazards and has heightened underlying factors of vulnerability. Risks in particular arise due to housing and infrastructure being located in dangerous areas, such as riverbeds and steep slopes, and while laws on the usage of land and urban development do exist, such as the Laws and Norms on Territory Organisation and Urban Planning (Decree Law nº 1/2006, of February 13), they are often overlooked or poorly enforced.

PRAIA - SANTIAGO ISLAND (CAPE VERDE)

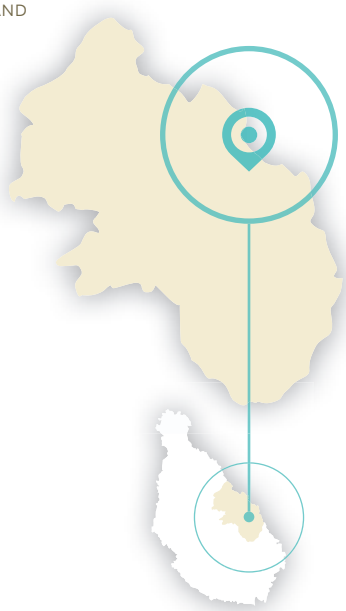


RTU Praia

WATER SCARCITY
AFFECTS AGRICULTURAL PRODUCTION AND LIVELIHOOD OPPORTUNITIES

LIMITED ACCESS TO WATER
IS A CHALLENGE IN URBAN AREAS

SANTA CRUZ -
SANTIAGO ISLAND
(CAPE VERDE)



RTU Santa Cruz

ILLEGAL SAND EXTRACTION PRACTICES CONTRIBUTE TO COASTAL EROSION

Santa Cruz

Santa Cruz is a rural municipality on the island of Santiago. It is situated 40 km from Praia, on the eastern coast. Santa Cruz has a population of more than 26,609 inhabitants and is historically known as an agriculture centre. Santa Cruz's population is young, with 75% under the age of 25. Illiteracy rates are high in the area and school attendance is uncommon beyond elementary school. Additionally, more than 50% of the population is female, with an equal percentile of female-headed households. Limited job opportunities in rural areas are affecting the area's young population, causing many to migrate to urban areas like Praia and Mindelo. Santa Cruz provides an important contrast to Praia, primarily due to its rural profile and location on a flood plain, along with an agricultural sector heavily affected by the relative decrease in agricultural production that has characterised Cape Verde in recent decades.

Santa Cruz's climate and environmental conditions are very similar to the rest of Santiago Island. Its arid and semi-arid climate is a result of Cape Verde's Sahel position. However, the archipelago's location in the Atlantic Ocean allows for a varied climate, particularly in relation to levels of humidity. The population of Santa Cruz engages in agriculture, cattle, and forestry activities, and the area is an important agricultural production centre for the country. The main agricultural crops are maize, bananas, papayas, and coconuts.

Soil erosion is a pressing issue for Santa Cruz and other rural communities, as it leads to coastal erosion. In the past decade, the activity of sand extraction from coastal areas on the island of Santiago has had devastating results. Sand extraction in neighbourhoods such as Ribeira dos Picos, Ribeira Seca, and Ribeira da Santa Cruz has led to coastal erosion and increased salinisation of agricultural lands. Until 1990, the extraction of sand was a legal activity in Cape Verde and was promoted by the national government as part of an effort to build state infrastructures in the country's capital and beyond. During the decade that followed, sand extraction became an important activity in Santa Cruz, employing many workers, particularly women. Today, however, the Decree Law 2/2002 has made unauthorised sand extraction illegal and incurs high fines. Officials from the Ministry of Environment, Housing, and Territory Planning claim that the illegal and non-licensed extraction of aggregates (mainly sand and gravel) is the most devastating activity for the territory of Cape Verde. In addition, changes in the laws have contributed to increased migration out of Santa Cruz to Praia and other islands where tourism is high and there are greater employment opportunities.

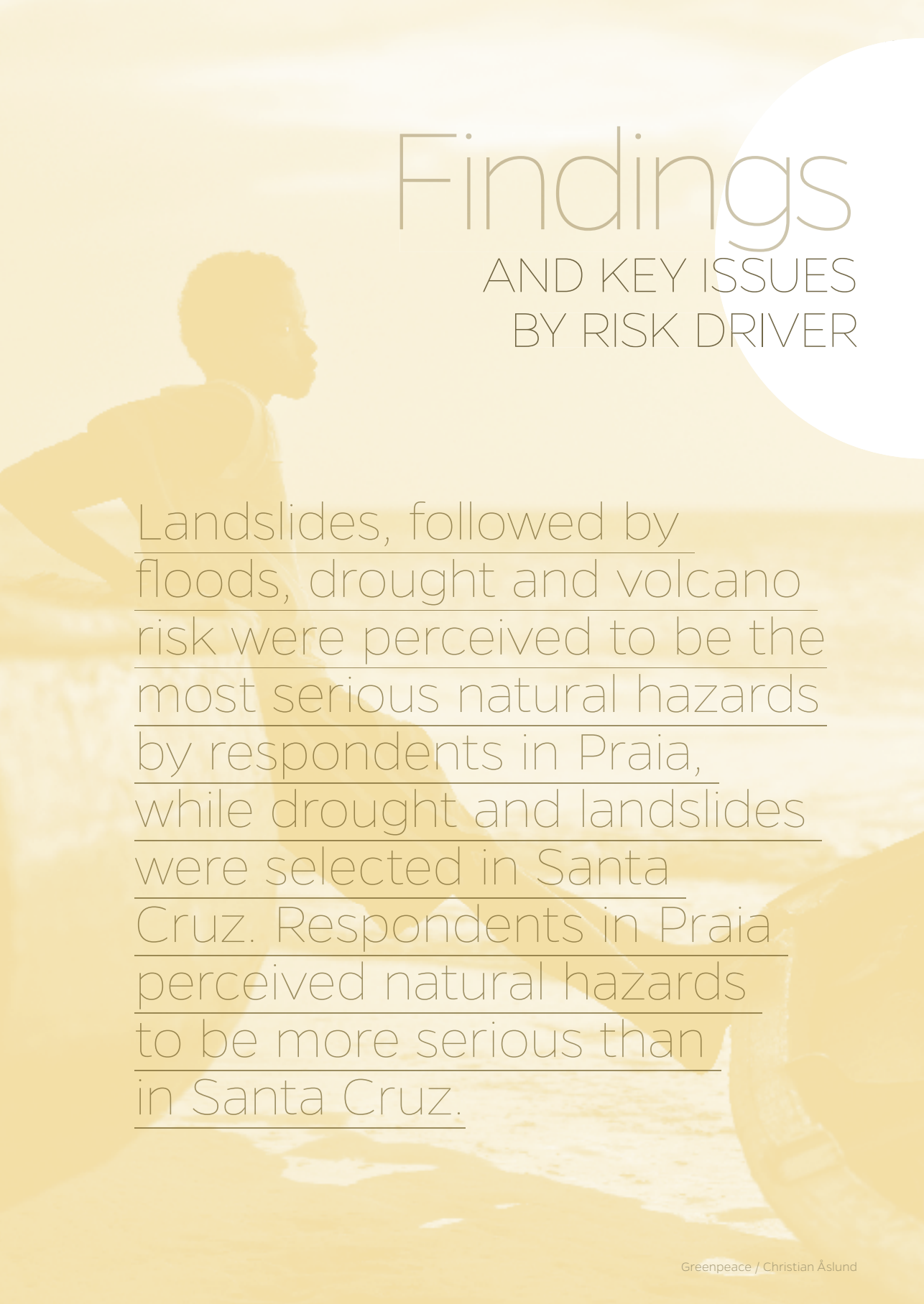
NATURAL HAZARDS AND UNDERLYING RISK FACTORS OF SELECTED RTUS

	PRAIA (URBAN)	SANTA CRUZ (RURAL)
NATURAL HAZARDS	FLOODS, LANDSLIDES	FLOODS, DROUGHT
RISK DRIVER 1 1	· Coastal erosion · Soil erosion · Water scarcity	· Coastal erosion · Soil erosion · Water scarcity
RISK DRIVER 2 2	· Poverty · Unemployment · Out-migration · In-migration · Limited access to land	· Poverty · Unemployment · Out-migration · In-migration · Low levels of literacy
RISK DRIVER 3 3	· Housing in dangerous locations · Poorly built housing · Limited access to water · Poor drainage/water disposal	· Housing in dangerous locations · Poorly built housing · Poorly built critical public facilities · Poorly built productive infrastructure
RISK DRIVER 4 4	· Centralised decision-making · Inefficient bureaucracy · Limited financial capacity	· Inefficient bureaucracy · Limited financial capacity · Lack of accountability

Findings

AND KEY ISSUES BY RISK DRIVER

Landslides, followed by floods, drought and volcano risk were perceived to be the most serious natural hazards by respondents in Praia, while drought and landslides were selected in Santa Cruz. Respondents in Praia perceived natural hazards to be more serious than in Santa Cruz.



Greenpeace / Christian Åslund

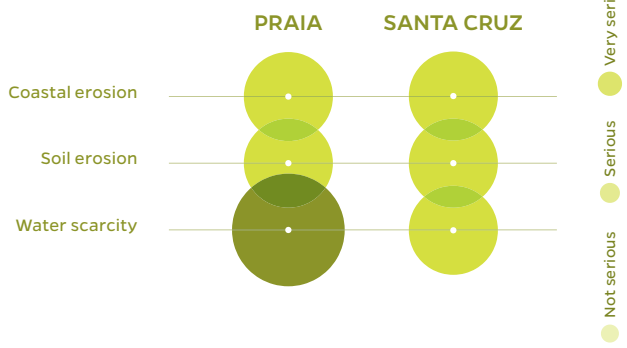
Local Perceptions on Risk Driver 1

Environmental and Natural Resources

Both Praia and Santa Cruz present similar environmental conditions and a shared semi-arid climate. Several key issues were identified by respondents in each RTU.

Water scarcity was perceived to be the most serious issue, followed by soil erosion and coastal erosion. While deforestation and desertification were also key concerns, as well as water contamination in Praia, respondents did not o er details on why these issues were selected. Soil erosion, water scarcity, deforestation and desertification all negatively impact agricultural production and hence also livelihood opportunities among local populations in the rural areas.

ENVIRONMENTAL CHALLENGES IN PRAIA AND SANTA CRUZ



1 COASTAL EROSION

Coastal erosion caused by sand extraction is an important challenge facing farmers in Santa Cruz. As previously stated, the extraction of sand has caused salt intrusion on lower lying agricultural lands with devastating outcomes in terms of unproductive soil that disrupts food production and hence farmers' livelihoods. Through NGOs such as MORABI, measures such as the provision of micro-credits and technical trainings have been taken in order to provide incentives and encourage women to seek alternative income activities. Continued demands from the private sector, combined with weak law enforcement capacity and few economic alternatives for rural women and men, mean that sand extraction remains a practised income alternative.

2 SOIL EROSION

The great variability in precipitation, combined with inappropriate or inexistent watershed management, means that heavy rainfall in higher lying areas often contributes to soil erosion in lower lying zones. Soil erosion is common in both RTUs. In Praia it creates complications in terms of safe building environments, while it is a direct threat to livelihoods in Santa Cruz and other rural communities on the island. Despite initiatives to protect the soil in Santa Cruz, such as reforestation or the construction of retention walls, measures have not sufficed in terms of protecting the fragile environment in the lower lying arable lands. According to respondents, plans of action such as the Second Plan of Action for the Environment, have been developed to protect agricultural, maritime, and forestry activities, but have had limited success.

Respondents indicated that the construction of retaining walls has had both positive and negative consequences. Usually, when the rainwater hits the retaining wall, the pressure of the water further intensifies and consequently hits the ground with stronger impact, thus causing the soil to erode further. This finding clearly points to insufficient and inadequate watershed management in rural areas.

3 WATER SCARCITY

Limited annual rainfall is one cause of water scarcity on Santiago Island, particularly affecting agricultural activities. Respondents stated that any measures taken aimed at storing rainwater or preventing further soil erosion during the rainy season have been insufficient thus far.

Regarding environmental issues in general, at the community level there are local associations that work in collaboration with the local government to improve environmental conditions. The local municipal offices in both RTUs have installed standpipes and fountains, but these interventions have been evaluated as minimally effective for their inappropriate location and for the control exerted by certain power groups. The existence of internal or irregular control mechanisms over the fountains prohibits public access to drinkable water (existence of "gatekeepers" over water resources). Therefore, some families have to buy water from households with running water or buy water tanks for water provision, as well as treat water themselves. The "do-nothing policy" of the local authorities regarding this issue was criticised by many respondents. Respondents also claim that the poorest communities have been neglected by local government.

Respondents recognised local government efforts to build water pipes and water reservoirs, but low technical capacity and limited funding are seen as essential factors that reduce the effectiveness of the intervention. International organisations were identified for their support to the national government in dam and water pipe construction. These interventions were valued as somewhat effective, due to the fact that dams are only located in some rural communities and because of the lack of access of individual households to water piping systems. Water distribution by international organisations, in contrast, was identified as a very effective intervention.

The national government has financed the installation of drip irrigation systems in Santa Cruz, a measure that was very popular among the local community. Other infrastructures such as dikes, fountains, dams and wells have also been built by the government. However, these were valued as only minimally effective by Praia respondents as they do not reach poor communities. In order to maintain income-generating activities, more sophisticated measures like planting more resistant crops and using water saving techniques in farming activities have been implemented in Santa Cruz. Moreover, projects to build water pipes led by state institutions have been considered effective for their correct allocation of funds, technical capacity and for the establishment of partnerships with international organisations that have provided funding.

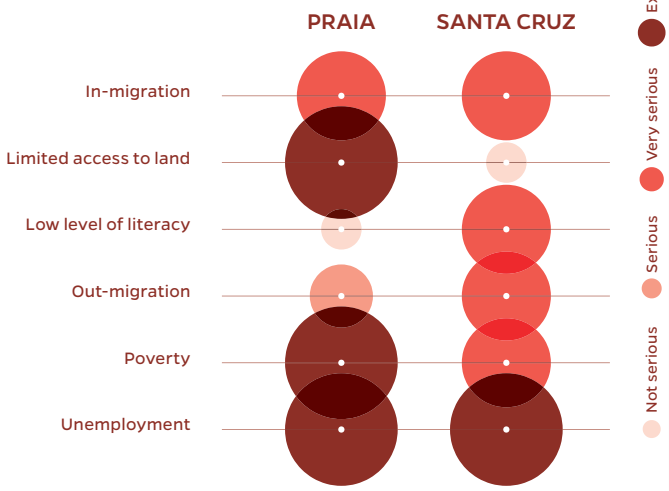
In terms of awareness building in Praia, respondents cite education campaigns, talks and special days dedicated to water awareness that have been organised. However, others claim that there is still a lack of awareness at the household level of water saving practices. Respondents recommended that more environmental education be included in the school curriculum in order to raise awareness on the importance of protecting natural resources. Among the international organisations present in the country, the Red Cross has been noted for its training programmes on DRR, which previously only reached local leaders but recently broadened to include more people.

Local Perceptions on Risk Driver 2

In both RTUs, poverty and unemployment were identified as the primary socioeconomic concerns, while limited access to land was highlighted by respondents in Praia, but not in Santa Cruz. In Santa Cruz, low level of literacy was considered to be a serious issue, and in both areas migration was a key concern.

Socioeconomic Conditions

SOCIAL AND ECONOMIC CHALLENGES IN PRAIA AND SANTA CRUZ



1 IN-MIGRATION AND OUT-MIGRATION

Praia respondents identified two types of migrating communities, those coming from rural areas and those coming from different islands. Both groups are seen as highly vulnerable due to their lack of knowledge about the areas they are living in. These migration flows have increased overcrowding in cities and contributed to unsafe housing as incoming migrants generally lack resources, leading them to build their houses in locations with higher exposure and low quality materials. As most migrants come from rural areas, they tend to continue their rural practices, such as animal husbandry, which are ill-suited for the urban area and lead to unsanitary conditions. Migrant populations are generally less connected to the community and have fewer resources. Consequently, these families are often supported by local family centres.

National institutions have also implemented a multi-annual development plan to develop a more sustainable economy in Cape Verde, which respondents considered to be only minimally effective. International organisations have put in place microcredit systems which the local government is collaborating with by carrying out inspections and monitoring. These systems are viewed as somewhat effective by respondents.

2 LIMITED ACCESS TO LAND

In Praia, limited access to land due to overcrowded conditions has led to irregular settlements with unsanitary conditions. This situation is further causing people to build in dangerous areas such as steep slopes or waterbeds. Respondents claimed that the city council was handing over land in a very uneven way, with priority given to those who can

afford to pay for land tenure. This situation is pushing people to build in hazardous areas, in some cases while waiting for an administrative answer from land tenure institutions. Plot division and lot sales, implemented jointly by local and national governments, were assessed as effective but lacking technical expertise and funding in some cases. Leasing is a common practice in rural areas (Santa Cruz), but valued as not effective at all as there are often disagreements between landlords and farmers. There is also a need for training on how to select appropriate crops to increase agricultural returns and profitability.

3 LOW LEVELS OF LITERACY

Respondents recognised that those with low levels of literacy are more vulnerable to disaster risks. However, in some cases, respondents did not believe that families were not completely aware of the value of education and how it might affect a change in their status. The national government has put in place literacy programs, and has implemented night courses in schools targeted to adult learning. Both interventions have been scored as somewhat effective. Nevertheless, respondents claim that funds and technical capacities have been reduced and that students receive little support from institutions to further pursue studies or internships. At the local level, education projects are limited by a lack of funds and technical support, but respondents acknowledge that even with these various constraints, education initiatives are very highly valued and most of them were considered very effective.

4 POVERTY

Respondents clearly identified the relationship between poverty and increased vulnerability to disaster risks. People with limited resources tend to have riskier habits (unsafe water and housing), and some respondents commented that it is much more difficult for these people to change attitudes and habits. Microcredits and national government partnerships with international organisations to fight poverty have been identified as somewhat effective interventions. Respondents also cited sufficiently allocated budgets, good results, and project design based on relevant needs of the population as reasons why these efforts are viewed positively. In Praia, other plans and projects put in place by the local and national government have been viewed as somewhat effective, especially those targeting poverty issues.

5 UNEMPLOYMENT

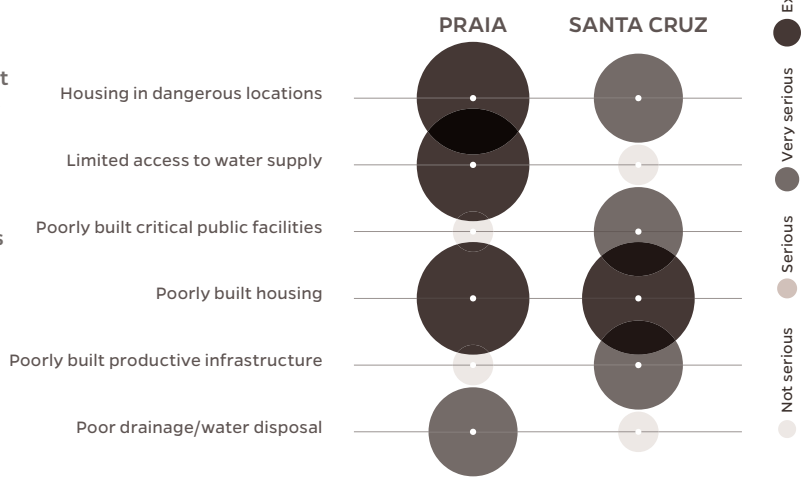
In the case of unemployment, the national government has implemented a range of projects for employment. These include entrepreneurship and vocational training for youth and women, which have been assessed as somewhat effective but are suffering from insufficient funding and reduced technical capacities. Only in the case of vocational training did respondents highlight that both the national and local governments allocated sufficient funds for this type of project.

Local Perceptions on Risk Driver 3

Land Use and Built Environment

Respondents in both Praia and Santa Cruz acknowledged several issues related to land use and the built environment. In both rural and urban settings, respondents identified housing in dangerous locations and poorly built housing as serious concerns. Poorly built productive infrastructure and poorly built public facilities were rated more severely in Santa Cruz. This reflects a concern in rural areas that insufficient investments have been made to protect agricultural production. In the case of Praia, limited access to water supplies and poor drainage/water disposal systems were primary concerns.

LAND USE CHALLENGES IN PRAIA AND SANTA CRUZ



1 HOUSING IN DANGEROUS LOCATIONS

Despite legislation and regulations aimed at avoiding the proliferation of housing in dangerous locations, residents ignore norms and regulations mainly due to a lack of alternatives. The emergence of unorganised neighbourhoods with illegal constructions proves a challenge for authorities, both in terms of protecting and having access to the population in times of crisis. Many neighbourhoods have proliferated with little or no fiscal observation due to this rapid expansion. In order to be less noticeable, these homes are constructed in low valleys where flooding easily occurs, with no civil engineering guidance and/or control, and with very poor materials– cardboards, plastic, wood pallet, spares of timber, etc.

Apart from building houses on slopes and flood-prone areas, some respondents cited cases of homes being built near gas/fuel facilities. These houses, mostly irregular, are increasing the vulnerability of the rest of the population as well. The lack of inspection procedures on the part of the government is rendering the population vulnerable to risks. Apart from having reduced access to land, vulnerable families see the bureaucratic processes of land tenure as an impediment for them to legalise their houses. In most cases, low financial capacity doesn't allow families to construct houses in safer places or build them with higher quality materials.

2 LIMITED ACCESS TO WATER SUPPLY

In the rural RTU of Santa Cruz, limited access to water supply was identified as one of the main issues, especially when compared with other populations that live in remote areas. Water piping projects led by the local government are considered effective as there is sufficient funding allocated from the central government. Other

water access projects have been supported by international institutions, but respondents cited the reduced technical capacity of local governments to maintain the projects once they are handed over, which jeopardises the long-term sustainability of these interventions.

The challenging conditions in rural areas force many farmers to migrate into urban areas, particularly Praia. Many of these migrants, often rural poor, settle down in deprived marginal urban and semi-urban areas in poor housing and under challenging socioeconomic conditions. It is in these areas that many respondents reported a lack of access to clean water sources.

3 POOR DRAINAGE/ WATER DISPOSAL

Poor drainage systems lead to floods during the rainy season and present health risks in terms of infectious diseases year around. Survey respondents reported that the local government built dikes around flooding areas. However, this measure was criticised for the lack of a comprehensive approach, as it fails to take care of waste accumulation, which causes channel blockage leading to overflows in the case of rainstorms. The local government has also worked to rehabilitate degraded neighbourhoods, including demolition in some cases. These measures were valued as only somewhat effective for not having enough capacities and resources.

Persons interviewed in Praia highlighted the challenges of inappropriate waste management, meaning that waste is often left in inadequate sewage systems or other unsafe deposit areas. During the rainy season this causes blockage of sewage systems, often resulting in floods. Additionally, inappropriate collection of waste poses a threat to general public health due to the risk of epidemics.

Efforts from the local government to address the situation were identified by respondents. Municipal Guards have served as monitoring agents in the field to control and announce irregularity at an early stage. The municipal chamber has developed several projects in order to mitigate disaster, in particular the construction of water drainage systems and the reorganisation of neighbourhoods, among other initiatives. However, limited planning capacity within municipalities and the local government limits the effectiveness of these actions. Initiatives have been taken to improve the situation of marginalised urban populations, including the UN-HABITAT Sustainable Urbanisation Participatory Slum Upgrading Programme, which was valued as very effective by respondents. On the whole, however, limited progress has been made to decrease the exposure of populations to risks resulting from poor planning, both urban and rural.

4 POORLY BUILT HOUSING

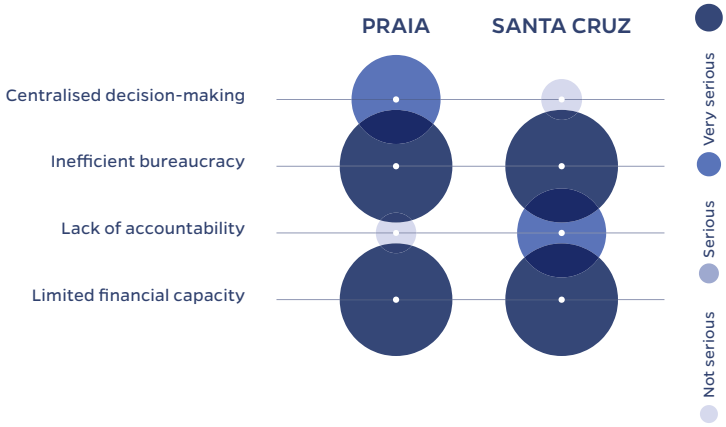
Poor construction of homes is in part a result of poverty and unemployment, and exposure to hazards is further increased due to a lack of public infrastructure and services. In Cape Verde, urbanisation is occurring at a very rapid rate, putting pressure on the public administration's capacity to ensure that migrants can settle in safe places where services in terms of water supply, drainage and electricity are provided. This situation is prevalent, as there is an absence of control and monitoring by relevant authorities of the quality of building materials. Respondents have also reported houses being flooded and destroyed in the rainy season. The lack of proper drainage systems and roads can lead to flooding and the spread of diseases. General construction policies have been defined, but respondents comment that they are not as effective as they should be because of the reduced technical capacity and funding, which are necessary in order to enforce regulations.

Local Perceptions on Risk Driver 4

Governance

Respondents in Cape Verde selected a high number of governance indicators as being of serious concern. In particular, inefficient bureaucracy, limited financial capacity, centralised decision-making, and lack of accountability were identified. Non-compliance with law was a particular concern in Praia, partly because regulatory challenges have become more evident in the fast-growing migrant neighbourhoods.

GOVERNANCE CHALLENGES IN PRAIA AND SANTA CRUZ



1 CENTRALISED DECISION-MAKING AND LACK OF ACCOUNTABILITY

Respondents selected centralised governance and lack of accountability as key issues. Inefficient administration and the limited capacity to delegate and make decision-making processes inclusive were also highlighted. Survey respondents felt that technical capacities of the local administration would need to be improved before any decentralisation process is put in place. Regarding the issue of centralised decision-making, government and local chambers are criticised for not working jointly in order to give DRR strategies more relevance in the political agenda. However, some respondents noted that in crisis situations, institutional coordination has indeed been somewhat effective.

Respondents clearly expressed that more informative campaigns and studies need to be conducted for a better understanding of the country's vulnerability. Legislative framework has established the scope, definitions, principles and domains, rules, and contingency and disaster plans, while also determining who is responsible for the direction and coordination of these policies. However, respondents claim that there should be more bottom-up communication to ensure that their voice is heard and that greater transparency and accountability on the part of the authorities is needed. They further stated that there are too many policies and not enough solutions.

Greenpeace / Christian Åslund

2 INEFFICIENT BUREAUCRACY

Inefficient bureaucracy, including slow decision-making processes and cumbersome procedures, was considered the most serious issue among all governance factors, in part because it results in aid programmes taking longer to reach beneficiaries, respondents stated. Government interventions such as the computerisation of national and local level administration, supported by external funding coming from international partnerships, was valued as extremely effective by respondents.

3 LIMITED FINANCIAL CAPACITY

Limited financial capacity also represented one of the primary concerns, as municipalities and other entities often lack sufficient resources to invest in necessary measures. Apart from the evident external dependency of Cape Verde's economy, respondents claim that funding is not reaching vulnerable groups in a sufficient manner and that the population is not included in the decision-making process. Additionally, the distribution of national funds is argued to be inequitable as more funding has been allocated to urban areas than to rural areas (e.g. health centres).

Recommendations from PRAIA

1 INCREASING KNOWLEDGE AND AWARENESS ON ENVIRONMENT AND NATURAL RESOURCES

- Carry out more **TECHNICAL STUDIES AND RESEARCH** to help identify **REALISTIC SOLUTIONS**
- **IMPROVE CIVIC EDUCATION** with more extensive environmental education programming and awareness-raising efforts on **ENVIRONMENTAL ISSUES**

2 BUILDING SOCIOECONOMIC RESILIENCE

- Undertake **RISK MAPPING**
- Futher develop **EMERGENCY AND CONTINGENCY PLANS** and improve public awareness of these plans
- Create overall greater **CULTURE OF PREVENTION**

3 IMPROVING LAND USE AND THE BUILT ENVIRONMENT

- Draft and enforce **BUILDING CODES**
- Devote more resources to **IMPROVE AND EXPAND INFRASTRUCTURE**
- Undertake activities around **REFORESTATION AND RAINWATER RETENTION**

4 IMPROVING GOVERNANCE

- Create **MORE PARTNERSHIPS** between the national and local governments and NGOs
- **IMPROVE ACCOUNTABILITY** in government
- Improve the **ENFORCEMENT OF LAWS**

the RTUs

SANTA CRUZ

- **IMPROVE CIVIC EDUCATION,** and **RAISE AWARENESS** around the issue of **COASTAL EROSION** and the **RISKS POSED BY SAND EXTRACTION,** as well as on **THE RATIONAL USE OF WATER**

- Draft **LABOUR LAWS** that would promote more **SOCIAL INTEGRATION**, as well as **LIVELIHOODS INITIATIVES** to encourage rural populations to remain in rural areas.
- Make **HEALTH SERVICES MORE AFFORDABLE** and thus accessible
- Invest in **PROFESSIONAL DEVELOPMENT OPPORTUNITIES**

- Update and enforce **BUILDING CODES**
- Improve the **PUBLIC WATER SUPPLY**
- Address the **HIGH COST OF LAND OWNERSHIP**
- Promote **REFORESTATION** to address the problem of **SOIL EROSION** and the risk from **LANDSLIDES**

- Create **MORE PARTNERSHIPS** between the national and local governments and NGOs

Key CHALLENGES

Cape Verde has taken important steps to address its environmental challenges and pursue disaster risk reduction efforts. Environmental education, modernisation of production techniques, retention of rainwater practices, and reforestation are some of the measures developed over the last decade. The creation of the General Office for the Environment, as well as other government agencies such as the Ministry of Rural Development, the Institute of Meteorology and Geophysics, together with the involvement of communities and the creation of more municipal offices in remote areas are all significant contributions.

More effective interventions, both at the level of policy, legal frameworks, and activities need to be undertaken. This is particularly of concern in the areas of water usage and availability, urban and territorial planning, and reducing vulnerability in coastal areas. Climate change adaptation likewise needs to be made an integral part of development planning. In addition, it is crucial that Cape Verde address the issues facing its rural communities in order to improve their livelihoods opportunities, while also addressing the issue of out-migration to the capital. Irrigation and environmental actions related to soil conservation are of crucial importance here.

THE GAMBIA

THE PRIMARY HAZARDS FACING **GAMBIA** ARE DROUGHT, FLOODS AND STORMS

FLOODS OCCUR WITH THE **MOST REGULAR** FREQUENCY

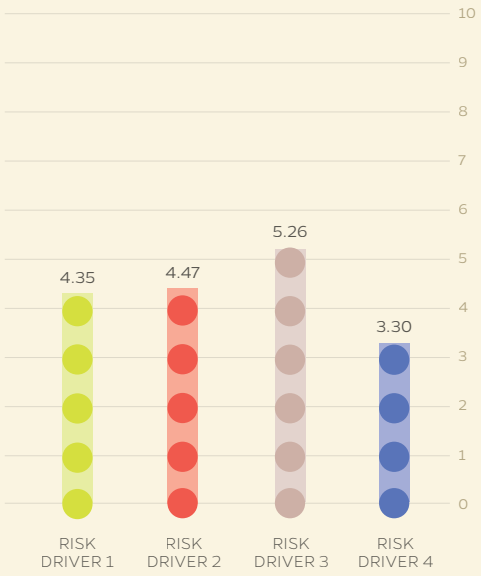
INSECT INFESTATION IS ALSO AN IMPORTANT THREAT, PARTICULARLY IN TERMS OF ECONOMIC DAMAGES

DROUGHTS HAVE AFFECTED THE MOST **NUMBER OF PEOPLE** BY FAR, FOLLOWED BY FLOODS

EPIDEMICS HAVE RESULTED IN THE **HIGHEST NUMBER** OF DEATHS, AGAIN FOLLOWED BY FLOODS

Source: EM-DAT (CRED)

GAMBIA SCORES FROM WEST AFRICA RISK MAPPING



INSTITUTIONAL Capacity for DRR

DRR Institutional Setup
AND LEADERSHIP

Gambia has recognised disaster management as important to its development and has taken measures to build its capacity and resilience in the face of disasters. The Gambia's Vision 2020 strategy, launched in 1996, identified the need for a Disaster Preparedness Plan in order to achieve its development goals, and in 1997, Gambia established the National Disaster, Emergency Relief and Resettlement Committee (NDERRC), led by the Vice President. The National Environmental Protection Agency includes Disaster Preparedness and Contingency Planning as one of its programme areas, and disaster issues were included in the Gambia Environmental Action Plans (GEAP) Phase I and II. Disaster issues have also been included in the Rio+20 Republic of The Gambia National Report 2012 and The Gambia Programme for Accelerated Growth and Employment (PAGE) 2012.

At the national level, Gambia has established the National Disaster Management and food security governing council (NDMC), the disaster management and climate change adaptation platform and the National Disaster Management Agency (NDMA). The NDMC is headed by the Vice President and includes the sector ministries and the Solicitor General. It advises the government on disaster management and develops and ensures the implementation of strategies and policies. Furthermore, it advises the President on aid needs, agreements and state of emergency declarations, and helps determine the number of police force and armed force members to be deployed in the event of a disaster. The NDMA is headed by an Executive Director and acts as the secretariat for the National Disaster Management and food security governing Council. In 2011, the NDMA launched a collaboration portal between the regional staff and main office to increase information sharing and collaboration. The NDMA is responsible for administrative matters related to disaster management and prevention and ensures policies and strategies are implemented at the national and local levels.

The Gambia National Contingency Plan was created in 2011 to enhance the effectiveness of disaster preparedness and risk reduction. Measures include an early warning system; capacity strengthening at the regional, district and community levels; geographic information systems; regional and sectoral contingency plans; and equipment and training at the national, regional and local

levels. Moreover, it includes partnerships, community participation and sustainability as important components to its implementation. The NDMA is responsible for the coordination and monitoring of the Contingency Plan.

In March 2011, The Gambia launched its National Platform for DRR, with the NDMA acting as the focal point and secretariat for the National Platform. The National Platform serves to ensure the implementation of the National Contingency Plan in the various sectors. The Plan also guarantees that disaster risk reduction activities included in the Contingency Plan are streamlined into the development planning activities of the Ministry and the Programme for Accelerated Growth and Development (PAGE).

At the regional level, Gambia has established Regional Disaster Management Committees (RDMC). These committees are chaired by the mayor or governor and are responsible for the implementation of the National Disaster Plan in the region. Regional Disaster Management Coordinators assist the RDMCs with the preparation of the regional disaster management plans. At the district level, Gambia has established District Disaster Management Committees assisted by District Disaster Management Coordinators.

The overuse of wood fuel as an energy source in Gambia is contributing to the destruction of forest resources and natural vegetation cover, leading to an increased risk of desertification.

Strategic

DOCUMENTS AND PLANS

Gambia developed the National Disaster Management Programme Strategic Plan, 2008-2011, to lay out the steps and actions needed to implement the National Disaster Management Policy (2007) and the 2008 National Disaster Management Bill, the National Disaster Management Policy outlines strategies, areas for intervention, and institutional structures and agencies to implement disaster plans. It also includes a strategy for financing. The National Disaster Management Bill established a National Disaster Fund, the National Disaster Management Council and Agency, regional and district disaster management committees, an Executive Director responsible for the administration of disaster management, and the development of disaster management plans at the national, regional, district, and local levels. The National Disaster Management Programme Strategic Plan strives to provide a multidimensional strategy and balance prevention, preparedness, mitigation and response in Gambia's approach to disaster management.

In its 2007 National Adaptation Programme of Action (NAPA), Gambia identified the main climate related hazards as floods, storms, droughts, cold spells, intra-seasonal-drought, heat waves and unseasonal rains. The NAPA includes three key sectors: economic (agriculture, fisheries, energy), natural resources (water and forest resources), and social (health). The NAPA identified the need to address meningitis, malaria, and cholera outbreaks and the creation of surveillance and detection systems for emergent and new diseases. The NAPA also identified the need for early warning systems, infrastructure improvements for drainage, land use zoning, and efficient drought relief. Ten priority projects were listed, including the Rehabilitation of Early Warning Systems on Climate-Related Natural Hazards and the Reduction of Climate Change Related Diseases, both of which are focused on disaster risk management. The other priority projects address issues related to the ecosystem, climate change, food security and livelihoods, poverty, technology, and inadequate strategies for the incremental effects of climate change.

Gambia's Poverty Reduction Strategy Paper (PRSP II), 2007-2011, acknowledges the exploitation of natural resources, and the need to conserve them, along with the promotion of a well-balanced ecosystem. It also mentions the National Vision 2020 and its identification of the need for the development of a community based disaster preparedness plan as one of the main challenges for Gambia. The PRSP II notes that the overuse of wood fuel as an energy source in Gambia is causing the destruction of forest resources and natural vegetation cover, leading to desertification and the subsequent negative impacts on food production. It also lists soil erosion and decreasing soil fertility as constraints on agriculture.

International

ENGAGEMENT AND SUPPORT

The 2012-2016 United Nations Development Assistance Framework (UNDAF) included the establishment of a national climate change and disaster risk reduction information system as one of its country programme outcomes.
The World Food Programme (WFP) has supported Gambia through the 2012 Emergency Operation (EMOP) that supported farming communities during the Sahel food crisis (2011- 2012) with food distributions, supplementary feeding for young children and cash transfers. Currently, the WFP is implementing the Protracted Relief and Recovery Operation (PRRO), which supports communities suffering from crop failure and floods by combating malnutrition in children and pregnant and nursing women, rebuilding livelihoods, and enhancing the capacity of the government in emergency preparedness and response. In terms of DRR, the WFP provides support to the government by providing capacity building for contingency planning, emergency preparedness, needs assessment and immediate relief assistance at the central and regional levels. The agency also produces a quarterly Food Security and Market Information Bulletin to provide information to decision-makers on various issues: agricultural production; food trade and price trends: groups most vulnerable to food insecurity; climate forecasts; and vulnerability trends.
Other organisations implementing projects related to disaster management and climate change include the European Union (UE), International Fund for Agricultural Development (IFAD), the World Bank (WB), and the United Nations Development Programme (UNDP). The Drainage, Sanitation, and Waste Management Interventions for Flood Prevention in Gambia, supported by the EU, aims to mitigate the impacts of flooding through improvements to the drainage and sanitation infrastructure in seven urban areas that have been identified as vulnerable. The IFAD is implementing the Participatory Integrated-Watershed Management Project to increase rural communities' capacities to sustainably manage watersheds. It also provides resources for the implementation of watershed management plans. The Adaptation to Climate Change project, supported by the UNDP and the Global Environmental Facility, aims to build vulnerable communities' resilience to climate change impacts on coastal resources.

UNDERLYING Risk Factors: Local Perceptions

RTUs Selected

AND SUPPORTING RATIONALE

The RRI in Gambia looked at two Representative Territorial Units (RTUs), each of which differ in terms of risks, geographic location and levels of urbanisation and economic development. The Greater Banjul Area, the capital, is a western coastal urban area, while the North Bank Region is a rural and subsistence agricultural region. The two RTUs attempt to cover, at least in part, the different types of geography, climate-related challenges, and natural hazards and risks that Gambia faces. The rural versus urban locations also provide a more comprehensive picture of the underlying risk factors affecting Gambians and the conditions in which they live that make them either more or less vulnerable to disasters.

Greater Banjul Area

The Greater Banjul Area is located in Western Gambia and consists of the City of Banjul and the Kanifing Municipal Council, occupying an area of 94 km² (less than 1% of the Gambia's land area). This RTU is in close proximity to the River Gambia and home to a population of 357,000 (26% of the country's population).

Banjul's status as the largest urban city in Gambia is slowly being eroded due to the emergence of Serrekunda, the Kanifing Municipality's capital. Throughout the 1990s and 2000s, the Kanifing Municipality grew to become the most commercial and populous centre in Gambia (since 1963, the population increased from less than 12,000 to 322,700 in 2003), with the country's major hotels and tourism facilities based there.

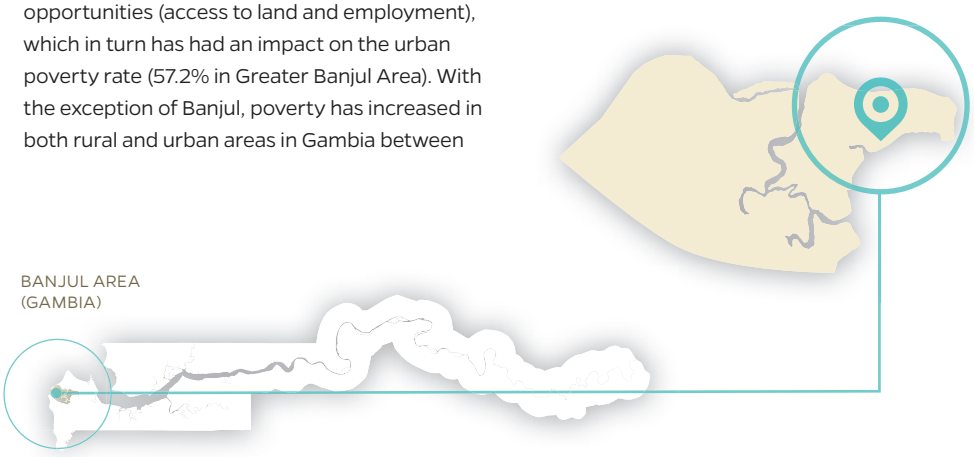
The rapid pace of urbanisation accompanied by inadequate storm water management systems and drainage facilities has significantly increased the overall vulnerability of this RTU to climate-related hazards, such as flash floods after heavy rains. In the 2010 rainy season, flash floods in the area affected more than 35,000 people, damaged 2,371 houses and impacted an unknown amount of food and cash crops. In addition, increasing urbanisation is putting pressure on basic social services (access to education and health) and economic opportunities (access to land and employment), which in turn has had an impact on the urban poverty rate (57.2% in Greater Banjul Area). With the exception of Banjul, poverty has increased in both rural and urban areas in Gambia between 1992 and 2003.

The Greater Banjul Area is primarily low-lying and sea level rise and coastal erosion present serious long-term challenges to development. Groundwater is at risk of increased salinisation, and shallow coastal aquifers could diminish, which would affect fresh water supplies and peri-urban agriculture. In some areas of the Greater Banjul Area, the beach has been retreating at a rate of 1-2 meters per year due to coastal erosion. The impact of sea level rise and coastal erosion has potentially negative effects on the tourism industry, the artisanal fisheries sector and associated livelihoods. These are critical to the economy of the country as Gambia possesses only a minimal manufacturing sector and limited commercial mineral resources.

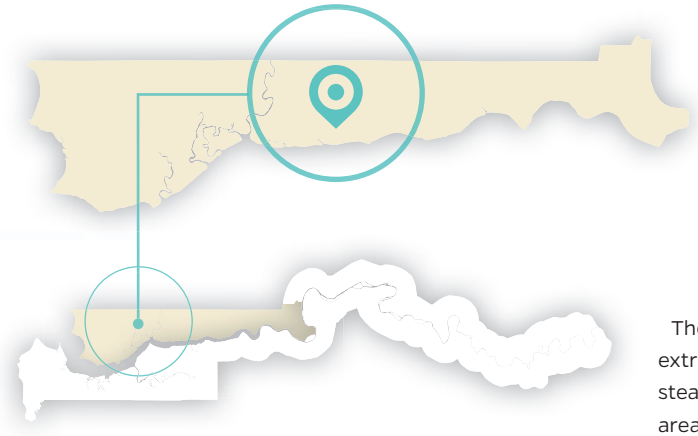
RTU Greater Banjul Area

HOUSING IN DANGEROUS LOCATIONS

INCREASES PEOPLE'S EXPOSURE TO FLOODS AND LANDSLIDES, WITH THE POTENTIAL FOR LOSS OF HUMAN LIVES AND ECONOMIC ASSETS IN URBAN AREAS



RTU NORTH BANK REGION
(GAMBIA)



RTU North Bank Region

DEFORESTATION
CONTRIBUTES TO A GREATER RISK OF FLOODING AND SOIL EROSION, AS WELL AS REDUCED PROTECTION FROM WINDSTORMS

North Bank Region

This RTU is located on the Northern Bank of the River Gambia and is comprised of six districts with a total population of 174,835. Until the expansion of the ferry services to Barra and the construction of the bridge across Mini Minyang Bolon at Kerewan, the North Bank Region suffered from a lack of access to Banjul.

Agriculture is the primary source of livelihood in the country. It employs more than 68% of the workforce, accounts for approximately 40% of Gambia's export earnings and makes up around 26% of the GDP. In the North Bank Region, agriculture is predominantly subsistence and rainfed, with farmers relying on traditional shifting cultivation and livestock management practices. Grains (millet) and groundnuts, and to a lesser extent maize and rice, are the main crops cultivated. Horticulture, extensive livestock farming (especially small ruminants and poultry), charcoal and salt production, and firewood selling are other economic activities. Challenges around the marketing of farm produce often pose serious problems, especially for female vegetable growers. The main constraints in sustaining their production efforts are the lack of proper storage facilities, poor timing of production, long distances to the nearest market and the lack of reliable means of transportation.

The North Bank Region is experiencing extreme forest and soil degradation and a steady decrease in natural resources. Cropland area has increased from less than 100,000 hectares to over 300,000 at the expense of natural woodland and wetland ecosystems. Over the last 50 years, increasing numbers of livestock, in combination with soil degrading farming practices, have put pressure on the lands available for food and fodder production, forcing farmers and herders to encroach on forests to extend farmlands and grazing areas. Furthermore, clearance for settlements and infrastructure development in forest areas occurs without appropriate environmental consideration. Uncontrolled felling for timber and collection of firewood, as well as unsustainable harvesting of forest products for domestic use is common in this RTU.

Gambia's climate is semi-arid with a relatively short rainy season and erratic rainfall, causing periodic but frequent droughts and vagaries of climate. In the North Bank Region, the rainy season is especially poor, both in terms of total amount and spatial distribution, and yields are thus generally low. The rainy season in 2011 and 2012 ended earlier than normal, which led to widespread crop failure. Serious floods followed in many parts of the country during the 2012 harvesting season, further aggravating food insecurity and poverty conditions in Gambia. The country's poverty rate averaged 63.3% in rural areas. Households headed by females and located in rural areas are most likely to be poor. Female-headed households make up 18% of all rural households, with about 63% falling below the poverty line, compared to 48% of male-headed households.

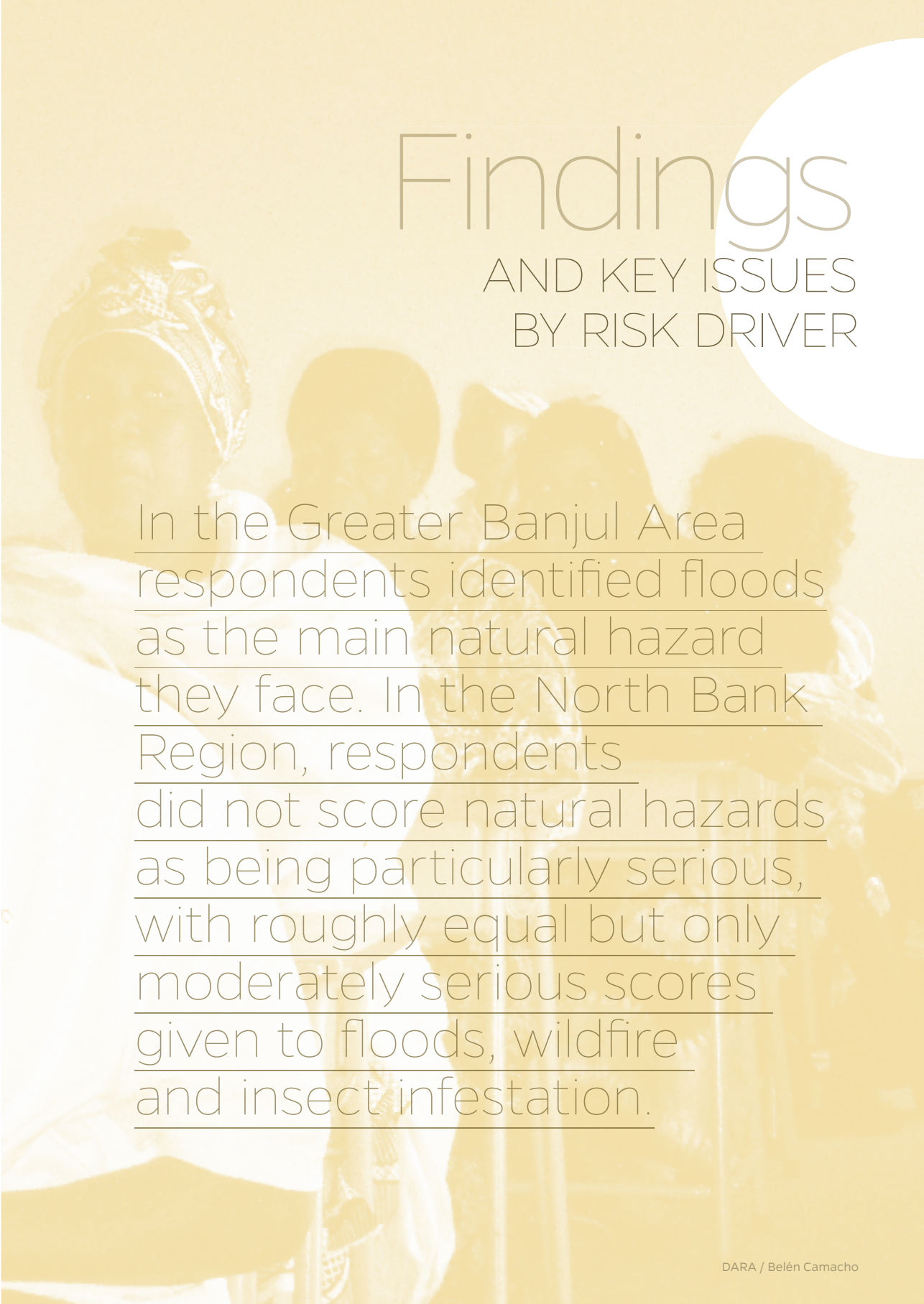
NATURAL HAZARDS AND UNDERLYING RISK FACTORS OF SELECTED RTUS

	GREATER BANJUL (URBAN)	NORTH BANK (RURAL)
NATURAL HAZARDS	FLOODS	NONE SELECTED
RISK DRIVER 1 1	· Coastal erosion · Deforestation	· Deforestation · Soil erosion
RISK DRIVER 2 2	· In-migration · Limited access to land · Poverty · Unemployment	· Food insecurity · Low levels of literacy · Out-migration · Poverty · Prevalence of infectious diseases · Unemployment
RISK DRIVER 3 3	· Housing in dangerous locations · Overcrowded conditions · Poorly built housing · Poor drainage/water disposal	· Housing in dangerous locations · Poorly built housing · Poor drainage/water disposal
RISK DRIVER 4 4	· Corruption · Limited financial capacity	· Corruption · Lack of human capacity · Lack of accountability · Limited financial capacity

Findings

AND KEY ISSUES BY RISK DRIVER

In the Greater Banjul Area respondents identified floods as the main natural hazard they face. In the North Bank Region, respondents did not score natural hazards as being particularly serious, with roughly equal but only moderately serious scores given to floods, wildfire and insect infestation.



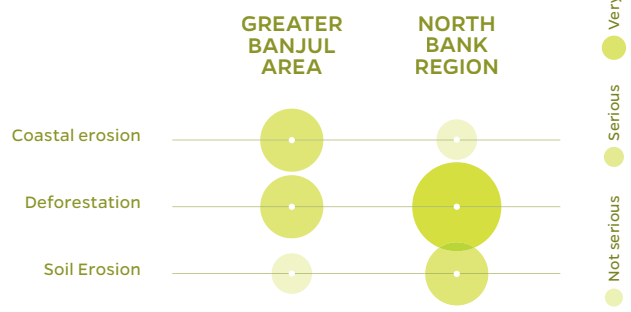
DARA / Belén Camacho

Local Perceptions on Risk Driver 1

Environmental and Natural Resources

Deforestation was found to be the main environmental challenge in the North Bank Region, followed by soil erosion. In the Greater Banjul Area, coastal erosion was highlighted as a main environmental concern as much of the territory is surrounded by the River Gambia. Within the Greater Banjul RTU, deforestation was considered a concern specifically in the Kanifing Municipality, which is a major commercial area with industrial development initiatives taking place.

ENVIRONMENTAL CHALLENGES IN GREATER BANJUL AREA AND NORTH BANK REGION



1 COASTAL EROSION

Coastal erosion was identified by respondents in Greater Banjul Area as one of the consequences of deforestation, resulting in diminished coastline vegetation that is integral in protecting the coast from rain and wind storms. Sand mining practices have also exacerbated erosion, changing the natural coastal sedimentation-erosion dynamics. Coastal erosion has also been identified as a threat to the buildings located along the coast, which in turn increases the area's economic vulnerability and negatively impacts the tourism industry as it affects the stability of beaches, hotels and transport infrastructure. Thus, the livelihoods of some families are threatened, and in some cases they are forced to relocate.

Through support from the government, communities and NGOs have developed sensitisation campaigns on the dangers and impacts associated with coastal erosion and how to improve community coping capacities. The National Environmental Agency (NEA) has forbidden sand mining activities in some areas to allow for natural regeneration. Other initiatives such as mangrove planting have also been promoted by local and national authorities and supported by families from the local areas. These were rated as somewhat effective by respondents. A coastal protection project was also put in place by the national authorities, which received high levels of participation from the communities. The project was considered to be effective but was also criticised for its low quality and the limited funding available.

2 DEFORESTATION

Many respondents in the North Bank Region pointed to wildfires as the most significant cause of deforestation. Respondents agree that reduced soil fertility and lowered agricultural production are often direct results of deforestation. Other consequences identified were the effects on the local rainfall patterns and the reduced protection from windstorms, increasing flooding and erosion.

Households in the Greater Banjul Area and the North Bank Region are engaged in tree planting activities through small-scale initiatives, including coconut and mangrove tree planting along riverbanks. In partnership with NGOs, communities in the North Bank Region have also organised themselves to monitor wildfires and promote sensitisation sessions to raise awareness on the negative impacts of environmental degradation and sustainable options to use firewood, such as improved cooking stoves.

Local authorities have enacted by-laws to control forest management and illegal logging. Tree planting activities have been put in place in both RTUs, and have been provided with additional funding and expertise. These activities were valued as very effective. Interventions led by the national government have included the provision of seedlings for reforestation activities. These were valued as somewhat effective but criticised for the reduced allocation of human resources to monitor the activities. The Gambian government enacted a Forestry Act to regulate protection and forest management, which has been valued by respondents as minimally effective due to reduced funding and incomplete enforcement. This is directly related to the limited degree of community participation. Respondents found the Anti-Wildfire Programme to be very effective because of the high degree of community organisation, which was seen as critical to the success of the programme.

3 SOIL EROSION

Respondents in the North Bank Region are aware of the direct relationship of soil erosion with deforestation. Soil erosion leads to soil infertility and low production as nutrient-rich top soil layers are washed away. To promote soil retention, farmers are adopting best agricultural practices such as crop rotation and strip cropping (planting crops in strips across the slope), as well as tree planting.

Local authorities are encouraging farmers to practice contour ploughing to help prevent erosion, especially in the event of rainstorms. Contour bunding is associated with the ploughing and placing of stones around the contours of slopes. This has achieved positive results and is rated as effective. Both tree planting and contour bunding have been introduced through agricultural extension education programmes led by the national government.

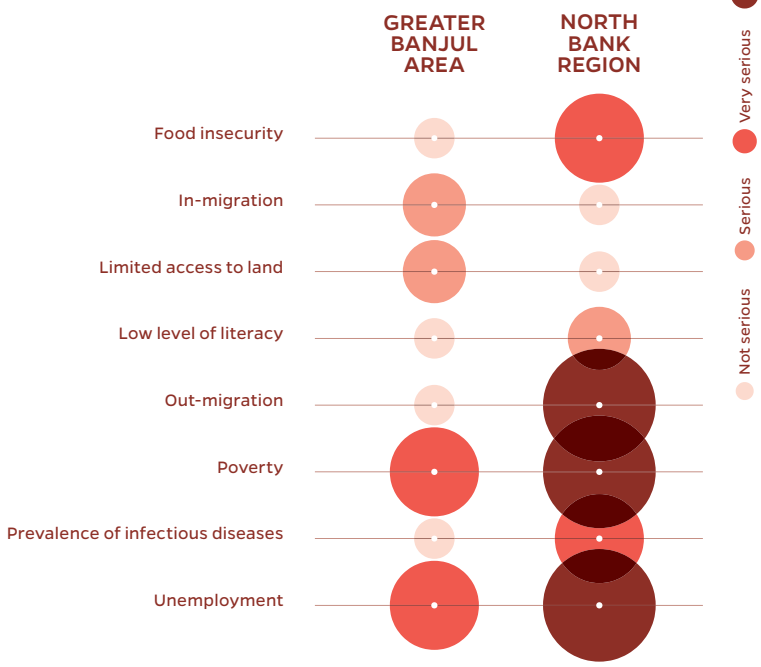
At the national level, the government is promoting tree planting; however, low soil fertility and high degrees of deforestation have hampered effectiveness. Further measures to improve fertility will be needed before reforestation can be successful. The Participatory Integrated Watershed Management project (PIWAMP), funded by IFAD and the African Development Bank (AfDB), was launched in 2006 by the national government with the objective of increasing sustainable land productivity in Gambia. It was the initiative that respondents most positively valued.

Local Perceptions on Risk Driver 2

Socioeconomic Conditions

Poverty, unemployment, limited access to land, and in-migration are the main socioeconomic challenges in the Greater Banjul Area. Comparatively, unemployment, poverty, out-migration, food insecurity, low levels of literacy, and the prevalence of infectious diseases are the challenges identified in the North Bank Region. Unemployment and poverty were the key socioeconomic concerns highlighted in both RTUs.

SOCIAL AND ECONOMIC CHALLENGES IN GREATER BANJUL AREA AND NORTH BANK REGION



FOOD INSECURITY

Respondents in the North Bank Region linked food insecurity with malnutrition, infertility and subsequently a weak labour force. They also viewed forest encroachment as a consequence of the need to increase agricultural land to meet demand. To reduce vulnerability to food insecurity, families grow their own crops (early maturing crops if possible), diversify food production and rear livestock. Other strategies employed by families are small income-generating activities to increase the family income.

The national government has distributed seeds (early growing millets) and agriculture inputs such as fertilizer, while also promoting upland rice cultivation. Both measures have been viewed positively and were considered very effective interventions. Another initiative to reduce food insecurity was 'Operation Feed Yourself', launched in 2003 to encourage young Gambians in urban areas to return to rural areas to cultivate. This would in turn decrease dependence and control urban growth. The campaign was positively accepted and considered as effective by respondents,

although a lack of technical capacity from the government was highlighted. Other interventions such as skill development on vegetable production and new farming techniques were also identified.

2 IN-MIGRATION

In-migration in Greater Banjul was identified by respondents as a direct cause of high crime rates and increased pressure on food and shelter, as people are forced to relocate to dangerous and unsanitary areas. Respondents also indicated that the trend has reduced their employment opportunities and puts extra pressure on social services such as health and education.

To address this issue, communities are discouraging youth from relocating to urban areas. This fits into the larger tendency of "decentralisation", a development policy that aims to reduce overcrowding in capital cities while guaranteeing better access to social services throughout the rest of the country, which is mostly rural. Decentralisation initiatives have been positively accepted by respondents, who consider them to be somewhat effective and a good way of alleviating pressure on social services. In urban areas, local authorities of Banjul are also providing housing for displaced people, a decision considered to be very effective.

3 LIMITED ACCESS TO LAND

Limited access to land is affecting access to farmland, which subsequently impacts food security. Social infrastructure projects such as schools and hospitals are also affected, resulting in reduced social welfare in overcrowded areas in Greater Banjul. The lack of access to land is pushing people toward disaster-prone areas and causing overcrowding in existing neighbourhoods.

National institutions have introduced low-cost housing schemes, which have been deemed minimally effective by respondents due to insufficient funding. The central government's decentralisation initiatives are considered to be somewhat effective as they could help reduce pressure on social services in the cities.

4 LOW LEVELS OF LITERACY

Respondents in the North Bank recognised low levels of literacy as an obstacle for communications on risk prevention, thereby increasing vulnerability as written materials for DRR campaigns would be ineffective. Communities have engaged in adult learning and literacy programmes with the support of international organisations. These have been considered as somewhat effective by respondents as the programmes have helped build schools and increased coordination amongst actors.

The national government has also put in place adult learning programmes for functional literacy, with the aim of training Gambians to manage daily living and employment tasks that require reading skills beyond a basic level. These initiatives were valued as very effective by respondents. The government has established skill training centres that provide qualified training for youth, and local governments have developed cross-sectorial training programmes. These measures were also highly valued by respondents.

Local Perceptions on Risk Driver 2

Socioeconomic Conditions

5 OUT-MIGRATION

In the North Bank, out-migration is linked to the lack of labour opportunities for young people in rural areas, affecting the workforce and causing a decline in local production and capacity. In collaboration with international organisations, the communities are advising people, especially the youth, on the dangers associated with out-migration through awareness campaigns. Horticulture training programmes have also been developed to encourage farming in this rural RTU.

Through the 'No Back Way to Europe' campaign, the government, in collaboration with the country's immigration department and police force, provides farmers with different agricultural inputs and loans for government land. It aims to discourage young farmers from illegally emigrating by providing them with tools to increase agricultural production. This project was valued as minimally effective by respondents as they believe that there are still major regional challenges that the project fails to address. International organisations are also facilitating youth enterprise development. This was valued as a very effective intervention as most of the trainings have resulted in an increase in job opportunities.

6 POVERTY

When addressing hunger and living standards, respondents stated that their basic needs are not fully met. They highlighted that the recent food crisis and flooding in Gambia has affected the poorest sections of vulnerable communities, rendering them even more vulnerable and exposed to risk in both rural and urban areas. Respondents in the North Bank Region link poverty levels to the high rates of unemployment and commented that the communities in this RTU are highly dependent on the government. In response, they are embarking on community-based interventions to reduce poverty, such as the establishment of women-led vegetable gardens. These were considered to be very effective as they reduce community vulnerability to volatile food prices.

In the Greater Banjul Area the local government has created credit facilities through microfinance projects, which have been assessed as effective, but are criticised at the same time given the increasing unemployment rate. National institutions have also developed several projects under their employment creation policies. These include skill development centres focused on youth and female self-employment, microfinance services, enterprise development and livelihoods projects. Respondents see these as somewhat effective as they have received political commitment and adequate financial and technical resources. In the North Bank Region, respondents valued the presence of international organisations engaged in microfinance projects, which they view as very effective. Additionally, people mentioned government interventions, such as the provision of improved production methods and the implementation of a rural finance framework, as somewhat effective and highlighted that these initiatives were beneficiary inclusive.

7 PREVALENCE OF INFECTIOUS DISEASES

Infectious diseases are seen in the North Bank Region as a factor that affects farmers' productivity, increasing their vulnerability to food insecurity in the long-term. Communities use preventive methods such as prophylactics and bed nets to avoid infection.

International organisations such as the Global Fund against HIV/AIDS, Malaria and Tuberculosis and the Ministry of Health and Social Welfare are providing communities with bed nets. This is seen as a very effective measure targeting a specific problem. International organisations have also implemented sensitisation campaigns on environmental conditions that increase disease transmission. The national government is providing clean drinking water, which is considered to be a very effective intervention; however, further technical capacity and funding is believed to be needed.

8 UNEMPLOYMENT

Respondents in the North Bank Region affirmed that unemployment is causing a high rate of out-migration, forcing youth to relocate to the capital city. In the Greater Banjul Area, however, one of the most frequently mentioned consequences of unemployment is the increased crime rate.

To overcome the high unemployment rate, families engage in small business and gardening and try to access microfinance sources to diversify income and reduce economic vulnerability. Communities also seek support from the government, NGOs and remittances.

At the local level in both RTUs, skill training centres have been created, but respondents assess them as minimally effective due to the exclusion of the most vulnerable, inefficient use of funds, and the inability to find jobs after training given the small size of the job market.

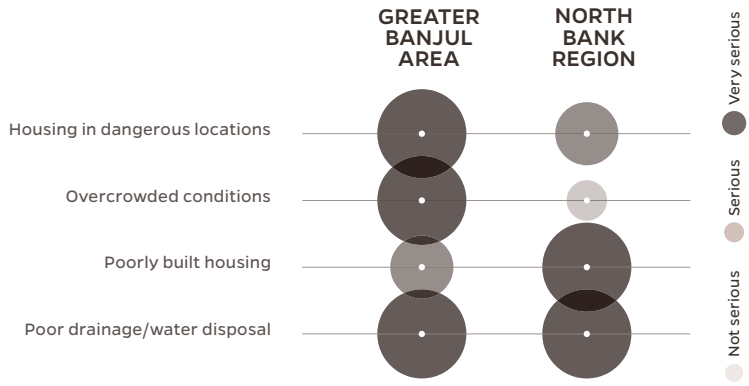
The national government, in collaboration with NGOs, has developed activities towards youth training on enterprise development; however, these are considered to be minimally effective given the need for further funding and broader outreach to youth. The PRSP and the EU- funded PAGE are in place 'to address unemployment and poverty'. Both are considered to be somewhat effective and dependent on political commitment. The Gambia Priority Employment Programme (GAMJOBS), funded by the UNDP, aims to create an enabling environment for employment creation. The programme was assessed by respondents as minimally effective, highlighting the need for further funding and community participation.

Local Perceptions on Risk Driver 3

Land Use and Built Environment

In both RTUs, the main land use and built environment challenges are poor drainage or water disposal and housing that is poorly built and/or in dangerous locations. Overcrowded conditions were also highlighted in the Greater Banjul Area.

LAND USE CHALLENGES IN GREATER BANJUL AREA AND NORTH BANK REGION



1 HOUSING IN DANGEROUS LOCATIONS

Building houses in dangerous locations, such as waterways and ditches, increases exposure to floods and landslides. During the rainy season many households in both RTUs experience flooding, causing some structures to collapse, risking human lives and increasing economic vulnerability. Many families repair their houses every year for the rainy season; however, this is only possible if there is a social network that provides support to the families. Those living in irregular settlements must often move temporarily to safer locations.

To address this issue, local councils have been raising awareness on the dangers of building in exposed areas, and the national government has implemented relocation policies and provided more solid materials, such as cement blocks, for reconstruction purposes. This has been valued by respondents as minimally effective, as some people are reluctant to move to a different setting with different conditions for their families. The materials provided have been criticised for not being produced locally, which would strengthen the economy. Additionally, relocation policies need additional funding in order to reach more beneficiaries, especially the most vulnerable.

Building codes do exist and the government has enacted a Planning Act. Some respondents, however, see these measures as minimally effective due to a lack of financial and human capacities needed for the effective enforcement of both regulations. A few respondents mentioned the eviction from unauthorised settlements, pointing out that the measure had been coherent with the approved legal framework. Additionally, sensitisation campaigns on the need to respect building codes have also been assessed as minimally effective. This is largely due to families' reduced access to technical and financial resources, as well as the low capacity of the Physical Planning Unit and other major stakeholders to enforce such policies on the ground.

2 OVERCROWDED CONDITIONS

Overcrowding in the Greater Banjul Area is generating increased pressure on roads and other congested transportation infrastructures. It is also increasing vulnerability to communicable diseases, mainly caused by the pressure on the already poor sanitation facilities. An additional consequence is the escalating crime rate.

Some respondents noted that the national government is making attempts to decentralise development. This measure could help reduce overcrowding in urban areas if the provision of social services and facilities were more widely spread throughout the country, especially reaching rural areas. However, the provision of public services in rural areas is still ineffective, and some respondents mentioned that further funding is needed in this respect.

3 POORLY BUILT HOUSING

Respondents in both RTUs stated that many houses are built with poor and unsuitable building materials and in dangerous locations. This is largely due to weak control mechanisms for buildings and a lack of coordination amongst the relevant authorities. Poor building materials lead to the overheating of houses as they often lack insulation. Furthermore, these poorly built houses are more susceptible to collapse during flooding, especially if they are located in dangerous locations.

Local governments have only recently started to monitor the location of houses in hazardous areas. Respondents, however, viewed this as only minimally effective. Local councils have also collaborated in the evacuation of victims in the case of emergency, which was again valued as minimally effective due to a lack of resources. To address hazard protection, the national government, with the support of international organizations, has established building codes along with the National Planning Act, which regulates housing amongst other activities. Yet these regulations lack appropriate enforcement, which, in the view of respondents, is linked to insufficient funding and the inefficiency of those responsible for their enforcement and monitoring. Finally, the national government is providing victims with financial aid to improve the quality of houses, or relocation in some cases. However, respondents stated that there is no real coordination between the relevant authorities behind the initiative.

4 DRAINAGE/ WATER DISPOSAL

The current drainage system in the Greater Banjul Area is said to be poorly planned and not properly maintained, causing flooding every year and leading to erosion and disease outbreaks. Other consequences are the flooding of main roads and water contamination.

North Bank communities are lobbying to get support from the government and other organisations on this issue, since communities lack the necessary technical capacity. In both RTUs, the communities have organised themselves to build local drainage systems as a temporary solution, but these are recognised to be minimally effective as this infrastructure needs further technical capacity for long-term sustainability. They have also organised regular cleaning exercises of the draining system to avoid mosquito breeding and to mitigate the potential risk of flooding. Pumps to drain water from compounds have been used and community sensitisation activities carried out on the need to avoid dumping garbage into the drainage system. These were assessed as very effective measures.

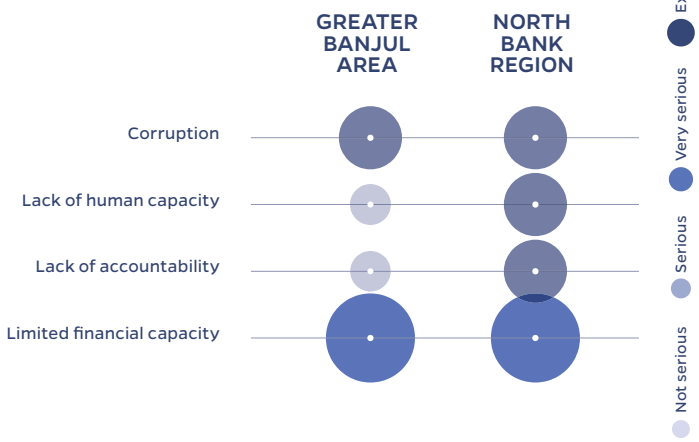
In the Greater Banjul Area, the national government is diverting water flows and using concrete slabs to build new waterways and drainage systems, while existing and new roads are being equipped with drains to avoid flooding. Although considered as somewhat effective, this measure requires further maintenance and integration into urban and rural planning. Additionally, the government is rehabilitating existing drainage. In general, these actions are considered to be effective, but respondents stated that further sensitisation is required for long-term sustainability of the infrastructure so that residents increase their sense of ownership and are concerned about the implications of their actions. Respondents also note that additional funding is required to maintain the infrastructure, along with the implementation of a waste management system, so that people have a sustainable alternative to dispose of their household waste.

Local Perceptions on Risk Driver 4

Governance

Limited financial capacity and corruption were the two key issues selected in both RTUs. In addition, in the North Bank region, lack of accountability and human capacity were also considered to be relevant challenges.

GOVERNANCE CHALLENGES IN GREATER BANJUL AREA AND NORTH BANK REGION



1 CORRUPTION

Respondents in the Greater Banjul Area and the North Bank Region understood corruption as a misuse of government funds that are not adequately accounted for and not spent in the right way, requiring further transparency and accountability from the government. Corruption increases communities' vulnerability as the diversion or misuse of funds prevents activities from being implemented, or causes activities to be delayed, poorly implemented or not completed in some cases.

In 2004, the national government created an Anticorruption Commission, which was valued positively as somewhat effective. The Commission was launched as part of the anti-corruption campaign "Operation No Comprise." Respondents link its effectiveness to the existence, reform and reinforcement of specific regulations enacted to fight against corruption such as the annual auditing exercises of public accounts and the legal trials of public officials who have had to face commissions of enquiry.

2 LACK OF HUMAN CAPACITY

North Bank respondents affirmed that the lack of human capacity is related to an insufficient workforce, leading to delays, inefficiency, or even project failure.

The local government manages scholarships and training programmes for youth, and while they are positively valued, respondents recognised that they lack technical know-how and funds. The national government has invested in the capacity-building of government departments and has supported the training of staff from District Assemblies. Both of these initiatives were found to be effective, as they have increased and

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strengthened human capacity at the local level. However, respondents claimed that adequate funding is needed for expansion and greater impact.

3 LACK OF ACCOUNTABILITY

Lack of accountability is intimately related with corruption. North Bank respondents specifically referred to the carelessness in governance of some institutions, which, amongst other consequences, can cause delays in project implementation.

Respondents perceive the auditing process of the administrative and financial management of public accounts as effective. The creation of the Public Accounts Committee of the National Assembly reflects the government's willingness to address this issue. Respondents mentioned that strict measures have been taken on decisions lacking accountability; however, institutional weakness remains a challenge. Roles and responsibilities within the Committee are clearly defined, signaling that there are internal technical capacities available to hold accountable those responsible for decisions related to spending and resource allocation.

4 LIMITED FINANCIAL CAPACITY

Limited financial capacity is seen as a major challenge for the implementation of plans. It causes delays and impedes on institutions' ability to address people's vulnerabilities in a more complete and sustainable manner.

The national government is currently supporting families through the provision of loans. While it has been reported that the low level of loan repayment is jeopardising the long-term sustainability of this funding source, the initiative has been very positively valued. The national government has thus solicited financial aid from international institutions, which might prove to be a temporary and effective solution. Nevertheless, further efforts from the government to reach more sustainable and longer-term solutions will be needed.

Recommendations from GREATER BANJUL

1 INCREASING KNOWLEDGE AND AWARENESS ON ENVIRONMENT AND NATURAL RESOURCES

- Involve communities in **MULTI-HAZARD RISK AND VULNERABILITY ASSESSMENT** exercise
- **STRENGTHEN POLICIES** on sand mining and cutting of mangroves
- Promote **TREE PLANTING** and mangrove conservation activities
- **RAISE AWARENESS** on environmental issues

2 BUILDING SOCIOECONOMIC RESILIENCE

- Establish and strengthen existing **SKILLS CENTRES**
- Create **MICRO FINANCE OPPORTUNITIES**
- Enhance **ECONOMIC ACTIVITIES** especially for young people
- Review and update existing **POLICIES AND LAND USE REGULATION**

3 IMPROVING LAND USE AND THE BUILT ENVIRONMENT

- **RELOCATE SETTLEMENTS** exposed to flooding risks
- Make provision of **AFFORDABLE HOUSING**
- Construct **PROPER DRAINAGE SYSTEMS**
- Reinforce **BUILDING REGULATION AND CODES**

4 IMPROVING GOVERNANCE

- Create an agency to **FIGHT AGAINST CORRUPTION**
- Strengthen the **PUBLIC ENTERPRISES COMMITTEES (PAC/ PEC)** of the National Assembly to improve accountability
- Decentralise **PLANNING AND BUDGETING**

the RTUs

NORTH BANK

- Identify **VULNERABLE GROUPS** and assess **LIVELIHOODS AT RISK**
- Promote **TREE PLANTING** activities involving households at the community level
- Enforce **ANTI-LITTER REGULATIONS**
- Strengthen policies to **DISCOURAGE USE OF FIRE**

- Establish skill centres on **ECOLOGICAL AGRICULTURE PRACTICES**
- Facilitate **MARKET OPPORTUNITIES** for farm produce
- Mobilise funds to **IMPROVE ACCESS TO HEALTH** services
- Provide **EARLY CHILDHOOD DEVELOPMENT (ECD) TRAINING CENTRES** and adult literacy classes
- Raise awareness on the importance of **LITERACY**

- Perform **MAPPING OF RISK AREAS**
- Construct **PROTECTIVE DYKES AND BUNDS**
- **RELOCATE SETTLEMENTS**
- Make provision of **AFFORDABLE HOUSING**
- Construct **PROPER DRAINAGE SYSTEMS**

- Raise awareness and promote **PROPER PUBLIC RESOURCE MANAGEMENT**
- Strengthen **HUMAN CAPACITY OF THE LOCAL AUTHORITIES**
- Strengthen the **PUBLIC ACCOUNTS COMMITTEE / PUBLIC ENTERPRISE COMMITTEE** (PAC/PEC) to ensure a proper public accounting system

Key

CHALLENGES

Through the data collection process and workshops held in Gambia, participants in the Greater Banjul Area and North Bank Region shared their perceptions on the key challenges they face:

- There are a number of urgent priorities for building DRR capacity in Gambia that should be fast-tracked, notably in relation to the development of storm water management in the Greater Banjul Area, and the development of integrated land use plans for wetland ecosystems. Floods and storm water runoff are most common in urban areas and increase exposure to malaria and other waterborne and water contact diseases. Inadequate storm water management systems and the lack of adherence to land use zoning regulations have increased the frequency and severity of flooding in this RTU. Thus, priority should be given to rehabilitating and upgrading the drainage systems.
- Disaster risk screening should be built into future development and planning at all sectors and regional levels in Gambia. Thus, to help mitigate impacts of coastal erosion and sea level rise, national efforts should be given to develop a strategic plan focused on protecting vulnerable areas along the beach, a legal framework to protect the remaining mangroves and other critical coastal habitats, and a program of action to protect urban infrastructure and populated areas.
- In the North Bank Region where crop and livestock production is totally dependent on the availability of rain, drought hazards are negatively impacting any gains obtained by crop diversification practices and other improved agricultural technologies. DRR strategies should focus on reducing the dependency on rainfall through irrigation activities and protecting ecosystems at risk from other natural or anthropogenic hazards that accompany droughts, such as wildfires, saltwater intrusion, and land use practices.
- There are specific DRR activities that are currently in place in the North Bank Region, but improvement is needed. These include controlling the use of fire and preserving the remaining woodlands from conversion to croplands or over-exploitation; promoting reforestation efforts as a way to regain lost cover; investing in research and development to broaden livestock- based livelihoods, such as salt-tolerant varieties of crops to help maintain productivity as salinity increases. Other relevant strategies on DRR and CCA that should be considered are the introduction of early maturing crop varieties to address drought-related problems; the promotion of irrigation for horticultural crop production, especially upland crop and other short cycles of crops such as peanuts; and the introduction of aquaculture for the supply of required protein.

DARA / Beatriz Asensio

GHANA

THE PRIMARY HAZARDS FACING GHANA ARE DROUGHT, FLOODS EPIDEMICS AND TO A LESSER EXTENT WILDFIRES

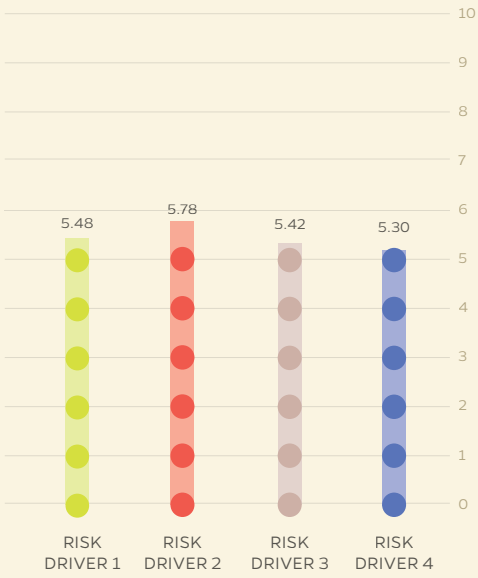
EPIDEMICS ACCOUNT FOR THE GREATEST LOSS OF LIFE, WHILE **DROUGHT** AFFECTS THE MOST NUMBER PEOPLE

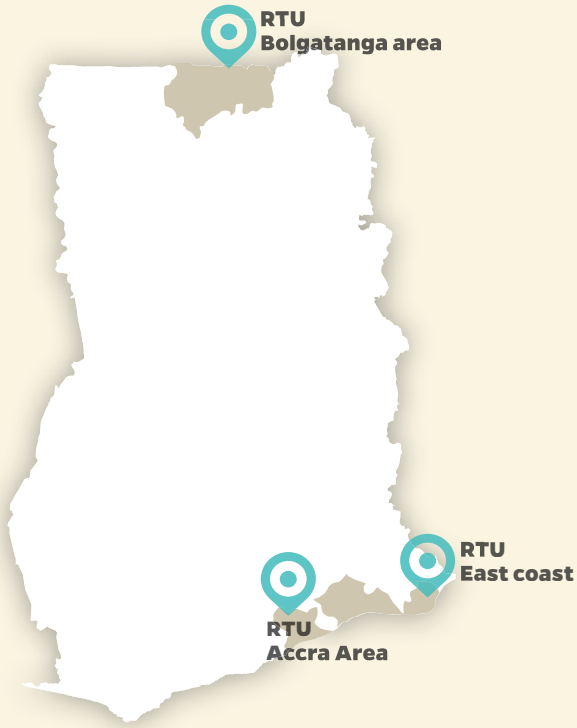
FLOODS HAVE INFLICTED THE LARGEST ECONOMIC **DAMAGES,** AND ALSO **RANK SECOND** IN TERMS OF BOTH LIVES LOST AND PEOPLE AFFECTED

SEA LEVEL RISE, **STORM SURGES** AND COASTAL EROSION ARE ALSO **KEY ENVIRONMENTAL** CONCERNS

Source: EM-DAT (CRED)

GHANA SCORES FROM WEST AFRICA RISK MAPPING





INSTITUTIONAL Capacity for DRR

DRR Institutional Setup AND LEADERSHIP

Ghana has undertaken relevant steps towards increasing its capacities for disaster risk reduction (DRR) and climate change adaptation (CCA) during the last decades. The establishment of the National Disaster Management Organisation (NADMO, Act 517) within the Ministry of the Interior (MoI) in 1996 has contributed considerably to the management of disasters across the country. More recently, Ghana created a National Disaster Risk Reduction Platform for DRR in 2005, for which NADMO is the focal point. NADMO developed the country's National Disaster Management Plan (NDMP) and possesses a comprehensive structure with representation at all levels of government, making it relatively well-positioned to play a key role in DRR. However, there is a lack of sufficient training and capacity building, institutional coordination and funds. NADMO receives around $5 million annually, with less than five percent of this budget being set aside for investment and programmes, and over 85 percent allocated to personnel and administrative expenses.

The 1992 Constitution made provisions to decentralise development planning to the district level. However, decentralisation processes have progressed slowly, and vertical connections between national sector ministries and local state bodies and assemblies are not sufficiently developed – such as links between NADMO, the Ministry of Local Government and Rural Development (MoLGRD), and the Ministry of Food and Agriculture (MOFA). Moreover, NADMO receives limited government support in terms of engaging relevant sector agencies in disaster management. Legislation in areas related to DRR exists, such as the Millennium Development Authority Act (2006), Administration of Lands Act (1962), and over 26 laws on environmental issues, including mining and construction laws. The extent to which DRR approaches and concepts have been incorporated in these laws are not within the scope of this report.

NADMO has established Technical Advisory Committees that identify, monitor and assess hazards. However, climate forecasting and monitoring is limited at all levels in Ghana – in particular at the regional and district office level, where there is also a shortage of substantive disaster risk management planning. Early warning systems (EWS) and mechanisms for preparedness and early response also need to be improved.

On a more positive note, Ghana is known for its relatively strong education system and

independent think tanks that cover a range of research areas (water resources, pest and insect infestations, epidemiology and geology), and experts from these academic institutions are members of NADMO's Technical Advisory Committees. Furthermore, NADMO has a history of engaging in public awareness and education building about hazard risks and vulnerabilities, and also social mobilisation by local volunteers.

The National Development Planning Commission (NDPC) helps in the mapping of the population's exposure to hazards and vulnerability through capacity and vulnerability assessments around the country. However, the interface between hazard exposure and vulnerability is still not fully mapped in Ghana, and more information sharing is needed.

Climate change currently affects Ghana and will continue to do so in the coming years in the form of extreme temperatures, changes in rain cycles, and flood and droughts.

Strategic

DOCUMENTS AND PLANS

The government has expressed a commitment to improving its disaster risk management, as well as integrating DRR and CCA into its own development planning. The 2003-2005 Ghana Poverty Reduction Strategy Paper (PRSP) refers specifically to the establishment of rapid response units and the development of early warning systems to prevent disasters and mitigate their impact at the regional level. The 2006-2009 Ghana Growth and Poverty Reduction Strategy (GPRS II) takes DRR and CCA into account under the reference to environment degradation and declining agricultural productivity, and its impact on poverty. The current 2010-2013 Ghana Shared Growth and Development Agenda (GSGDA) includes an analysis of different components of disaster risk such as hazards, vulnerability and climate change.

In 2012 Ghana launched its National Climate Change Adaptation Strategy (NCCAS), which aims to enhance Ghana's current and future development by strengthening its adaptive capacity to climate change impacts. Under the NCCAS, Ghana identified rising temperatures, declining and variable rainfall, sea-level rise, and a high incidence of weather extremes as the key areas of vulnerability to climate-related hazards. The sectors identified as most vulnerable along these lines were agriculture, water, natural resources, energy, health and sanitation, and infrastructure. Strategies to address these areas of vulnerability will focus on livelihoods, energy use, increased and resilient agricultural production, improved health and sanitation, and awareness- raising programmes.

According to Ghana's National Progress Report on the Implementation of the Hyogo Framework for Action (2009-2011), steps have been taken in the area of disaster risk reduction, but efforts are often hindered by financial constraints and a lack of institutional commitment. While the report states that DRR has been somewhat integrated into sector strategies and plans, it has yet to be incorporated into national development plans, climate change policies and policy reduction strategies. DRR activities occur at a local level through community and volunteer groups, but these groups suffer from a lack of training. Overall, prioritisation is jeopardised by limited resources and awareness.

Progress has been made in monitoring and assessing disaster risks through the different systems in place. National and local risk assessments, including gender-disaggregated data, have been undertaken and are available to the public. However there has been close to no progress in developing research methods and tools for multi-hazard risk assessments and cost-benefit analyses. Early warning systems have been even less successful. While some exist, they are not widespread and often not located in the most vulnerable areas. The major challenge in monitoring and assessing is a lack of adequate expertise in data collection and analysis.

In order to build a culture of safety and risk reduction via enhanced knowledge and innovation, NADMO uses newsletters and its website to share information. Public information campaigns have also been developed, both in English and local languages. However, these interventions appear to be hindered by a lack of public interest and funding. Despite the government's commitment, DRR has not yet been incorporated into the national education curriculum.

Attempts to reduce underlying risk factors have been met with mixed results. Achievements include the assessment of disaster risk impacts of major development projects, environmental assessments performed by the Environmental Protection Agency (EPA) and integration of DRR measures into recovery programming. However, serious constraints prevent comprehensive progress. Notably, a lack of awareness by developers and the public, as well as a lack of institutional capacity and coordination, preclude the full integration of DRR strategies.

International ENGAGEMENT AND SUPPORT

In addition to the government's commitment to address DRR and CCA, there has also been increased attention from donors, especially the World Bank (WB) and the United Nations Development Program (UNDP), whose interventions are either directed specifically at DRR, or attempt to integrate DRR and CCA into their development projects.

Ghana benefits from a National Program Framework for DRR and Climate Risk Management, supported by the WB and UNDP. It is also a priority country under the Global Facility for Disaster Risk Reduction's (GFDRR) Disaster Risk Management and Climate Adaptation. Other donors active in the country include World Vision International (Africa Community Resilience Project), the Provention Consortium (Partners for Humanitarian and Risk Education Expansion and African Urban Risk Analysis Network), and ActionAid International (DRR through Schools). The 2006-2010 United Nations Development Assistance Framework (UNDAF), extended to 2011 and 2012-2016, includes DRR under Thematic Area 2: Sustainable Environment, Energy and Human Settlements, Outcome 3, "National systems and existing institutional arrangements for Climate Change mitigation and adaptation and for disaster risk reduction, as defined in the Hyogo Framework for Action at the district, regional and national level are functional." The UNDP also supported NADMO to undertake a country hazard mapping of Ghana in 2007, covering a broad geographical distribution of disaster-exposed areas. The outcome revealed Ghana's exposure to floods and droughts, particularly in the Northern Savanna belt, epidemics, insect infestations and wildfires, landslide risks in urban areas, coastal hazards, such as storms and storm surges in the Eastern coastline, and seismic hazards in areas around Accra, including the Akosombo hydroelectric dam. The World Food Programme (WFP) has engaged with the MOFA and the Ministry of Health (MoH) in a Food Security Monitoring System for Northern Ghana.

UNDERLYING Risk Factors: Local Perceptions

RTUs Selected
AND SUPPORTING RATIONALE

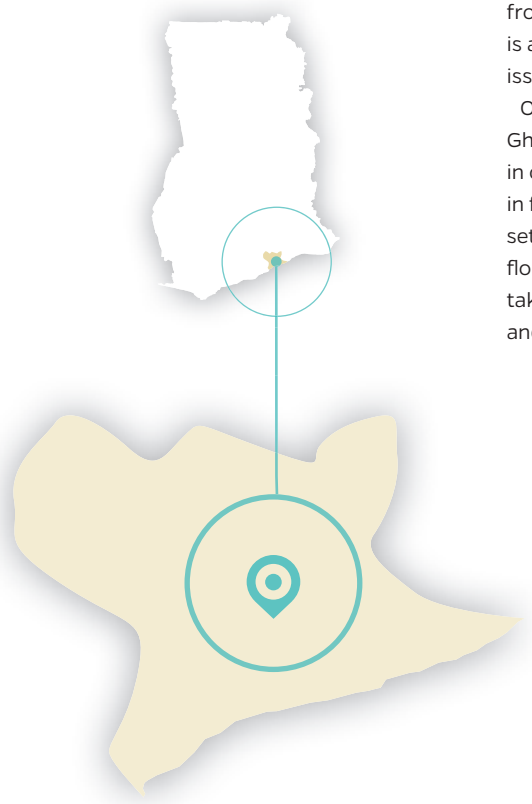
The RRI in Ghana looks at three Representative Territorial Units (RTUs), each of which differ in terms of geographic locations (Accra and the East Coast lie on the coast line of Ghana, and Bolgatanga area is located in the Northeast near the border with Burkina Faso), and levels of urbanisation and economic development (Accra is the capital and urban, East Coast is a coastal, semi-urban area -urban expansion- and Bolgatanga area is a rural, agricultural region -rural-). The three RTUs attempt to cover, at least partially, the different types of geography, climate-related challenges, natural hazards and risks Ghana faces. However, all three RTUs are located in savannah zones. These are more vulnerable than forest areas. The rural versus urban locations also provide a more comprehensive picture of the underlying risk factors affecting people in urban areas in Ghana (an estimated 51% of overall population) and the living conditions that make them more or less vulnerable to disasters.

Accra area

Accra is located on the southern coast of Ghana and as the capital city, attracts many people from other regions of the country. The RTU included Accra Metropolitan, Ga East and Ga West Districts. Floods are a serious natural hazard affecting the Accra area. In recent years, rainfall in the area occurs in the form of intensive and perennial storm hazard, leading to local floods. According to the Accra Metropolitan Authority (AMA) floods have become recurrent due to the catchment areas of the Odaw River, which drains the central part of Accra and its outlet into the Korle Lagoon, being built up. For the past four decades, significant flooding has been recorded in 1973, 1986, 1995, 1999, 2001, 2002, 2007, 2009, 2010 and 2011, according to Ghana Statistical Service (GSS).

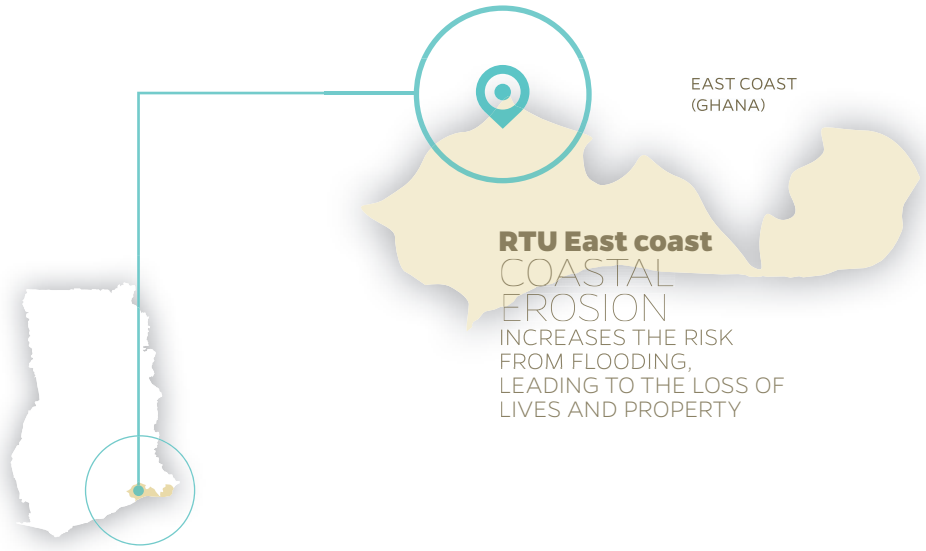
Accra is the largest city in Ghana, with a population of 1.8 million people. The latest 2010 census of population estimated 16.3 percent of the entire population in Ghana resides in Accra, with an annual growth rate of 3.1 percent. This urban growth pattern is influenced by longstanding migration patterns from other parts of Ghana and has consequently led to the increased threat of flooding of streams in the city, as Accra has grown rapidly with houses and slums built in waterways. Most of the local population and the migrants live in crowded and unplanned areas near the areas of lower elevation and higher flood risk zones. Moreover, a relevant number of Ghana's manufacturing industry is located within the area. Currently, flood impacts on loss of human life and properties are on the increase. Also, widespread pollution from solid waste, industrial waste, and sewage is an important health and environmental issue, particularly in poor areas.

Over the last decade, the Government of Ghana has engaged in substantive investments in construction of proper drainage systems in flood-prone zones of Accra, relocating settlements and economic activities to non-flood prone areas. Ecological restoration is also taking place along the estuary of the Odaw River and its banks to reduce the impacts of flooding.



RTU Accra area

POOR DRAINAGE / WATER DISPOSAL SYSTEMS CONTRIBUTE TO THE OUTBREAK OF WATERBORNE DISEASES AND EPIDEMICS



East Coast

The East Coast RTU is located along the eastern part of Ghana's Atlantic coast. Its 149 km coastline covers the delta of the Volta River from Prampram to the international border with the Republic of Togo. The East Coast is threatened with periodic floods and storm surge hazards, and highly vulnerable to the impacts of climate change, particularly sea level rise and coastal erosion. According to Ghana's Communication to the United Nations Framework Convention on Climate Change (UNFCCC), sea-level rise is predicted to increase flood frequency probabilities, flood low-lying coastal areas, cause shoreline recession on sandy shores, increase the salinity of estuaries and aquifers and raise coastal water tables of the area. According to the 2010 census, more than 2 million people in Ghana live along the coast, which represents 10.7 percent of the population in Ghana and an annual growth rate of 2.1 percent. The livelihoods of these people depend largely on climate- sensitive occupations such as farming, fishing and fish processing. Floods, degradation of the coastal ecosystem and human habitats in turn impact the health, productivity and general wellbeing of the population. According to the National Commission on Civic Education (NCCE), each year most communities of the East Coast are subjected to coastal erosion and storm surges. For instance, the Keta area has experienced erosion at a rate of up to 14 metres a year, and hundreds of metres of land have been lost including houses, churches, and even the chief's palace.

The government of Ghana has completed a sea defence wall of 8.4 km at Keta and plans to protect the entire East Coast. In emergency response, NADMO collaborates with most security agencies in the country, and also has high community engagement with organised government officials and trained volunteers in all districts of the East Coast.

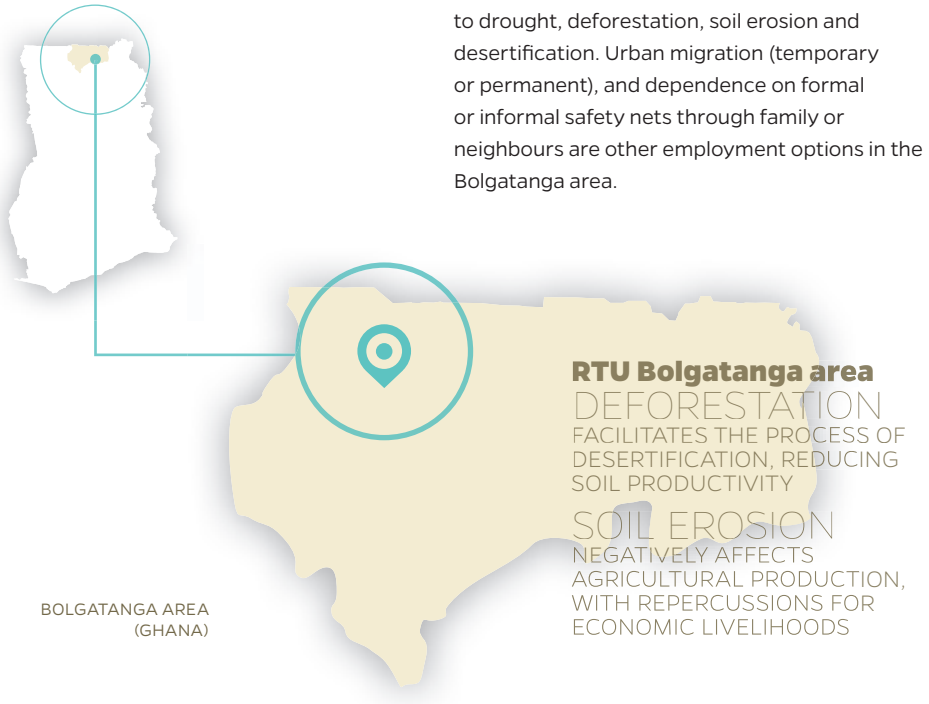
Bolgatanga area

The Bolgatanga area, located in the Upper East Region at the extreme northeast of Ghana, included Bolgatanga Municipal, Bongo, Navrongo and Kasina Nankana Districts. It is an area exposed to extreme natural hazards such as floods, droughts and windstorms, and has a high risk of desertification.

Characterised by a long dry season, which spans from October to April, the vegetation is basically Sudanian savannah woodland, consisting of short deciduous trees widely spaced and ground flora, prone to be burnt by fire or scorched by the sun during the long dry season. The inadequate vegetation cover, drought, floods and soil erosion are severe, resulting in declining soil fertility, land degradation and desertification. The latest 2010 census established the population of the area at 4.2 percent of the national population with an annual growth rate of 1.2 percent. Over 80% of the people are engaged in small-scale agriculture, which is susceptible to climate variability and disaster risk. Between 1991 and 2012 the area experienced major floods.

In 2007, floods followed immediately after a period of drought that damaged the initial maize harvest, indicating high variability in climate and hydrological flows in the area. In addition to these, increased incidence of meningitis, spillage of excess water from the Bagre dam and influx of Fulani herdsmen from neighbouring Burkina Faso, over the years adversely affect productivity and output as well as household incomes, all having a direct impact on the standard of living of the vast majority of the people in the Bolgatanga area.

The severity and depth of poverty and food insecurity is highest in the three Northern regions (Northern, Upper West and Upper East) of Ghana. Especially in the Upper East Region, where the Bolgatanga area is located, the majority of rural households often lack access to markets and infrastructure necessary to improve farming practices, diversify livelihoods, and build up their assets and coping capacity. The high level of unemployment in the area leads many households to engage in income generation from activities other than farming, such as burning of charcoal which contributes to drought, deforestation, soil erosion and desertification. Urban migration (temporary or permanent), and dependence on formal or informal safety nets through family or neighbours are other employment options in the Bolgatanga area.



BOLGATANGA AREA (GHANA)

DARA / Ana Rodríguez

NATURAL HAZARDS AND UNDERLYING RISK FACTORS OF SELECTED RTUS

	ACCRA (URBAN)	EAST COAST (URBAN EXPANSION)	BOLGATANGA (RURAL)
NATURAL HAZARDS	WIND/RAIN STORMS, FLOODS, EPIDEMIC	WIND/RAIN STORMS, FLOODS	FLOODS, WIND/RAIN STORMS, DROUGHTS, WILDFIRES, EPIDEMIC, INSECT INFESTATION
RISK DRIVER 1 1	· Soil erosion · Water contamination · Coastal erosion · Water scarcity · Deforestation	· Soil erosion · Coastal erosion	· Soil erosion · Water scarcity · Deforestation · Desertification
RISK DRIVER 2 2	· In-migration · Limited access to land · Low levels of literacy · Poverty · Prevalence of infectious diseases · Unemployment	· Out-migration · Low levels of literacy · Poverty · Unemployment	· In-migration · Out-migration · Low levels of literacy · Poverty · Prevalence of infectious diseases · Prevalence of HIV/AIDS · Unemployment · Food insecurity
RISK DRIVER 3 3	· Housing in dangerous locations · Limited access to water · Overcrowded conditions · Poor drainage/water disposal · Poorly built housing	· Poor drainage/water disposal	· Limited access to water · Poor drainage/water disposal · Poorly built housing
RISK DRIVER 4 4	· Corruption · Inefficient bureaucracy · Limited financial capacity · Lack of human capacity	· Limited financial capacity	· Limited financial capacity

Findings

AND KEY ISSUES BY RISK DRIVER

Wind/rain storms and floods are considered relevant natural hazards in the three RTUs. Drought, wildfire, epidemic and insect infestation are perceived as serious hazards only in the Bolgatanga area. It is interesting to note that although seismic and landslide hazards exist in the Accra area, they have not been perceived to pose a serious risk.

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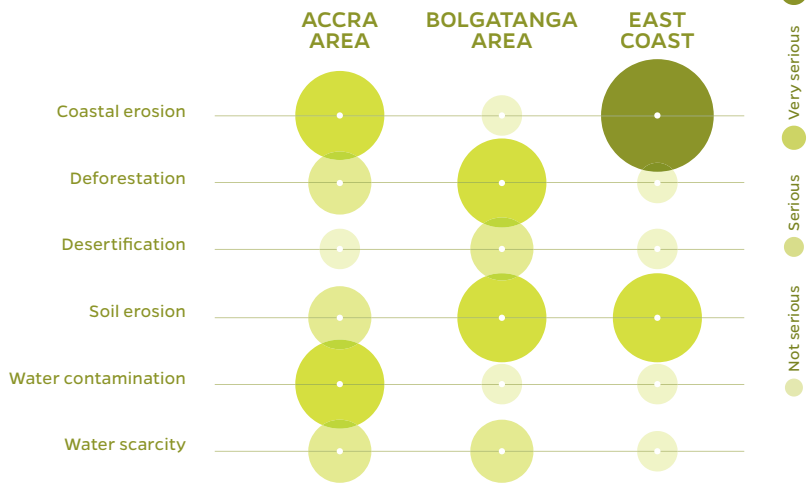
Local Perceptions on Risk Driver 1

Environmental and Natural Resources

The RTUs of Accra and the East Coast are in coastal savannah, while Bolgatanga stretches across the Sudanian Savanna zones in Ghana, with environmental resources differing between locations, and certainly posing different challenges. Local perceptions in these RTUs alluded to the commonality of the risks across the RTUs as well as the differences.

Soil erosion and deforestation were identified as environmental challenges across all RTUs, while the East Coast scored higher in soil erosion and Bolgatanga in deforestation. As coastal areas, coastal erosion is perceived as a serious challenge in the East Coast and Accra areas, while in the East Coast it was ranked with the highest score. Water scarcity is a challenge in the Accra and Bolgatanga areas, with slightly higher scores for Accra. Desertification was identified as a serious environmental condition only in Bolgatanga and water contamination only in Accra.

ENVIRONMENTAL CHALLENGES IN ACCRA, BOLGATANGA AND EAST COAST



COASTAL EROSION

Perceptions from Accra respondents affirm that coastal erosion is increasing salt-water intrusion into land and threatening households, making their relocation necessary. In the case of the East Coast, respondents confirm the devastating effects along their shore with constant strong waves eroding their coastline. With a rise in sea-level, the area is more prone to frequent flooding in the communities, leading to lives and property loss in some cases. Consequently, coastal erosion ranked highest in the East Coast.

In Accra and the East Coast, there are perceptions that the situation is being addressed, and among other interventions mentioned we can highlight the building of sea defence walls, tree planting, land reclamation and education and sensitisation activities around relevant laws, as measures to mitigate the impacts. The metropolitan, municipal and district assemblies have been identified as playing a primary role in this regard. The national government and international organisations are also providing funds. In spite of this, there is a general perception in the Accra area that the interventions implemented by the national government are minimally effective as a result of insufficient funding

and the inability to enforce laws. On the other hand, the opinion of those in the East Coast was rather positive, as respondents considered the national government's interventions as effective, acknowledging the financial and technical support from donors as contributing to the success.

2 DEFORESTATION

Deforestation is perceived seriously in Accra and Bolgatanga, while Bolgatanga was ranked with the highest score. In Accra, perceptions point to the increase in floods and drought, wind speed and windstorms as a result of deforestation or the disappearance of the urban greenery. Deforestation has implications for soil erosion and the availability of food, possibly threatening food security in the Accra area, whereas in Bolgatanga, deforestation facilitates the process of desertification in addition to contributing to a higher incidence of wildfires, soil erosion, and reduction of medicinal plants.

Respondents in Accra indicate that education on tree felling, tree planting, enforcement of policies and afforestation are the interventions in place, and the role of community organisations, local and national governments is key to fund and address this environmental challenge. Respondents in Bolgatanga also mention the provision of seedlings by the Forestry Commission, formation of school environment clubs, formulation of bylaws, establishment of woodlot, sanctions for tree fellers and awards for communities without bushfires. The interventions of both community organisations and the national government have been assessed as effective, nevertheless they envisioned long term sustainability being achieved if there is support from volunteers, and community commitment, but will be jeopardised if the lack of monitoring activities persists. International organisations are also found to be involved in this regard in Bolgatanga.

3 DESERTIFICATION

By its location in the Sudanian Savanna zone of the country, it is not surprising that desertification is perceived seriously only in Bolgatanga. Although the response is not unanimous, desertification is associated with food insecurity, low yields, loss of trees, reduced soil moisture, and increase in floods, drought, windstorms and climate-related disasters. Respondents indicate that afforestation, awareness-creation and encouraging the community to be involved in tree planting are the main interventions addressed through the support of national government, community and international organisations and the district assemblies. Although these interventions were assessed as effective and very effective, in the case of afforestation, respondents denounced a lack of maintenance. There were some inconsistencies when internationally led programs with national policies interfered with the expected outcomes of some interventions. Nevertheless, community participation and commitment were highlighted as essential factors for the success of these interventions.

4 SOIL EROSION

In Accra, the East Coast and Bolgatanga area, soil erosion was perceived as a serious risk due to the ramifications for agricultural development, which is the backbone of the country's economy, and its implications in soil fertility, food security, flooding and building collapse. In the Bolgatanga area, respondents also referred to the resulting limited land for farming and the deterioration of roads that impede vehicle movement, increasing the area's economic isolation. Respondents in the East Coast and Bolgatanga were more concerned with the effects of soil erosion than those in Accra, as their economic activities are more closely linked to agriculture.

Local Perceptions on Risk Driver 1

Environmental and Natural Resources

In dealing with this issue, respondents perceived that reforestation and the construction of deep concrete drains and steep gullies help with the flow of water. In the East Coast, they indicated that mangrove conservation and afforestation were interventions in place. In Bolgatanga, however, a lot of resources went into the education and training of farmers and community members on soil conservation, sustainable land management practices and the promotion of stone bonding. Respondents indicated that local and national governments, as well as international and community organisations, have facilitated and sponsored these interventions, which have been valued as very effective in most cases, however, respondents are concerned about the lack of sustained funding as the main threat for effective implementation.

5

WATER CONTAMINATION

In the Accra area, water contamination leads to an increase in waterborne diseases and reduces water availability for household use. This situation is exacerbated by the pollution of polythene bags, fertiliser and pesticide residue. Regarding efforts to control this situation, respondents mention awareness-creation, education and sensitisation, the imposing of sanctions on those who dump waste into bodies of water, and the carrying out of water and sanitation projects and water monitoring activities. In terms of policy and the institutional framework, they mention that water policies and bylaws have been put in place, in addition to the establishment of the Ministry of Agriculture, Animal Industry and Fisheries and the Water Resources Commission. In this regard, the role of international organisations, community organisations as well as national and local governments are acknowledged as important to achieving success. These are valued as effective and very effective, as these partnerships between government and international institutions are considered proof of their commitment to improve water and sanitation conditions throughout the country.

6

WATER SCARCITY

Both Accra and Bolgatanga have identified water scarcity as a main issue, however, in Accra it is perceived to be more serious than in Bolgatanga. Respondents in Accra acknowledged that water scarcity leads to an increase in diseases such as malaria and cholera, while in Bolgatanga, they expressed that water scarcity has made them more vulnerable to diseases and the possibility of an epidemic from drinking non-potable water or sharing the same water sources with their farm animals. The fear of their animals also contracting anthrax is linked to the water scarcity in their area.

Interventions put in place in the urban setting of the Accra area, according to the respondents, include the building of reservoirs and more dams, water treatment, the extension of water pipelines to affected areas/metropolis and the education of residents on water utilisation and management, which are rated as effective. Also in Bolgatanga, the expansion of water facilities, rainwater harvesting and the provision of boreholes are the interventions highlighted and considered very effective. Those in Bolgatanga cited the contribution of international organisations, although equally important are the contributions from the local and national governments and community organisations in both Accra and Bolgatanga.

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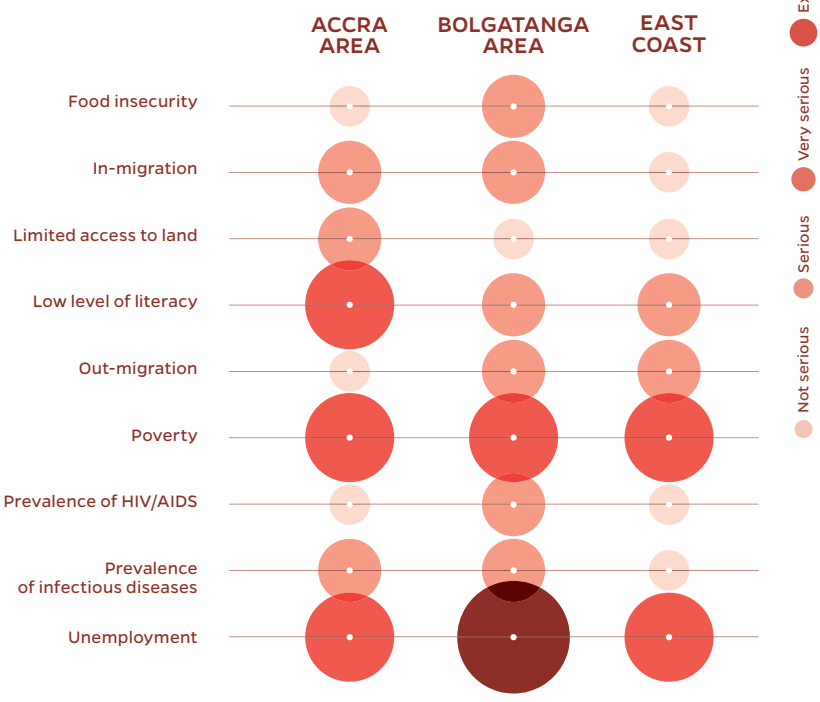
Local Perceptions on Risk Driver 2

Socioeconomic Conditions

There is a wide range of social and economic conditions with commonalities as well as differences in Accra, the East Coast and Bolgatanga area. These conditions ranged from low levels of literacy, poverty and unemployment, which were common to all the RTUs, the prevalence of infectious diseases and in-migration which were identified in Accra and Bolgatanga, to out-migration in the East Coast as well as Bolgatanga. Others such as limited access to land, prevalence of HIV/AIDS and food insecurity were specific to only one RTU.

Specifically in the Accra area, unemployment, poverty, low levels of literacy, limited access to land, in-migration and prevalence of infectious diseases, were identified as serious socioeconomic conditions in order of declining importance. Many of these conditions have to do with its urban status. In the case of the East Coast, it was perceived as more of a rural than urban area and out- migration was a serious challenge in contrast with in-migration. In Bolgatanga, in-migration was perceived as a serious challenge while out-migration ranked highest in this area.

SOCIAL AND ECONOMIC CHALLENGES IN ACCRA, BOLGATANGA AND EAST COAST



FOOD INSECURITY

Bolgatanga was the only RTU concerned with food insecurity and it was perceived as one of the most serious socioeconomic conditions in the area. Respondents indicated that this challenge was related to the decline in soil fertility. Interventions cited were the creation of water storage dams for irrigation and to encourage dry season farming, food distribution, provision of subsidised fertilisers, block farming and the promotion of land conservation education. International organisations were highly commended, based on the fact that a significant number of international organisations operate in the area. Local and national government, as well as community organisations, also facilitated these interventions. Community organisations were

key to the effectiveness of these interventions as they are instrumental in organising people for construction/farming projects, as well as in disseminating new farming techniques, technologies and organisational farming structures like block farming.

2 IN-MIGRATION*

Linked to the capital city status, respondents perceive Accra as the receiving end of the majority of movements from the northern and other parts of the country. According to them, in-migration is linked to urbanisation and includes slum development, increase in prostitution and armed robbery, and pressure on land and existing social amenities. They also mention skills training for the youth and street mothers and public education, which are being carried out by government (local and national), and international and community organisations.

In Bolgatanga, respondents referred to in-migration as increasing their vulnerability to nomadic herdsmen who cut trees and burn savannah, which contribute to drought and land degradation. They also mention various interventions in place to manage in-migration challenges: the authority given to community volunteers to arrest culprits, education on migration, employment and empowerment, youth programmes, and the dialogue with nomadic herdsmen. The support of community organisations, national government, international organisations and local government is instrumental to these interventions. The majority of respondents evaluated the dialogues with herdsmen as minimally effective. However, the rest of the initiatives, such as those related to training, were assessed as somewhat effective, but criticised for their deficits in skills training and capacity building.

3 LIMITED ACCESS TO LAND

As an urban area with its associated challenges due to in-migration, it is not surprising that access to land is a serious condition only in Accra. Respondents alluded to the resultant increase in the cost of plots of land and accommodation, and access difficulties as responsible for overcrowding and the building of houses in dangerous places (e.g. waterways). Only a few of the respondents were aware of efforts aimed at addressing this issue through land administration reforms, a return of government-acquired lands to indigenous communities, the demolition of slums and reclamation of all government lands by the local and national governments. Those who were informed about national government interventions valued them as effective.

4 LOW LEVELS OF LITERACY

Low levels of literacy are considered a serious condition in Accra, the East Coast and Bolgatanga area, with the highest score in Accra. This condition exacerbates the inability of people to adequately interpret disaster prevention measures, understand climate change issues, adapt to adverse climatic conditions, and their ignorance of environmental protection measures (for example, indiscriminate disposal of waste which potentially could cause an epidemic).

Interventions to address this issue include adult literacy educational programmes, non-formal educational programmes, community education through National Commission of Civic Education (NCCE), implementation of the Free Compulsory Universal Basic Education (FCUBE), and free school uniforms and exercise books, as well as the Ghana School Feeding Programme which provides hot meals to children in school. The national and local governments are the sole agencies identified as facilitating these interventions, and international organisations have provided part of the funding. These above

Local Perceptions on Risk Driver 2

Socioeconomic Conditions

mentioned interventions have been identified as effective and very effective, as people have considered the government to be sufficiently committed to the outcomes. Additionally, concerns are increasing regarding illiteracy and its consequences on economic growth and development.

5 OUT-MIGRATION

Respondents from the East Coast and Bolgatanga, which are largely perceived as rural locations, identified out-migration as a serious socioeconomic challenge that increases their vulnerability. Respondents in these two RTUs mentioned a decline in human capacity and productivity, increased dependency and high prevalence of HIV/AIDS. Efforts at curbing out-migration include developing rural areas to retain youth, educating people on the negative effects of migration, training to provide alternative livelihoods during the dry season, making subsidies available for fishing equipment, as well as microfinance for market women. The international organisations are highly commended for their effectiveness, as well as the local and national governments and community organisations. Nevertheless, in some cases respondents claim that there is a portion of employment programmes that are not fully implemented due to the lack of sustained funding.

6 POVERTY

Poverty is a serious condition in all the RTUs, proving that poverty is not only a rural challenge but also an urban one. In Accra it is clearly related to in-migration, which draws people of all socioeconomic backgrounds to the city in search of non-existent jobs. Their poor status undermines their purchasing power and access to basic needs and decent housing. While poverty is a concern in all of the RTUs, it is ranked the highest in the East Coast, where it is perceived as decreasing capacity of residents to afford basic services, causing high dependence on natural resources, which is further compounded by the inability to relocate due to low income levels. In the case of Bolgatanga, respondents established the connection between poverty and livelihoods opportunities, its effect on the environment, human and agricultural productivity as well as security in the communities.

In the East Coast, Accra and Bolgatanga, the main interventions to address poverty and related issues include skills training, poverty reduction strategies, such as the Livelihood Empowerment Against Poverty (LEAP), youth employment schemes and the provision of micro and small-scale loans, such as Microfinance and Small Loans Centre (MASLOC) by community organisations, local and national governments, as well as international organisations. Community organisations, national government and international institutions' interventions have been evaluated as effective and very effective, as they are connected to adequate funding, which has led, in the case of international organisations, to take over some programs. Only in the Bolgatanga area, respondents cited that subsidies for school fees are available, making schooling practically free.

7 PREVALENCE OF INFECTIOUS DISEASES AND HIV/AIDS

Respondents in Accra and Bolgatanga perceived the prevalence of infectious diseases as a serious challenge related to their urban status and geographic location. Respondents in Accra attribute this issue to poor sanitation, unsustainable environmental practices, and frequent floods in the city generating higher pressure on the health facilities and increasing morbidity and mortality rates. In Bolgatanga, the prevalence of infectious diseases ranked higher than in Accra. By type of intervention, the majority of respondents in both Accra and Bolgatanga areas mentioned the distribution of insecticide-treated mosquito nets, malaria testing and vaccination for pregnant women and public education. In Bolgatanga, meningitis vaccination is also very important in the fight against cerebrospinal meningitis, which is common in the area. In this area, international organisations are considered to be playing a major role with their interventions, as well as the national and local governments. Respondents expressed their satisfaction with these interventions and considered them to be effective and with sufficient funding allocated.

The prevalence of HIV/AIDS is only noted in the Bolgatanga area. Vulnerability increases with the low level of education and sensitisation and the high poverty level. Interventions in this regard include the promotion of the education of HIV/AIDS and the provision and subsidisation of anti-retroviral drugs. The national government, international and community organisations are instrumental for this purpose, but respondents said monitoring activities and further funding are needed for achieving long-term improvement.

8 UNEMPLOYMENT

Respondents in Accra pointed out unemployment and its ramifications of increased incidence of crime and robbery, poor housing and slum development especially for the poor, and unsanitary practices. In the case of Bolgatanga, unemployment is the foremost socioeconomic condition of concern and it is related to the burning of charcoal as a livelihood option, with the accompanying incidences of bushfires, tree felling and a high poverty rate. In the East Coast, people's vulnerability is increased with the absence of income, the effect of relocation and inevitable migration.

According to the majority of respondents in Accra, the East Coast and Bolgatanga, this challenge is being addressed through the National Youth Employment Programme (NYEP), which is fostering an environment for foreign business investment and poverty reduction programmes. For the Bolgatanga area, the initiation of youth groups to farming is also in place and the role of international organisations in the area is significant. For the East Coast, the setting up of the eco-brigade for the unemployed youth, youth in road maintenance and agriculture programmes are currently underway. The role of government, both local and national, and community organisations has been highlighted by respondents from Accra and the East Coast. In all three RTUs, the interventions developed by the national government were globally assessed as effective, notwithstanding some concerns regarding the Youth Employment Program, which was criticised by several respondents for its lack of funds and delayed implementation, which was seen as a short-term solution with questionable sustainability.

* *The views expressed here are those of local members of the community in the Bolgatanga region. DARA recognises that the reality of the situation of nomadic herdsman, and their relationship with agricultural communities, is complex and not fully accounted for here.*

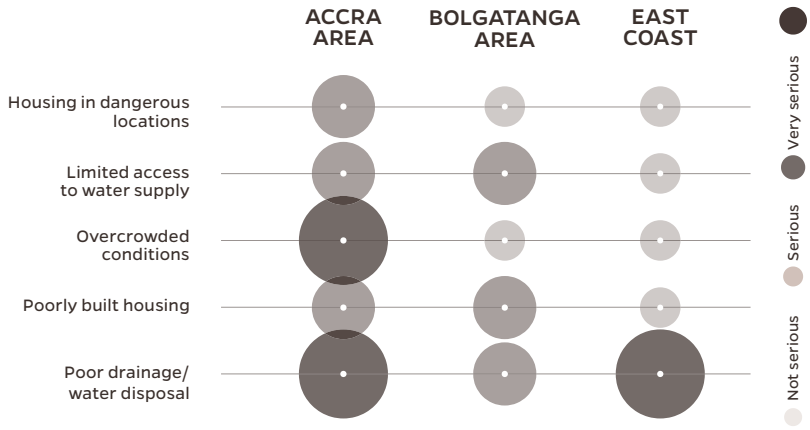
Local Perceptions on Risk Driver 3

Land Use and Built Environment

Conditions identified as serious under land use and built environment included poor drainage/water disposal in all the RTUs, and poorly built housing and limited access to water supply in Accra and Bolgatanga. Overcrowded conditions and houses in dangerous locations were only perceived in Accra.

As an urban location, Accra is more prone to challenges linked to urbanisation such as pressure on existing facilities, overcrowding, living conditions deterioration and limited access to basic services. Poor drainage/water disposal was a foremost concern in the Accra area, followed by overcrowded conditions, limited access to water supply, poorly built housing and housing in dangerous locations. In the Bolgatanga area, considering its rural condition and climate, limited access to water supply was identified as the most important issue of concern followed by poorly built housing and poor drainage/water disposal, which is the only challenge identified in the East Coast.

LAND USE CHALLENGES IN ACCRA, BOLGATANGA AND EAST COAST



1 HOUSING IN DANGEROUS LOCATIONS

In Accra, respondents identified housing in dangerous locations as a serious challenge exacerbated by floods that further causes people to become homeless. The lack of decent accommodation, land space and the high cost of both land and rent has led to the use of any available space, which in some cause includes waterways. They mention that there is some level of impunity, and identify some efforts such as demolition, evacuation, rehabilitation, enforcement of development control, and task force operations, among others. These efforts are credited to the community organisations, local and national governments and international organisations. Regardless of the interventions' effectiveness, respondents request further political will and increased financial support in order to adequately implement land management policies.

2 LIMITED ACCESS TO WATER SUPPLY

In Accra, the limited access to water supply is related to the rationing of water in the city, which could lead to people drinking from sources that are not potable. Respondents indicated interventions such as the expansion of the existing water infrastructure, the drilling of boreholes and the involvement of the private sector in the water management and distribution chain. Respondents affirmed that

DARA / Ana Rodríguez

international organisations as well as national government, community organisations and local government, are addressing this challenge effectively.

In Bolgatanga, respondents highlighted that the unavailability of dams in vulnerable communities increases infections and exposure to epidemics and further deprivation. They stated that residents walk long distances to fetch water that in most cases is from a shared source with animals. They also mentioned that drainage and drilling of boreholes have improved water accessibility, and the implementation of water and sanitation projects (WASH) in the rural areas are put in place mostly by international organisations, followed by local government and, to a lesser extent, community organisations. Although limited funding and technical capacity is available, these interventions were assessed as effective and very effective, although some respondents claimed long-term funding is needed to maintain the created infrastructures.

3 OVERCROWDED CONDITIONS

In Accra, overcrowded conditions, generated by population flows coming from rural areas in search of work, are perceived as a consequence of the inability to afford decent accommodation, with further implications in health, productivity and risk exposure. Some interventions to solve this challenge include the provision of affordable housing, public health education, slum upgrading and development and land management policies. Respondents mentioned that international organisations, local and national governments are addressing these interventions. Regarding the central government's intervention on public housing provision, there was certain disagreement on its effectiveness, as for some respondents it was a very effective measure to solve the problem, whilst others cited the low funding and the inability to reach all affected households. Demolition interventions are valued as very effective, but if not accompanied by the right associated measures, they cause slum dwellers to return to exposed areas.

Local Perceptions on Risk Driver 3

Land Use and Built Environment

4 POOR DRAINAGE / WATER DISPOSAL SYSTEMS

In the Accra area the poor drainage/water disposal situation is exacerbated by the lack of drainage systems resulting in floods, water pollution, bad sanitation practices and indiscriminate disposal of refuse and concomitant outbreak of waterborne diseases and epidemics. In dealing with this situation, water management policies are in place and drains have also been constructed with the support of national government, followed by local government and, to a lesser extent, community organisations.

In the East Coast, respondents attribute the situation to the devastating effect of flooding in the areas and the lack of concrete drains. Respondents explained that they are vulnerable to even the least amount of rainfall. The result is the loss of lives and property during periods of rainfall. However, few respondents linked the effect of flooding with the need for construction of drains, public education, public sector engagement and sanctioning of contractors that compromise quality work. The local government was the main funding agency in this regard.

The majority of interventions have been evaluated as effective, especially when managed by private actors. Respondents requested further support from development partners for infrastructure construction and extra commitment from the side of the communities and households in order to keep the drains clean and to collaborate with District Assemblies. Respondents affirm that the central government is providing sufficient technical and financial support, but there is a need to put an additional effort on law enforcement.

5 POORLY BUILT HOUSING

Significantly, respondents in Accra think that this challenge is further worsened by wind or rain storms and that they become particularly vulnerable in flooding events. The lack of resources, building materials and appropriate technical assistance for construction projects has led to the use of any material available, which in most of the cases, comes from solid waste. In the event of particular natural hazards, houses are prone to collapse or flood, causing household displacement or even life threatening situations.

According to respondents, some of the interventions were the enforcement of building regulations, awareness-raising activities on appropriate building materials, and inspection and demolition of illegal buildings. This role is one of the few that the local government is credited for more than the national government, as in terms of allocated funding, respondents link their effectiveness to the fact that decentralisation has taken place.

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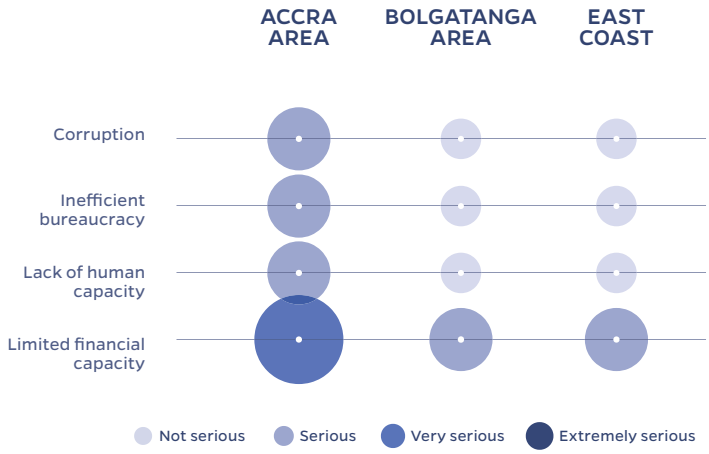
Local Perceptions on Risk Driver 4

Governance

Limited financial capacity is perceived in all RTUs as a serious challenge. It has been mentioned as a main pitfall among the other Risk Drivers, and it is the only one identified in Bolgatanga and the East Coast. Corruption, inefficient bureaucracy and lack of human capacity are issues of concern only for Accra.

In the capital city, limited financial capacity is the challenge that was ranked with the highest score, followed by corruption, inefficient bureaucracy, and lack of human capacity. In Bolgatanga, although limited financial capacity was perceived as a serious concern, it scored lower than in Accra and the East Coast.

GOVERNANCE CHALLENGES IN ACCRA, BOLGATANGA AND EAST COAST



CORRUPTION AND INEFFICIENT BUREAUCRACY

Respondents in Accra identified the systemic nature of bureaucracy, the tendency of not tracking funds released for projects, and the liberty of project officers to use funds for personal use. They also indicated that efforts towards dealing with corruption include capacity building, women's empowerment programmes, the adoption of a multi-stakeholder approach, the demand for accountability by civil society organisations and the institution of parliament with an anti-corruption committee. The role of community organisations, national and local governments is mentioned as being instrumental in the fight against corruption.

Local government institutions are being progressively strengthened through available funding and the public sector reform (decentralisation), but respondents expressed there is a gap in the technical capacity needed, which hinders some programmes from being fully implemented. Social accountability mechanisms have been reported to be gradually implemented but, as respondents state, further funding is needed to expand the program and its impact. At the national level, internal and external auditing mechanisms are being implemented but respondents acknowledge that in order for them to be more effective, it is necessary to put monitoring systems in place so that the program is fully implemented and helps the civil service to undergo necessary changes in the future. The public accounts committee in the parliament has been established with strong support from the government and development partners, and respondents affirm this could be an essential tool for the correct enforcement of anticorruption laws.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2 LACK OF HUMAN CAPACITY

The lack of human capacity in Accra is an issue that is further compounded by the low capacity to implement disaster management and the inadequate skills set. Efforts at addressing these include capacity building programmes at the institutional level, workshops and seminars and scholarships for studies. These efforts, valued as effective and very effective by respondents, are spearheaded by international organisations which have provided funding for many of the interventions, followed by national government and local government.

3 LIMITED FINANCIAL CAPACITY

Respondents in all RTUs considered limited financial capacity as a challenge since it is tied to inadequate financial resources to implement programmes. Regarding interventions in addressing this challenge, they mentioned fiscal decentralisation and mobilisation strategies, the efforts of foreign donors through grants and loans, and international banks increasing their borrowing portfolios. International organisations and national government play a key role in these interventions. In this regard, decentralisation of national competencies to local institutions has been facilitated with the payment to District Assemblies (D.A.) from common funds. However, respondents noticed that there is a need to also transform the civil service and build its capacities. Several respondents recognised that the local institutions are progressively playing a more active role, particularly in revenue generation through the Internally Generated Fund (I.G.F.), where the D.A.s are working towards their self-sustainability. The I.G.F. has been supported by the national government but, although having improved throughout the years, respondents state that it remains insufficient to cover the financial needs of local institutions.

Recommendations from ACCRA

1 INCREASING KNOWLEDGE AND AWARENESS ON ENVIRONMENT AND NATURAL RESOURCES

- Implement **PUBLIC EDUCATION CAMPAIGNS**, improve **ENFORCEMENT, PLANT TREES** and improve **WASTE TREATMENT AND REMOVAL**
- Construct **SEA WALLS** and use stone banding and sand bags

2 BUILDING SOCIOECONOMIC RESILIENCE

- Improve **INVESTMENT ENVIRONMENT IN EDUCATION**
- **EDUCATE RESIDENTS ON FAMILY PLANNING** and effective **DESCENTRALISED POWER OF LOCAL GOVERNMENT**
- Implement **HEALTH EDUCATION**, improve **UNPLANNED SETTLEMENTS** and **ENFORCE HEALTH LAWS**
- Strengthen **PROVISION OF SOCIAL AMENITIES** and enhance **ADVOCACY**

3 IMPROVING LAND USE AND THE BUILT ENVIRONMENT

- Establish a more comprehensive **ENFORCEMENT SYSTEM**, enforce codes and regulations more widely
- Increase **GOVERNMENT ENGAGEMENT WITH PRIVATE PARTNERS** in order to improve **WATER AND WASTE MANAGEMENT SYSTEMS**

4 IMPROVING GOVERNANCE

- **IMPROVE INFORMATION SHARING AND OPENNESS**, facilitated by a **RIGHT TO INFORMATION BILL** and **ESTABLISH ANTICORRUPTION LEGISLATION**
- Improve **TAX MANAGEMENT**, **COLLECTION** and **ENFORCEMENT SYSTEM**

the RTUs

EAST COAST

- Implement **COASTAL RESTORATION, TREE PLANTING AND EDUCATION**

- Strengthen **ENFORCEMENT OF COMPULSORY EDUCATION**
- Implement **VOCATIONAL TRAINING PROGRAMS**

- Strengthen law **ENFORCEMENT** and **IMPROVE DRAINAGE SYSTEMS**

- **COLLABORATION BETWEEN VARIOUS AGENCIES** is needed to ensure a holistic approach to projects and programming

BOLGATANGA

- Increase **COMMUNITY KNOWLEDGE OF GOOD FARMING PRACTICES** and of the hazard of deforestation
- Increase **TREE PLANTING** and **ENFORCE ENVIRONMENTAL BYLAWS**
- Implement **WATER HARVESTING**
- Improve **FOOD STORAGE CAPABILITIES** and **LOANS AND SUBSIDIES TO FARMERS**

- Implement **VOCATIONAL TRAINING** and **INFRASTRUCTURE** development such as construction of dams
- Strengthen **IMMIGRATION LAWS** and their **ENFORCEMENT**
- Improve **SEXUAL HEALTH EDUCATION**

- Establish small town **WATER SYSTEMS** and where possible, **DRILL MORE BOREHOLES**
- Improve **ENFORCEMENT OF BUILDING PERMITS**

- Improve **LAW ENFORCEMENT** capabilities, together with strengthened **POLITICAL WILL AND LEADERSHIP**

Key
CHALLENGES

While the surveyed regions varied according to environments and risks, and indeed the focus of the RRI is on obtaining local-level analysis of risk and vulnerability, trends in the data can be identified, namely:

- The natural hazards of greatest concern in Accra, Bolgatanga and East Coast are flooding and wind and rain storms.
- As the risk driver with the most identified issues, socioeconomic risks should be continually addressed by local, national and international actors.
- Many recommendations involve comprehensive infrastructure improvements, which may impose financial burdens on the government. For that reason, it is essential that governance issues identified in the surveys and workshops are addressed, especially with regard to corruption and limited financial capacity.
- As an urban area, Accra experiences unique issues, including water scarcity, water contamination, limited access to land, overcrowding and dangerous housing locations. These issues will require interventions tailored to the urban environment.

Climate change currently affects Ghana and will continue to do so in the coming years in the form of extreme temperatures, changes in rain cycles, and flood and droughts. While Ghana still faces challenges in the area of disaster risk reduction, it is clear that some progress has been made. Interestingly, many of the recommendations that emerged from the three RTU workshops reflected interventions that government or NGO actors had already undertaken. This demonstrates public support for the initiatives and the will to see them continue.

Farm Radio International / Elizabeth Nadurille

GUINEA

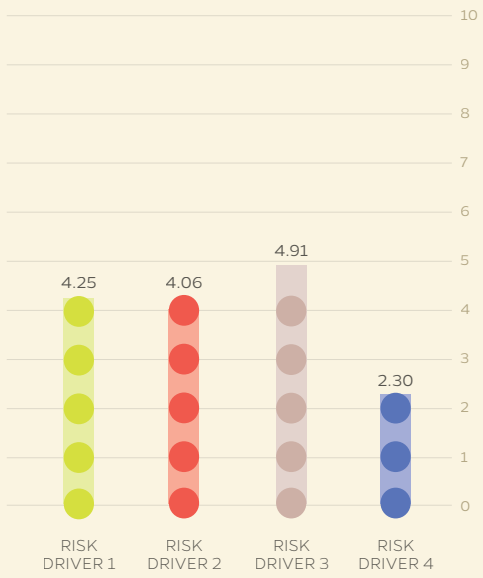
THE COUNTRY IS
AT HIGH RISK FROM
FLOODS,
EARTHQUAKES, TSUNAMIS,
AND EPIDEMICS

EPIDEMICS
HAVE CAUSED THE GREATEST
LOSS OF LIFE,
FOLLOWED **CLOSELY** BY
EARTHQUAKES

DROUGHT
HAS AFFECTED THE MOST
NUMBER OF PEOPLE

STORMS AND WILDFIRES
ALSO POSE A THREAT
TO THE **COUNTRY**

GUINEA SCORES FROM WEST AFRICA RISK MAPPING



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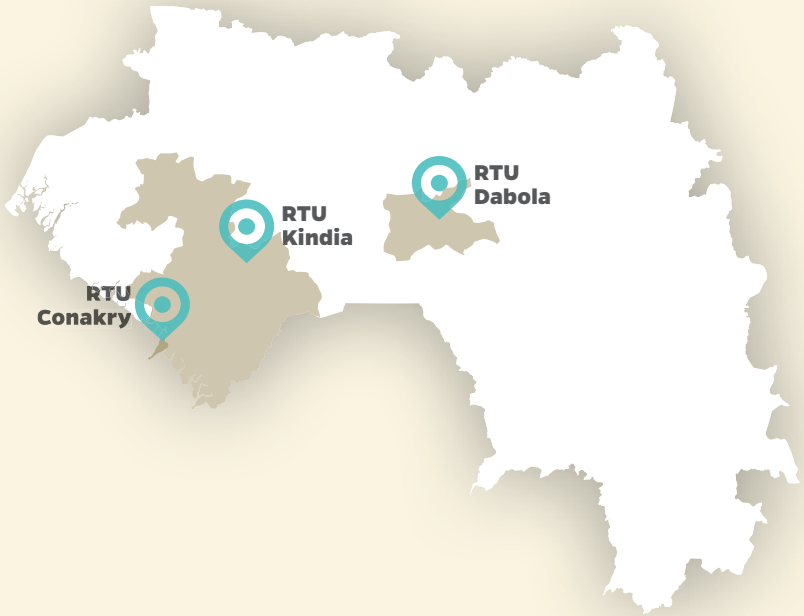


INSTITUTIONAL Capacity for DRR

DRR Institutional Setup

AND LEADERSHIP

Starting with the establishment of the Comité National Guinéen pour la Décennie Internationale de la Prévention des Catastrophes Naturelles (National Guinean Committee for the International Decade on Prevention of Natural Hazards) in 1990, Guinea has created a framework for disaster management with support from the UN. The framework includes: the Act on the Management of Natural and Man-made Disasters (1996), the Comité National de Gestion des Catastrophes (National Committee on Disaster Management, 1997), and the Groupe Opérationel du Comité National de Gestion des Catastrophes (Operational Unit of the National Committee on Disaster Management, 1997). The last is comprised of members from the ministries, civil society and NGOs.

There are currently eight government offices involved in issues related to DRR: the National Service of Disaster Risk Management; the National Direction of Meteorology and Hydraulics; National Direction of Health and Sanitation; the National Direction of Environment; the National Direction of Agriculture; the National Direction of Water and Forests; the National Direction of Habitat; and the National Direction of Education and Research.

Guinea has established a National Platform for DRR, of which the Groupe Opérationel du Comité National de Gestion des Catastrophes is the focal point, but which is not fully operational due to lack of budgetary allocation. The National Platform aims to integrate DRR into development policies and planning; develop and strengthen institutions and build capacity against natural hazards; and introduce risk reduction approaches into emergency preparedness, response and recovery programs. In order to ensure the accomplishment of these actions, there is a DRR focal point appointed as head of division for the National Office of Disaster Management and Environmental Emergencies.

Guinea has integrated many of its DRR initiatives in its environmental policies and plans. Such initiatives comprise the National Action Plan for the Environment (where the priority identified is the prevention of major risks in rural and urban areas related to climate and human activities), the National Forestry Plan, the Master Plan for Mangrove Management (SDAM), and the National Strategy and Action Plan for the Conservation and Sustainable Use of Bio-Diversity. With the support of the UN Department of Humanitarian Affairs, the Swiss Government and the US Embassy in Guinea, technical staff from Guinea have received training in DRR.

Strategic

DOCUMENTS AND PLANS

In 2007 Guinea submitted its National Adaptation Program of Action (NAPA). The NAPA identifies national and sub national climate change impacts and climate change adaptation measures to address those impacts. It also comprises as many as 25 sub-national level projects related to key vulnerability and capacity limitation. NAPA projects are expected to be achieved through specific funding or through implementation of the existing government policies, including the Strategy for Poverty Reduction, the Policy Letter for Agricultural Development, the Forestry Policy, and the National Action Plan for the Environment. Most of these policies were adopted in the early 90's and have been translated into programs and projects in all regions clearly indicating how climate adaptation is being mainstreamed into national policies. Under its NAPA, Guinea identified droughts/water scarcity, extreme weather events, land degradation and deforestation, public health, and sea level rise as the main climate hazards. The most vulnerable sectors identified in the NAPA are agriculture, water resources, forests and coastal regions.

While institutional and political commitment have increased, achievements are still limited and the culture of DRR is not yet steeped in the spirit of decision makers.

Guinea's NAPA consists of several projects that are related to DRR. The development of an early warning system to secure agricultural productivity project aims to use an early warning system to secure food production and decrease poverty, while the project of irrigated rice in Middle and Upper Guinea aims to increase food security and lessen the negative impacts of shifting cultivation. The creation of cane rat ranches to reduce bush fires and improve the living conditions of rural populations project works to preserve the environment and raise living conditions, as cane rats are a major food resource and bushfires are often caused by hunting them. Finally, the soil anti-erosion and protection project strives to mitigate land degradation and negative impacts of climate change.

Few of the adaptation projects in Guinea's NAPA are being implemented in the country and current projects are focused on only three sectors: coastal, agriculture, and fisheries. As noted by the International Institute for Sustainable Development in its "Review of Current and Planned Adaptation Action: West Africa" the lack of sufficient local capacity has been a hindrance to implementing the adaptation measures.

The 2013-2015 Guinea Poverty Reduction Strategy Paper (PRSP) refers to government plans over the 2013-2015 period to develop and implement programs focusing on adaption to climate change and climate variability. As described within, the government will pursue research in areas related to climate change, biological diversity and desertification, and protect coastal zones and the marine environment. The PRSP also notes the government's plans to build the capacity of those working with adaption to climate change, create and implement a carbon emissions reduction strategy and reinforce national dialogue over climate change.

According to the PRSP, the government sees agriculture as the sector that offers the most opportunity for food and nutritional security. In this area, Guinea plans to implement the parts of the National Agriculture Investment and Security Plan (PNIASA) focused on the production of foodstuffs. It will also put in place an early alert system with a geographic system on food security and the establishment of backup food stocks to promote the prevention and management of crises and catastrophes.

Guinea has also established a National Environmental Policy (PNE) to preserve the environment and protect it from degradation. One of its main goals is to reduce obstacles and threats in the coastal zone. The PRSP also highlights some challenges Guinea faces, including insufficient financing for planned adaptation programs for agriculture, low usage of new agricultural methods by farmers, and the need for Guinea to increase awareness of the extent of climate change and to reduce catastrophic risk.

According to Guinea's National progress report on the implementation of the Hyogo Framework for Action (2009-2011), DRR has been integrated into national development plans and strategies, including the PRSP, the National Platform for DRR and the National Contingency Plan. While institutional commitment and political will have increased, achievements are still limited and often incomplete, and the culture of DRR is not yet steeped in the spirit of decision makers and civil society. Furthermore, the country has allocated a percentage of the national budget to DRR (more than two billion were allocated in the national budget 2011-2012); however, the availability and mobilization of funds at the national level remains problematic. Multi-risk and multi-sectoral evaluations as such are not conducted but some related encouraging achievements include the formulation of regular reports, inventories and databases that evaluate and disseminate information on hazards and vulnerabilities. Sectoral early warning systems exist as well and are indeed effective.

International

ENGAGEMENT AND SUPPORT

Although the major focus of the 2007-2011 United Nations Development Assistance Framework (UNDAF) (extended to 2013-2017) is environmental and habitat preservation and promotion, DRR is included in several activities. These entail activities concerning ecosystems; water preservation, quality and safety; preparation of the National Contingency Plan (with support from OCHA); and plans for an Act coordinating natural resources management, the environment and risk prevention. In 2009, OCHA worked with the Guinean Government to prepare a National Contingency Plan in order to strengthen local and national capacity in disaster preparedness. Key partners included the Ministry of Environment and Energy, the Ministry of Security and Civil Protection and the Service National de l'Action Humanitaire (SENA) that represents Guinean NGOs.

In addition to the government's efforts, other donors have shown their commitment to DRR and CCA in Guinea through a variety of initiatives. The Global Environmental Facility (GEF) has been active in Guinea with several programs related to Guinea's coastal zones and biodiversity. These include the Increased Resilience and Adaptation to Adverse Impacts of Climate Change in Guineá s Vulnerable Coastal Zones project; the Guinea Current Large Marine Ecosystem (GCLME), also supported by the United Nations Industrial Development Organisation (UNIDO); and the Coastal Marine and Biodiversity Management project. The United Nations Development Programme (UNDP) has also been active implementing projects addressing climate change adaptation. Examples include the Strengthening Resilience of Farming Communities' Livelihoods against Climate Changes in the Guinean Prefectures of Gaoual, Koundara and Mali, and the Ecosystem-Based Adaptation Targeting Vulnerable Communities of the Upper Guinea. The World Bank (WB) project, Urban III, aims to improve infrastructure and services in Conakry and other cities and provide support for decentralization. The International Fund for Agricultural Development (IFAD) has also been active in Guinea with several programs, including the Support to Rural Development in North Lower Guinea Project (PADER-BGN) to increase food security in the northern region of Lower Guinea. Other donors currently or previously active in Guinea include the International Federation of Red Cross and Red Crescent Societies (IFRC), the United Nations Office for the Coordination of Humanitarian Affairs and the World Meteorological Organization (WMO).

UNDERLYING Risk Factors: Local Perceptions

RTUs Selected

AND SUPPORTING RATIONALE

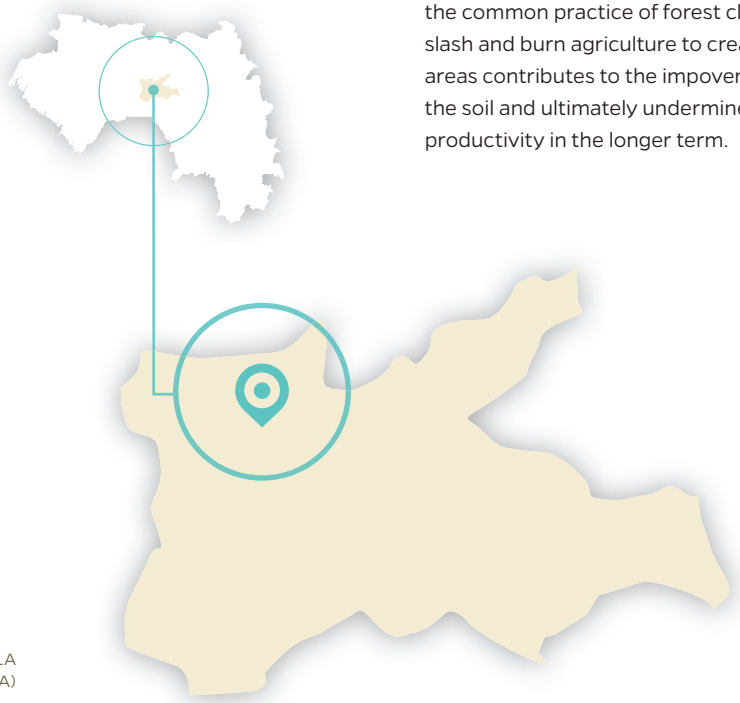
The RRI in Guinea looks at three Representative Territorial Units (RTUs), each of which differ in terms of risks, geographic locations and levels of urbanization and economic development. Conakry, the capital, is a western coastal urban area. Kindia is an urban eastern extension of the coastal zone of Guinea, and Dabola is a rural, agricultural central region. The three RTUs attempt to cover at least in part the different types of geography, climate-related challenges, natural hazards and risks Guinea faces. The rural versus urban locations also provide a more comprehensive picture of the underlying risk factors affecting the Guineans and the conditions in which they live that make them more or less vulnerable to disasters.

Dabola

Located in the center of Guinea, the rural RTU Dabola covers eight rural districts and one urban center. The population, mainly Muslim, is estimated at 167,626 inhabitants (Faranah Regional PRSP 2006) with 22% of the population in urban settings and the remaining 78% in villages. Women are the main source of labour in the agricultural sector. The poverty profile has revealed that 66.3% of the population still lives below the poverty threshold.

The agriculture in the RTU Dabola is characterized by distinct elements. These include (i) the predominance of slash and burn, shifting and hillside agriculture; (ii) the weak use of agricultural inputs; (iii) highly rain-fed agriculture which represent 99.5 % of cultivated land; (iv) the quasi inexistence of agricultural equipment, meaning agriculture is essentially manual, only making use of plowing material; (v) the shortening of fallow periods from 7 to 10 years in the 1970's to 3 to 5 years nowadays.

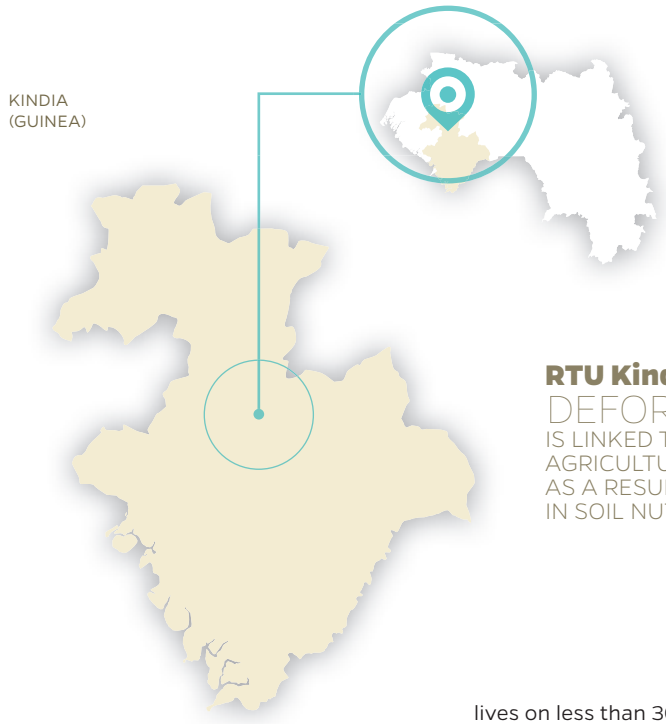
On the other hand, livestock breeding, which is the second main activity in the region, is extensive and based primarily on natural pastures with weak fodder production in the dry season. The practice of overgrazing and the transhumance has led to conflicts between breeders and agricultural farmers. Additionally, the common practice of forest clearing and slash and burn agriculture to create new pasture areas contributes to the impoverishment of the soil and ultimately undermines livestock productivity in the longer term.



DABOLA
(GUINEA)

RTU Dabola

LOW LEVELS OF LITERACY
INCREASES THE POPULATION'S VULNERABILITY
TO NATURAL HAZARDS AND CAN LEAD
TO EXCLUSION FROM DECISION-MAKING PROCESSES



RTU Kindia

DEFORESTATION
IS LINKED TO REDUCED AGRICULTURAL PRODUCTION, AS A RESULT OF A DECREASE IN SOIL NUTRIENTS

Kindia

Kindia is divided into ten rural districts and one urban district. As an extension of the coastal zone of Guinea, Kindia is the second largest urban area of the country with 20% of the total population. Forest area is currently estimated at 8% of the RTU, which hosts the most important relic of mesophilic forest in West Africa. The mangrove forests are predicted to be highly affected by climate change.

Agricultural production is also very likely to suffer due to sea level rise. Predicted impacts include infrastructure destruction, saltwater intrusion, shortages in potable water, loss of agricultural land and decreased crop yields (especially in rice production which accounts for 42% of the entire agricultural sector).

With a total population of 158,058 (Regional PRSP 2006), Kindia is characterized by high levels of poverty: 40% of the population lives on less than 300 US$ per year; 52% of the rural population is poor (urban 25%); life expectancy is 54 years; the literacy rate is 25%; and 50% of the rural population does not have access to drinking water.

The development of the main extractive industries, such as bauxite, iron, diamonds, gold and uranium, has created environmental, socio-economic and governance risks in Kindia, with the country's most important bauxite mining sites located in the region. Other industries consisting mainly of agricultural products processing, breweries, and agriculture equipment factories, are still in the nascent stages.

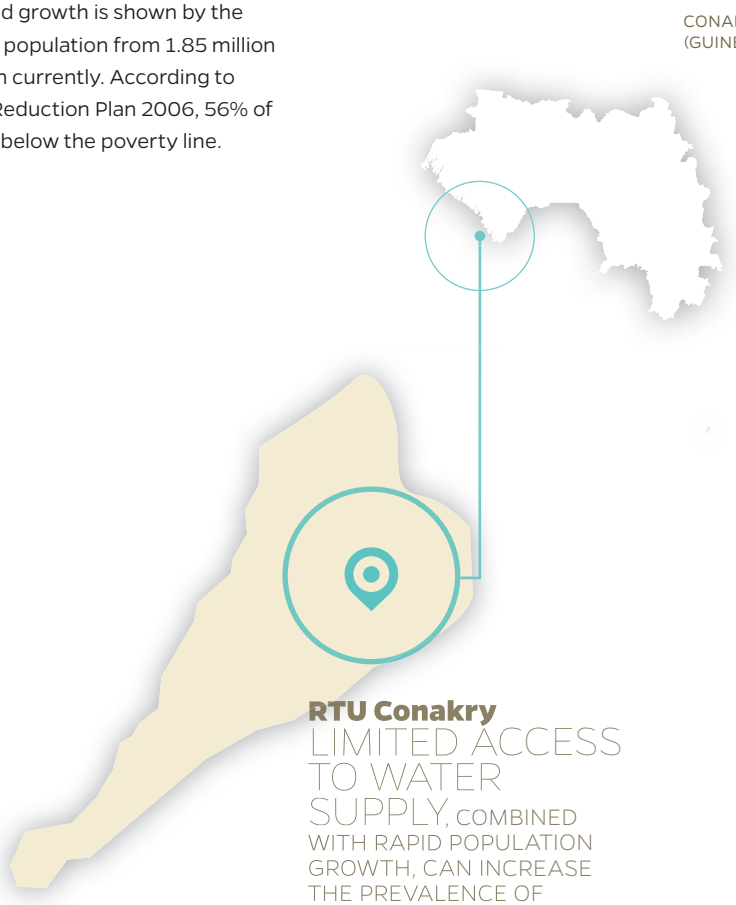
Kindia contributes 24% of the national rice production and provides 60% of the domestic energy for the capital and main cities of the coast through the mangroves. In Kindia, the most developed type of agriculture is rain-fed. Cattle, small ruminants and pigs are the base of livestock raised in an extensive traditional system. There are also a few semi-modern poultry farms in the peripheral areas and urban centers.

Conakry

Conakry's relief is mainly a coastal plain dominated by a chain of hills along the coast. The vegetation consists mainly of mangroves which are threatened by the combined effects of rapid urbanisation and changes in rainfall and sea level rise. Furthermore, flooding and rising sea levels could displace approximately 30% of the coastal population, while also destroying infrastructure and reducing the supply of potable water, which could facilitate the spread of diseases.

Administratively, the RTU covers the capital city (Conakry) and covers five urban municipalities. Up to 52% of the country's urban population lives in Conakry, making it highly congested. This rapid growth is shown by the increase of the total population from 1.85 million in 1990 to 3.4 million currently. According to Conakry's Poverty Reduction Plan 2006, 56% of the population lives below the poverty line.

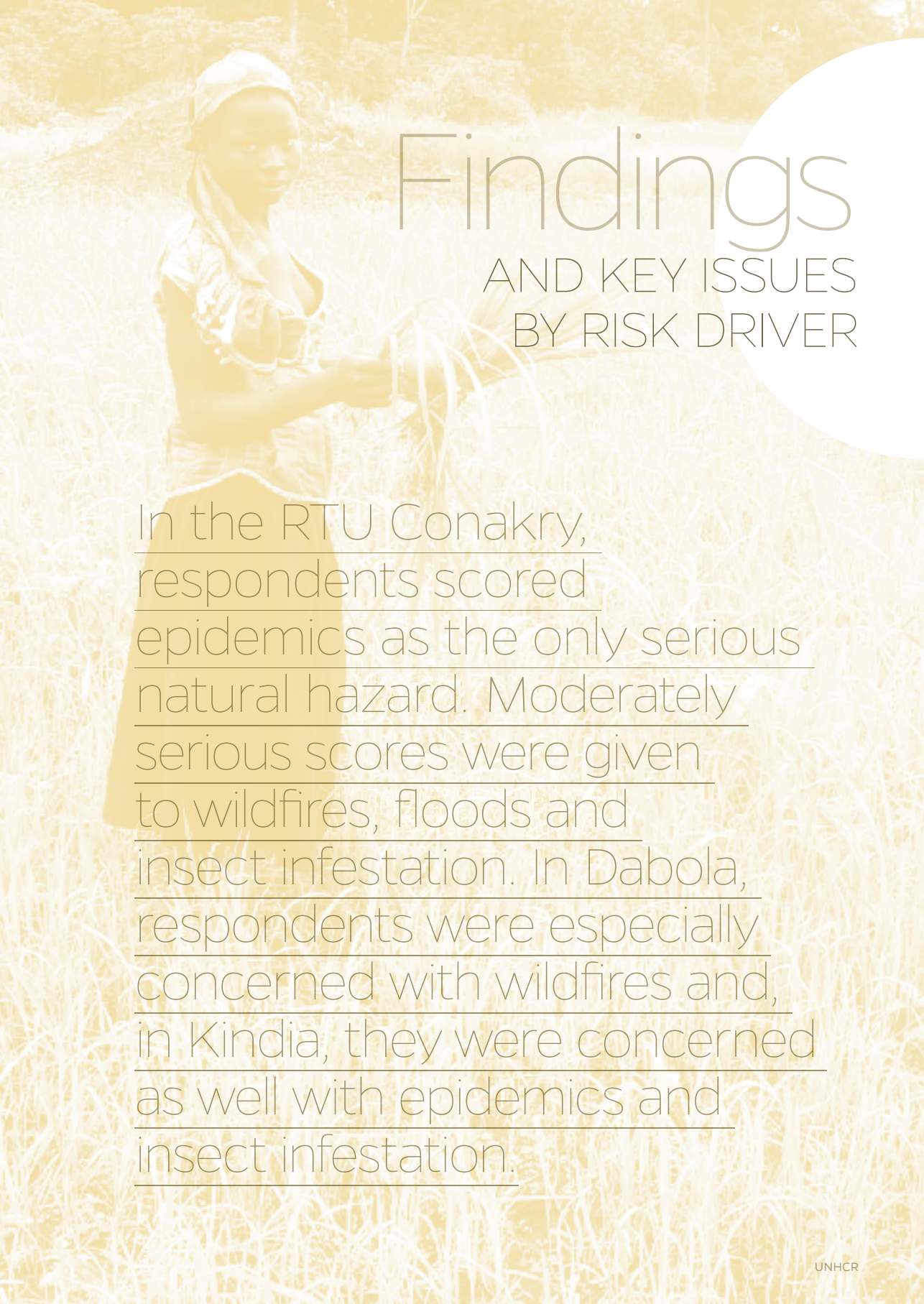
Conakry is the primary economic zone of Guinea, with 70% of the industrial activities in the country that are reinforced by a dense network of small businesses. The main crops are rice, maize, cassava and peanuts. There is a wide variety of cash crops (bananas, pineapples, cashews), vegetable gardening and plantations, and mango and citrus cultivation. Cattle, small ruminants and pigs are raised on farms located in the peripheral areas or urban centers.



IRIN / Tommy Trenchard

NATURAL HAZARDS AND UNDERLYING RISK FACTORS OF SELECTED RTUS

	DABOLA (RURAL)	KINDIA (URBAN)	CONAKRY (URBAN)
NATURAL HAZARDS	DROUGHTS, FLOODS	EPIDEMIC, FLOODS	RISE IN SEA LEVEL, FLOODS, EPIDEMIC
RISK DRIVER 1 1	· Deforestation	· Water pollution · Water scarcity · Deforestation	· Water pollution · Water scarcity · Deforestation
RISK DRIVER 2 2	· Food insecurity · Out-migration · Low levels of literacy · Poverty · Unemployment	· Prevalence of HIV/AIDS · Food insecurity · Low levels of literacy · Poverty · Unemployment	· Unemployment · Low levels of literacy · Poverty
RISK DRIVER 3 3	· Poor drainage/water disposal systems	· Limited access to water supply · Poorly built basic infrastructure · Poor drainage/water disposal	· Limited access to water supply · Poorly built basic infrastructure · Poor drainage/water disposal · Poorly built housing
RISK DRIVER 4 4	· Corruption · Limited financial capacity · Non- compliance with the law · Inefficient bureaucracy	· Centralised decision-making · Corruption · Inefficient bureaucracy · Lack of civil society participation in decision-making · Limited financial capacity · Non compliance with law	· Corruption · Lack of civil society participation in decision- making · Inefficient bureaucracy · Limited financial capacity



Findings

AND KEY ISSUES BY RISK DRIVER

In the RTU Conakry, respondents scored epidemics as the only serious natural hazard. Moderately serious scores were given to wildfires, floods and insect infestation. In Dabola, respondents were especially concerned with wildfires and, in Kindia, they were concerned as well with epidemics and insect infestation.

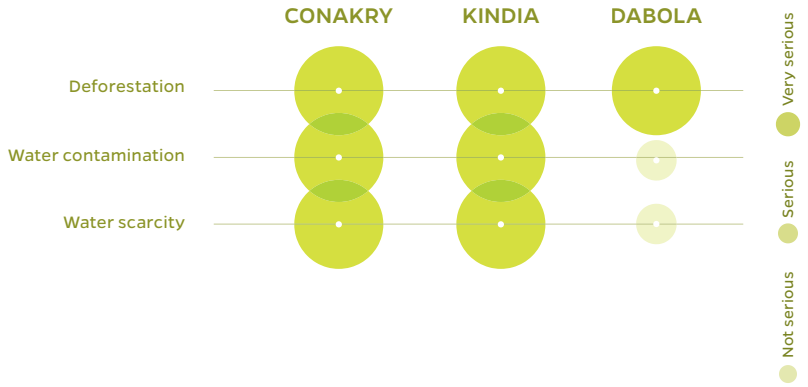
UNHCR

Local Perceptions on Risk Driver 1

Overall, the key issues or concerns identified in the three RTUs under environment and natural resources are deforestation, water contamination and water scarcity. Deforestation is the issue of concern present in all three RTUs. Water contamination and water scarcity are pressing concerns in both Conakry and Kindia, but not in Dabola where they receive only moderately serious scores.

Environmental and Natural Resources

SOCIAL AND ECONOMIC CHALLENGES IN CONAKRY, KINDIA AND DABOLA



1 DEFORESTATION

In Conakry, the population is aware of the degradation of sensitive zones, such as water sources or river banks, along with the associated impacts related to water availability and contamination. In coastal locations such as Conakry, mangrove destruction is impacting the coastal dynamics and causing the loss of the ecological values in ecosystems such as fish nurseries, wildlife habitats and water quality. Both in Conakry and Kindia, respondents identified deforestation as affecting local rainfall patterns, increasing the vulnerability of the community to drought and, in the long term, the risk of desertification. Indirectly, deforestation is linked to reduced agricultural production as a consequence of the decrease in nutrient availability and arable lands, as soil is progressively impoverished. Only in Dabola did respondents identify the increased exposure to landslides caused by the lack of soil retention and environmental service provided by forests as an issue.

In order to confront deforestation, some actions have been taken at the household level. Communities in Conakry have carried out awareness raising campaigns to protect mangroves and prohibit their cutting. They have also established community managed forests, which have improved the sense of ownership over the natural resources as the community decides how to use the resource towards its sustainability. In Dabola, the community has set up a community forest management committee that involves reforestation activities. In Kindia and Dabola, communities have decided to set up monitoring committees for wildfire protection which is, in many cases, a function that cannot be assumed by government authorities due to the lack of resources. Communities have also begun to use improved stoves, so that fuel wood is used more efficiently, increasing the forests' sustainability in the long term. The forestry authorities have allocated insufficient technical capacities to intervene

against deforestation. Community organisations have thus put in place reforestation practices, and local governments in all three RTUs have prohibited tree cutting. However, these initiatives are seen as minimally effective as a direct consequence of the low levels of resources and funding allocated to them and subsequently the lack of monitoring processes.

Other reforestation activities led by the national authorities generated more positive opinions from respondents, who assessed these as somewhat effective as they run in parallel with a sanction framework. However, as previously mentioned, these initiatives lack monitoring. The government is also supporting the creation of protected areas and providing training on improved natural resource management both in Kindia and Dabola with medium to low effectiveness, as more technical capacity is needed.

2 WATER CONTAMINATION

According to respondents, water contamination is a serious issue, especially concerning the two urban RTUs of Conakry and Kindia. Water contamination increases the population's exposure to water borne diseases and the proliferation of disease vectors, circumstances that ultimately reduce labor productivity. Communities are involved in protecting the water sources, promoting hygiene and sanitary practices, using water purification solution and promoting waste management and collection. Many of these interventions, although being promoted at the community level, require institutional support to provide them with the appropriate infrastructure needed for safe water provision.

In partnership with international NGOs, the national government has distributed water purification solution, which has been regarded as a very relevant measure. Additionally, they have implemented water source decontamination and borehole digging with positive results. However, these were criticised for their limited outreach. According to respondents, the government is in the validation phase of the environmental standards for wastewater discharge inspection procedures. Local governments have put in place garbage collection and water treatment systems. For their maximum effectiveness, however, these infrastructures require a large amount of allocated funds as well as strong support from taxpayers.

3 WATER SCARCITY

Water scarcity drives people towards using unprotected water sources causing, especially in urban settings, waterborne disease outbreaks (cholera, dermatitis, etc.). Lack of a continuous and available water source has increased the workload for women and decimated livestock, increasing families' vulnerability and food insecurity. In Kindia, a more rural setting, people are concerned with the relation that mangrove destruction might have with water availability, which ultimately affects labor productivity and the degree of desertification. To increase their water supply, households in Conakry and Kindia are digging wells and storing water domestically.

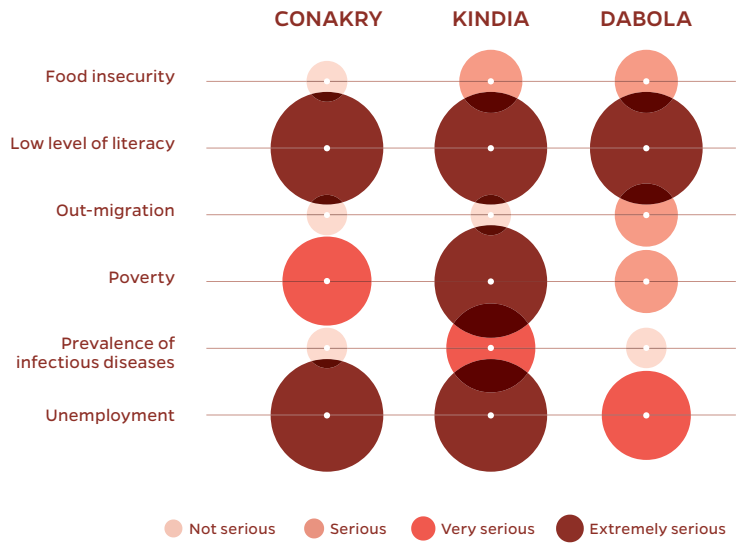
At the government level, actions have been taken to manage water sources and dig boreholes for water provision. Both initiatives are assessed by respondents as somewhat effective and very effective as long as there is both sufficient funding to execute them and appropriate technical capacities. The government is also building the extension of the water network, particularly in Conakry. However, concern has been expressed about whether this would entail the exclusion of vulnerable groups since the scope of the activities might not reach the neighborhoods where most of the vulnerable population is concentrated.

Local Perceptions on Risk Driver 2

Socioeconomic Conditions

There are several commonalities among the RTUs across the social and economic conditions, as well as differences, particularly between rural and urban areas. All three RTUs perceived food insecurity, low level of literacy, poverty, and unemployment as serious issues. The prevalence of infectious diseases was given a high score in the urban areas of Conakry and Kindia, while out-migration was specific only to the rural RTU of Dabola. Unemployment, poverty, and low level of literacy were seen as particularly serious issues in Kindia. Overall, both Conakry and Kindia expressed more serious concerns over the socioeconomic conditions than Dabola, except in the cases of out-migration and low level of literacy.

SOCIAL AND ECONOMIC CHALLENGES IN CONAKRY, KINDIA AND DABOLA



FOOD INSECURITY

In Kindia, food insecurity is related to an increased rate of child malnutrition, health problems in pregnant women, increased vulnerability to diseases and as a driver that forces out-migration of youth to urban areas. In Dabola, food insecurity is also perceived as a cause for the increased crime rate and increased number of wildfires to create new farms. Both communities concur that food insecurity makes the community dependent on imported rice and other products. Specifically, a respondent affirmed that food insecurity reduces the community's ability to cope with the 'lean period' and its potential to address development issues.

To diversify and improve agricultural productivity, families are practicing vegetable gardening, plant fertilisation and soil protection. They are also organising themselves into farmers' cooperatives to increase the use of improved farming techniques to build farmers' capacity. This initiative has been encouraged by the local government and supported by international organisations. In turn, the national government has developed food distribution campaigns in school canteens to improve child nutrition, which have been extremely effective.

Both in Kindia and Dabola, the government, supported by international organisations, has carried out a very successful project in lowland planning and lowland irrigation.

National authorities have also supplied agricultural equipment to support agriculture mechanisation, enabling farmers to increase their productivity in parallel with the development of extension activities. This has been undertaken in coordination with local authorities and includes the provision of subsidised seeds. Other interventions to support women farmers are highly regarded as well.

In Dabola, international organisations have implemented a food security programme that provides food distribution interventions and support in accessing seeds and equipment. Respondents explained that international organisations have also developed a microfinance system to support the community, but the lack of entrepreneurship skills has been a hindrance.

2 LOW LEVELS OF LITERACY

A low level of literacy is identified by respondents from all three RTUs as a serious concern. In Conakry and Kindia, low levels of literacy are linked with the high rate of unemployment, increased vulnerability to natural hazards, increased vulnerability to diseases and forest/mangrove destruction. Additionally, in the rural RTU of Dabola, respondents highlighted that low levels of literacy reduce people's access to information and thus increase the marginalisation of certain groups, leading to their exclusion in decision making processes. This particularly increases women's vulnerability as well.

In all three RTUs the communities have set up literacy programs, contributed to the construction of schools and literacy centers for adults, and created educational committees to promote child enrolment and raise awareness of the importance of education. In Dabola, the community established a girls training centre and a youth counseling centre.

Some literacy programmes, perceived as somewhat effective, are being performed at the national level through a governmental literacy policy. Evidence has shown political will for increasing the literacy rate in Guinea through the creation of a National Literacy Directorate. More specifically, the government, with support from donor agencies (especially from UNICEF), has created NAFA centres or 'Second Chance Schools' which are intended to cater to the education needs of those excluded from the traditional system (drop outs and un-enrolled children from 10 to 16). However, this initiative has not had good results, according to respondents. Conversely, the 'Education for All' project in Kindia was assessed as very effective. The World Bank Education for All project, which was implemented from 2001 through 2013, aimed to improve teaching and learning conditions in Guinea by expanding access to education, enhancing the quality of learning, and strengthening the decentralised management of the education sector.

3 OUT-MIGRATION

Out-migration is a concern in the rural area of Dabola where women's vulnerability has increased as they are left alone by their husbands without enough resources to take care of their families. As a consequence of this migration flow, the farming workforce is reduced and the amount of cultivated land is decreased, thus increasing the community's vulnerability to food insecurity. To address these difficulties, families have established farming cooperatives to raise their productivity and reduce the incentives to migrate. They have also established support groups for youth, with youth peer educators, to reduce out-migration through the creation of opportunities and income generating activities.

A strategy that has been considered to work well in diversifying the sources of income and food is governmental support for lowlands development for rice growing. International organisations, as respondents affirm, have targeted their efforts rather

Local Perceptions on Risk Driver 2

Socioeconomic Conditions

towards awareness raising campaigns that are not considered effective as they are not combined with complementary activities that support employment and training. While some efforts have been made to put a vocational training programme into practice, which was positively embraced by the communities, there has been a demand for a greater number of these types of programmes to be included as part of the campaigns.

4 POVERTY

Respondents from all three RTUs identified poverty as a serious concern as it results in the destruction of mangroves, higher insecurity, and increased vulnerability to natural hazards and epidemics due to the associated costs of treatment. They also mentioned that due to poverty the population has poor coping capacities against shocks, reducing their resilience.

To overcome the lack of income in Conakry, families have set up informal trade activities to promote self employment, create microenterprises, set up community/solidarity groups with support from the Diaspora and ultimately reduce the number of meals. In Kindia, farmers have established a rural credit scheme and provided health coverage for vulnerable groups. In Conakry, where respondents presented a wider range of interventions than in other RTUs, international organisations have developed capacity building activities, microfinance interventions and other activities for health coverage, agricultural inputs and women's groups. These initiatives have received high scores for their effectiveness of funding allocation, but have been criticised for their low levels of monitoring and inclusion of stakeholders.

In contrast to perceptions over international organisations' programme execution, all national government interventions mentioned were perceived to be minimally effective, including the creation of farming associations, the application of the Poverty Reduction Strategy and the support to income generating activities. Some of the drawbacks observed by respondents were corruption, insufficient fund allocation and high levels of donor requirements.

5 PREVALENCE OF INFECTIOUS DISEASES

In Kindia, respondents perceived the reduced or lack of prevention of infectious diseases as one of the major causes of increased child mortality and vulnerability of families to epidemics, which indirectly affects farmers' productivity. In Kindia, the community has organised, in collaboration with local authorities and with support from international organisations, awareness raising activities on disease prevention and hygiene practices, achieving wide coverage, including the most vulnerable. Furthermore, health management committees have given support, amongst other activities, to immunisation campaigns and help in building health posts.

The local government in Kindia has helped to create a cholera treatment centre; however, people perceived the intervention as minimally effective due to the insufficient funding allocated. In contrast, the distribution of mosquito nets has been a very effective targeted measure led by the government.

Greenpeace / Jeremy Sutton-Hibbert

6 UNEMPLOYMENT

Unemployment is a crucial issue in all three RTUs. Conakry's unemployment is linked to increased crime rates, poverty, destruction of natural resources and vulnerability to diseases. In Kindia, respondents acknowledged that unemployment increases women's exploitation and, in Dabola, one respondent affirmed that, "unemployment reduces the development potential and creates an intergenerational conflict," while others state that it principally increases youth out-migration flows. In order to overcome the lack of income and diversify economic activities, communities have set up micro-enterprises.

Guinea's PRSP, while not specifically identifying youth employment as a challenge, has established a national employment policy and made it operational through its National Employment Action Plan. Projects implemented under this Action Plan have obtained, however, low ratings amongst respondents, as technical capacities are seen as insufficient and agreements with the private sector as ineffective as they exclude the most vulnerable. Other interventions such as support to vocational training and NAFA centers for girls were positively rated somewhat effective for their inclusion of women's groups and collaboration with committed actors.

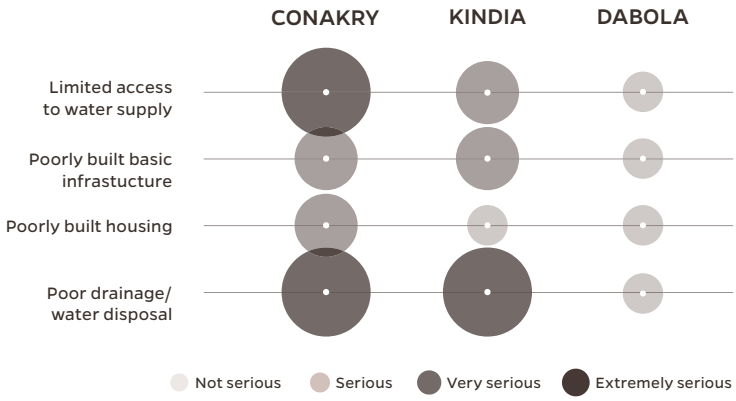
International organisations have supported the development of micro-enterprises in Conakry and Dabola, which is viewed positively by respondents. In addition, they have implemented a Youth Training program, which trained youth in proposal writing and small business management. Both interventions were rated as somewhat effective.

Local Perceptions on Risk Driver 3

Land Use and Built Environment

Only the urban locations, Conakry and Kindia, identified issues under land use and built environment as serious. Conakry identified limited access to water supply, poorly built basic infrastructure, poorly built housing, and poor drainage/ water disposal as serious concerns. Respondents in Kindia also found the same issues to be critical, with the exception of poorly built housing. In contrast, in Dabola none of the issues were considered serious.

LAND USE CHALLENGES IN CONAKRY, KINDIA AND DABOLA



1 LIMITED ACCESS TO WATER SUPPLY

Respondents from the urban RTUs, Conakry and Kindia, linked the rapid population growth and urbanisation to limited water access, the increase in the occurrence of waterborne diseases, and the increase in the workload for girls, which affects their ability to attend school (especially in Conakry). Communities have engaged in well digging, latrine construction and water purification, although they claim they need support for the procurement of external supplies and technical knowledge.

The national government has intervened through borehole digging and the extension of the water network. The latter is considered to be minimally effective due to poor governance, corruption and insufficient technical capacity. However, this same intervention was undertaken by international organisations and valued as very effective by respondents in Kindia and Conakry. Both the national government and international organisations have engaged in water source protection and management; however, respondents assessed both of these interventions as minimally effective given their insufficient funding and technical capacity. Furthermore, international organisations have identified water purification solutions that indirectly help to effectively reduce other issues.

2 POORLY BUILT BASIC INFRASTRUCTURE

According to respondents in Conakry and Kindia, poorly built infrastructure generates a reduction in the quality of services such as water provision and an increase in health vulnerability. Access to social services such as schooling and health facilities is also affected. In the event of a disaster, emergency and rescue services were not effective because of poor infrastructure conditions.

Families in Conakry have rehabilitated infrastructures with locally made building blocks 'terre cuite'; however, as there are limitations to these blocks, there is a need for longer-term and more sustainable solutions. In Kindia, the community constructed latrines and created a public infrastructure management committee to communicate concerns related to poor infrastructure to the designated authorities. Ultimately, in Conakry, some families have decided to move to safer places when they have the coping capacity.

The local and national governments have worked together to rehabilitate education and health infrastructures. The respondents had a negative opinion of these interventions as insufficient funding and technical capacity have led to an incomplete implementation of these interventions. Other interventions, which were criticised for the same reasons, were the Urban Planning Program in Conakry and the building of improved social infrastructure.

International organisations in Conakry collaborated with school renovation projects that have been viewed as effective due to their sufficient levels of funding and stakeholder inclusion.

3 POORLY BUILT HOUSING

Respondents in Conakry have acknowledged that the low quality of building materials and poorly planned housing structures have increased the risk of collapse and fire as well as families' exposure to diseases due to humidity and poor sanitation. Some families try to improve the conditions of their houses with locally available materials, such as building blocks made by community groups. Unfortunately, these solutions are only provisional due to the low quality of the materials. Other households receive support from the diaspora to improve their living conditions and those who have the opportunity move to safer places.

The national government has implemented housing programs (HLM, SOLOPRIM mentioned) that are recognised as effective measures. Additionally, the government has provided support with the provision of affordable construction materials; however, this is viewed as a minimally effective intervention because of the insufficient technical capacity allocated and the insufficient capacity of the private sector.

4 POOR DRAINAGE/ WATER DISPOSAL

As a consequence of the poor drainage systems there is high proliferation of disease vectors, such as mosquitoes leading to cholera and malaria outbreaks, acknowledged in the urban RTUs. Respondents from the rural RTU of Dabola have not ranked the issue as one of the most serious they face. The communities have themselves cleaned the water disposal system and the neighborhoods in both urban RTUs. In addition, a health committee has been set up in Conakry, and in Kindia the Hygiene and Cleaning committee is in place. Both committees organise the cleaning days and raise awareness of the use of latrines to discourage the use of the drainage system as a waste dump.

International organisations, in collaboration with the local authorities, have built water disposal and drainage systems that; however, have not achieved effective results according to respondents.

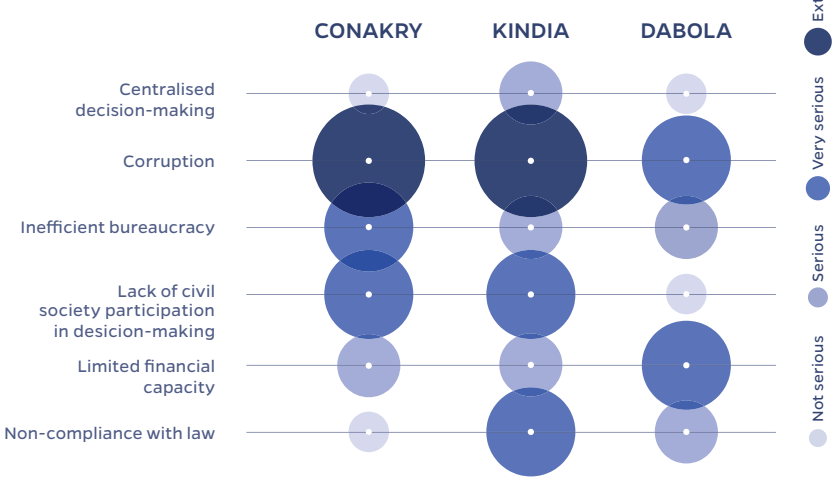
Furthermore, the national government has enacted a hygiene policy, which is positively viewed but criticised for its lack of awareness among communities. The Urban Infrastructure Program in Conakry was positively measured but criticised for not being fully implemented. In both RTUs as well, the government led a cleaning exercise of the water drainage system, but its implementation is also incomplete and currently there is no long term solution planned.

Local Perceptions on Risk Driver 4

Governance

Issues perceived as serious in all three RTUs under governance include corruption, inefficient bureaucracy, limited financial capacity, and non-compliance with law. Corruption was ranked the highest in both the urban areas of Conakry and Kindia. Lack of civil society participation in decision-making was seen as a serious challenge in Conakry and Kindia, while centralised decision-making was an issue of concern only for Kindia. Limited financial capacity was the only issue in which Dabola scored higher than Conakry and Kindia.

GOVERNANCE CHALLENGES IN CONAKRY, KINDIA AND DABOLA



1 CENTRALISED DECISION-MAKING

Only Kindia perceived the centralisation of decision-making processes as a key issue. Respondents linked the issue with increased corruption and ineffectiveness of the administration. One example cited was the delayed response of the authorities during cholera outbreaks. Centralisation is believed to generate poor inclusion of the population in the decision-making process, resulting in a lack of citizen engagement in government decisions. The community has disseminated the decentralisation policy and set up community groups to advocate for their interests.

At the local level, the government has applied the decentralisation policy with a rating from respondents of very effective since it is considered a 'vigorous action' that enables community members to be part of the decision-making process. On the side of the national government, decentralisation is being executed very effectively, although respondents pointed out that more capacity strengthening is needed in order to respond to people's requests.

2 CORRUPTION

Conakry respondents linked corruption with the increased destruction and overexploitation of natural resources due to ineffective controls related to the poor enforcement of the forestry code and other environmental laws, in which powerful individuals are granted cutting permits.

In Kindia, respondents affirm that the social services are ineffective and expensive and often not available for the poorest. This increases people's vulnerability to epidemics and other risks. In Dabola, as a consequence of corruption, people identify the impunity for poor governance, the embezzlement of funds and the lack of clarity and transparency in public services recruitment processes. All of these circumstances are a source of conflict causing youth demonstrations and the discouragement of potential investors.

In Conakry, community groups have been organised to advocate for community interests, law enforcement and to pursue fair and transparent justice. Similarly, communities in Dabola have reported their dissatisfaction to administrative authorities during prefectural meetings. In both Kindia and Dabola, community groups are raising awareness of corruption and, in Kindia, they have even created an audit committee. However, corruption generates tensions that drive people to denounce and protest from time to time.

At the national level, the government has created anti-corruption agencies with an average score slightly over 'not effective at all', which shows the lack of confidence that respondents have for the government. Through these agencies, the government has increased control over civil servants and audited public investments. Both interventions were assessed as minimally effective because of the need for increased technical capacity and political will. In coordination with international organisations, the government also carried out awareness raising activities that were viewed as minimally effective.

International organisations have implemented capacity building programs to support the control agencies. These initiatives received higher rates of effectiveness when the training is considered as a separate component. However, in general terms, there is a sense of a lack of application of principles on the part of those in charge of decision-making, along with a lack of political engagement.

3 INEFFICIENT BUREAUCRACY

Inefficient bureaucracy is a serious concern identified in all three RTUs. As a consequence of corruption, inefficient bureaucracy is creating delays, increasing the costs of services and ultimately increasing people's vulnerability. Specifically in the event of a disaster, the effectiveness of the response is low, exposing the population's vulnerability to all major risks. All these conditions are feeding citizens' dissatisfaction and distrust of the government's responsibility and role in providing services, leading to riots and demonstrations.

In Dabola, the community has created Land Tenure Conflict Management Committees to mediate in conflicts between pastoralists and farmers. Some activities regarding the dissemination and popularisation of laws are being established so that communities are aware of their rights and duties as citizens and thus can advocate for themselves.

Local and regional authorities are building civil servants' capacity to increase their efficiency. At the national level the Public Sector Reform has generated very positive opinions amongst respondents.

4 LACK OF CIVIL SOCIETY PARTICIPATION IN DECISION-MAKING

Respondents acknowledge that there is limited citizen awareness and engagement leading to poor disaster response. They also highlight a lack of accountability towards the population and a lack of consultation, both important means for the inclusion of the population in decision-making. Community

Local Perceptions on Risk Driver 4

Governance

groups have been established to run civic education sessions and advocacy activities. In Conakry, citizens often participate in protests and demonstrations.

Respondents convey that in Conakry the local and regional governments have held District Assembly meetings and stakeholders' fora, which were assessed as very effective for their high amount of participation. In turn, the national government has held a public hearing for the communities along with stakeholder workshops. Both were very well received by respondents.

5 LIMITED FINANCIAL CAPACITY

Limited financial capacities have had negative effects across different sectors. These include the poor coverage of community needs by social services, the low level of activities, increased deforestation and over exploitation of natural resources, the discouragement of civil servants, the establishment of settlements in dangerous areas and ultimately the poor control over disaster risk reduction and management. This issue is crucial, especially in Dabola.

Local and regional governments have implemented the Internally Generated Funds Initiative that is seen as having improved over the years through "vigorous revenue mobilisation". The national government has provided people with loans and, although it is seen as somewhat effective, it is also acknowledged that most people do not pay the loans back. The government has also implemented the prompt payment of the District Assemblies common fund, which is viewed as very effective by respondents.

6 NON-COMPLIANCE WITH THE LAW

As part of the lack of law compliance, respondents in Kindia affirm that corruption has increased and that there is impunity for increased fraud of funds, which affects the fact that poor security services do not respect citizens' rights. This situation creates tension and conflict. Furthermore, people are building their houses in dangerous areas and forest destruction has increased due to the lack of law enforcement and monitoring, which in turn affects populations' vulnerability.

Community groups have been established to raise awareness of corruption issues and civic education as well as to disseminate laws. The communities have also mobilized themselves to advocate for law enforcement and fair and transparent justice.

At the local level, several initiatives addressing non-compliance with the law have been carried out. This includes the re-arrangement of by-laws and, in collaboration with the national government, the strengthening of law enforcement agencies. This has received very effective ratings from respondents. Other initiatives that work in parallel are the designation of community volunteers for law enforcement, seen as somewhat effective by respondents, and at the national level, the strengthening of the judicial system, which was considered to be very effective.

IRIN / Tommy Trenchard

Recommendations from DABOLA

1 INCREASING KNOWLEDGE AND AWARENESS ON ENVIRONMENT AND NATURAL RESOURCES

- Establish a dialogue between relevant actors to **DEFINE A MONITORING MECHANISM** for the implementation of the **FOREST CODE**
- **REVITALISE** the **COMMUNITY FORESTRY MANAGEMENT COMMITTEES** (COGESF)
- Train farmers on **IMPROVED TECHNIQUES FOR MANAGING NATURAL RESOURCES**
- **TRAIN** government, NGOs, elected officials and private sectors on approaches to **ADAPTATION AND RISK MANAGEMENT**

2 BUILDING SOCIOECONOMIC RESILIENCE

- Create a **DATABASE OF LITERACY PROGRAMMES**
- **HARMONISE LITERACY APPROACHES** within programmes
- Create **INCOME-GENERATING ACTIVITIES AND MICRO-ENTERPRISE** for **YOUTH AND WOMEN** who are most vulnerable to unemployment
- Create **MICRO-CREDITS**

3 IMPROVING LAND USE AND THE BUILT ENVIRONMENT

- Construct **RAINWATER DRAINAGE** channels
- **CLEAR EXISTING** channels
- **CONSTRUCT** individual and public **LATRINES**
- **BUILD CAPACITY OF WASTE MANAGEMENT COMMITTEES** at village and household levels
- Develop **LAND USE PLANS**

4 IMPROVING GOVERNANCE

- **TRAIN AND SENSITISE** community leaders and citizens on **GOOD GOVERNANCE**
- Establish **ACCOUNTABILITY MECHANISMS** (local audit committees, regular performance reviews, monitoring the public officials, etc.)
- Expand **OUTREACH OF THE CODE OF DECENTRALISATION** and the governance charter

the RTUs

KINDIA

- Train farmers in **IMPROVED TECHNIQUES FOR NATURAL RESOURCE MANAGEMENT**
- Distribute **IMPROVED COOK STOVES**
- Organise **TRAINING** for relevant actors on approaches to **ADAPTATION AND RISK MANAGEMENT**
- Construct **LATRINES**
- Ensure **CONTROL CONSTRUCTION ALONG THE BANKS**

- **ASSESS AND HARMONISE LITERACY APPROACHES USED** by dif erent operators
- Support **JOINT COMMITTEES FOR THE EVALUATION** of youth in the informal sector
- Support youth certification for the development of **MICRO-ENTERPRISE**
- Promote training, supervision and review of **HEALTH WORKERS' PERFORMANCE**

- Construct rainwater **DRAINAGE CHANNELS**
- Construct individual and public **LATRINES**
- Build capacity of **WASTE MANAGEMENT COMMITTEES**
- Construct and rehabilitate **BASIC INFRASTRUCTURE**
- Provide help in **MAINTAINING WATER POINTS** in public places

- Implement **TRAINING AND SENSITISATION** on **GOOD GOVERNANCE**
- Pursue the establishment of **ACCOUNTABILITY MECHANISMS**
- Organise periodic **PERFORMANCE REVIEWS OF PREFECTURAL SERVICES**
- Define the **FRAMEWORK OF PARTNERSHIP** between governmental agencies, NGOs and collectivities

CONAKRY

- Raise **AWARENESS** of the ef ects of **WOOD CUTTING IN THE MANGROUVES**
- **DEFEND SENSITIVE AREAS** (hillsides, mangroves, etc.)
- **REGULATE THE ILLEGAL OCCUPATION** of the maritime public domain
- Construct **LATRINES**

- **PRIORITISE** the construction of school infrastructure and extend literacy centers
- Develop **ENTREPRENEURSHIP** and **MICRO-ENTERPRISES**
- Promote a more **EQUITABLE ALLOCATION OF PUBLIC RESOURCES**
- Promote **TECHNOLOGY TRANSFER** initiatives for the processing of local products

- Construct **WATER TREATMENT CENTRES**
- Clean existing sewage channels
- Monitor, **MAINTAIN,** and extend **DRINKING WATER SYSTEM**
- Support the **CONSTRUCTION OF SOCIAL HOUSING**
- Set up **INDUSTRIAL WASTE REGULATION**

- Promote **TRAINING AND AWARENESS** of councilors and municipal administrators on approaches to **FIGHT AGAINST CORRUPTION**
- Establish **ACCOUNTABILITY MECHANISMS**
- Organise **PERIODIC PERFORMANCE REVIEWS** of municipal services
- Define the **PARTNERSHIP FRAMEWORK** between government agencies, NGOs and the community

Key

CHALLENGES

In general, respondents from the urban RTUs tended to align much more in their perceptions on each of the issues than the respondents from the rural RTU. The interventions implemented by international organisations were more highly regarded than those of the government, which received a higher level of criticism mainly due to lack of funds and lack of technical capacity.

Although Guinea has shown political will and made remarkable progress towards establishing effective disaster risk management and relevant DRR/CCA initiatives, some main challenges have been identified by the RRI stakeholders. These include:

- Problems with wastewater management in urban centers such as Conakry and Kindia.
- The impact of the power plant on the urban environment of Conakry.
- The effects and influences of climate change on coastal areas.
- How to fully convince decision makers to establish the conditions and capacities to manage disaster risk and adaptation to climate change.
- How to increase climate change knowledge of policy makers (national and local) and different sectors (Public, Private and Civil Society).

The following were perceived as the main achievements in the country in terms of DRR and CCA by the RRI stakeholders:

- The most effective interventions under Risk Driver 1 were natural regeneration, limited licenses to cut wood, and the dissemination of improved natural resource management practices. The national actors most acclaimed by their actions were the Rural Council of Bissikirima, ASED, ATC, RGTA and the Denkadi Federation.
- Under Risk Driver 2, the creation of literacy centers (such as the NAFA Centre), the development of micro-enterprises, and support to farmers were seen as the most effective initiatives. The actors that were mentioned for being best placed to help reduce the vulnerability of socio-economic risks are Concern Universal and ChildFund (international organisations), the Prefectural Departments of Literacy and Social Affairs (governmental actors) and FDD COPRAKAM, ASED (national NGOs).
- Important interventions for reducing risks from Risk Driver 3 (land use and built environment) included pre-winter cleaning of gutters and the implementation of an oversight committee for the process. Along with the establishment of safety committees in neighborhoods, notably by local authorities and the non-governmental organisations ASED, SRR, and FDD.
- In terms of improving governance (Risk Driver 4), the most valued initiatives included whistleblowing of corrupt practices, the training for and implementation of community-based organisations, the training of local elected officials and government agencies, and civic education activities. USAID's work on its local governance project has been recognised as extremely effective because of its inclusive approach and its use of monitoring & evaluation mechanisms in local languages. In addition to USAID, other. players such as the Prefectural Development Department and the Rural Council of Bissikirima (FDD) are seen as very active in strengthening risk governance.

IRIN / Nancy Palus

NIGER

NIGER
IS AT HIGH RISK FROM
DROUGHT, EPIDEMICS,
FLOODS
AND **FOOD INSECURITY.**

EPIDEMICS
HAVE RESULTED IN THE HIGHEST NUMBER
OF DEATHS,
FOLLOWED BY **DROUGHT.**

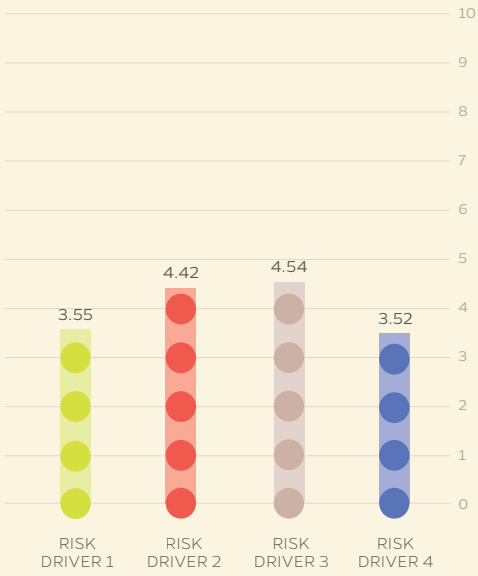
DROUGHT
HAS BY FAR AFFECTED
THE MOST NUMBER OF PEOPLE
ACROSS THE COUNTRY.

LOSSES
FROM DROUGHT
HAVE A DIRECT RELATION WITH
POOR HARVESTS
AND **FOOD INSECURITY.**

FLOODS
REGISTER THE MOST
SIGNIFICANT ECONOMIC
LOSSES.

Source: EM-DAT (CRED)

NIGER SCORES FROM WEST AFRICA RISK MAPPING



INSTITUTIONAL Capacity for DRR

DRR Institutional Setup
AND LEADERSHIP

Niger has made important, albeit still limited, strides in recent years towards developing its DRR leadership and capacity. The United Nations Development Programme (UNDP) has played a key role in these efforts. The Early Warning and Hazards Management System (SAP) was created by decree in 1989 by the Office of the Prime Minister. In 2002, the National Committee for Food Crisis Prevention and Management was formed, under whose direction are two units devoted to early warning and food security: the Early Warning System Coordination Unit (CC/SAP) and the Food Crisis Unit (CCA). The CC/SAP aims to capitalise on local knowledge of DRR.

Niger benefits from a National Platform for DRR, which was established in 2006 with support from the United Nations International Strategy for Disaster Reduction (UNISDR). The focal point for the national platform is the Office of the Prime Minister, which also houses the Unit for Early Warning Systems. The multi-disciplinary working group, Groupe de Travail Inter-Disciplinaire du Systeme d'Alerte Précoce (GTI-SAP), represents various government sectors. It plays a key role in analysing and forecasting crises and supports the CC/SAP. The government also aims to integrate DRR issues in a number of sectoral strategies. In general, the National Platform focal point has stated that DRR priorities until 2015 and beyond should include the development of strong early warning systems, national disaster loss databases and climate information for communities.

At the sub-national level, the Regional Committees (CR/PGCA) and Sub-regional Committees (CSR/PGCA) for Disaster Prevention and Management have been created in order to address disaster management at the field level.

While it appears that the national government recognises the need to increase DRR capacity and resource allocation, at the level of strategy development and action plans there is less political engagement and practice.

Strategic

DOCUMENTS AND PLANS

In assessing its progress against the HFA in its Rapport national de suivi sur la mise en oeuvre du Cadre d'action de Hyogo (2011-2013), Niger reported several important milestones. Limitations to how much progress has been made are also substantial and important to note. In addition to the creation of the National Platform and a national strategy for DRR, efforts at the local level are significant and focused on building capacity for disaster preparedness and addressing vulnerability, usually with the support of international organisations and donors. These include the creation of the Communes et des Systèmes Communautaires d'Alerte Précoce et de Réponses aux Urgences (SCAP-RU), as part of USAID's food security initiative through its Office for Food for Peace. Trainings are also reported, particularly at the ministerial level, in order to raise awareness and share knowledge on the need to better integrate DRR in sector planning. In this sense and in general, institutional engagement has been achieved, but still with important limitations. The most frequently cited limitations are limited financial resources and limited operational capacity. Overall, while the need to increase DRR capacity and resource allocation seems to be recognised, at the level of strategy development and action plans there is less political engagement and practice.

Publicly-financed plans and programmes for DRR are reported, with DRR being partially integrated into development planning. This includes vulnerable urban areas, although only minor progress has been reported. The need for improved drainage is cited, but limited human capacity and the failure to adhere to urban planning legislation has hindered progress in this area. A DRR component is also included in disaster response programming, in particular with relation to livelihoods and development projects, where environmental impact assessments are carried out; however, limited financial resources pose a challenge. It is also noted that certain development projects pose a threat in terms of increasing the population's vulnerability to risks, such as the construction of quarries, which has increased the risk from flooding.

In terms of data and information-sharing, national data is collected and analysed on hazards and included in development planning, while information is also disseminated through a monthly bulletin. Early warning systems are in place at the national and sub-national levels, mainly through the regional committees. Public education campaigns and workshops are also carried out and directed at populations exposed to hazards; however, constraints pose challenges in terms of the results these can be expected to produce. Also, there is not a line in the national budget for applied research for DRR, where investment remains weak.

Niger's efforts to address underlying risk factors are focused on its national environmental policy, including the National Adaptation Programme of Action (NAPA) and efforts to fight desertification and the Plan National de l'Environnement pour un Développement Durable (PNEDD). Social protection networks to improve resilience of the population are missing, however.

There is a multi-risk national contingency plan in place. Coordination for disaster response is provided for through the Dispositif National de Prévention et de Gestion des Catastrophes et Crises Alimentaires, and through a framework agreement reached between the government and various partners. Each year a plan to support food insecure populations is drafted. Most resources are devoted to food security issues, whereas less attention is given to floods, for example. Limited financial resources are cited as the reason for the failure to address flooding concerns thus far.

The Nigerien Government has created the 3N Initiative, “Nigeriens Nourishing Nigeriens”, to develop a response to Niger’s food insecurity problems due to inadequate annual rains, which climate change could worsen with increasing unpredictability in rainfall. The comprehensive strategy would bolster national food output and enhance the positive impact this would have on levels of food security, nutrition, household welfare and economic activity. The Haut Commissariat des 3N agency was established in 2011 to lead the effort and mobilise state agencies, elected leaders of local communities, donors, NGOs and the private sector in order to foster a coherent and sustained national effort.

Niger’s Poverty Reduction Strategy Paper (2008) notes the close linkage between poverty and vulnerability to disasters. Disasters can negatively affect ongoing poverty reduction activities, redirecting already limited financial resources towards assistance and rehabilitation operations. One of the crucial effects of disasters in Niger is increased food and nutritional insecurity. The PRSP recognises that Niger’s frequent food shortages are directly linked to recurring drought, and lists climatic conditions and natural disasters as constraints on Niger’s performance in accelerating growth and poverty reduction. The PRSP also notes from evaluations of its rural development policies that Niger has poor performance in the area of adequate weather information to warn of risks.

The PRSP makes reference to the HFA and notes that, in the area of disaster management and risk mitigation, the government plans to take three distinct measures: improve the integration of disaster management and risk mitigation into policies, institutions, and the development process; offer related institutional capacity building; and improve and enhance knowledge management and community capacity as relevant.

The 2013 Poverty Reduction Strategy Paper for Niger emphasises the country’s need to improve the resilience of communities against the harmful impacts of climate change and natural disasters in order to increase food security. The Economic and Social Development Plan (PDES) includes as strategic results that Niger strengthen its adaptation measures towards the negative impacts of climate change and reversal of environmental degradation. Also, the 3N Initiative is included as an important program in ensuring food security during food crises and disasters. The PRSP notes that Niger’s capacity for confronting desertification, land and water resource degradation, illegal tree cutting and climate change is weak and lists natural hazards (floods, droughts, animal diseases and plant pests) as one of the risk factors hindering the achievement of the PDES objectives and results. Niger currently has a National System for Disaster and Crisis Prevention and Management (DNPGCC), which includes the Early Warning System (SAP) and the Food Crisis Unit (CCA). Under priority programs and activities for increasing Niger’s resilience against food crises and disasters, the government has taken several measures: a multi-risk management plan; rapid information system for natural disasters; improvement of disaster response mechanisms; coordination on a national level for management and prevention of crises; monitoring and evaluation mechanisms; and inclusion in the ARC (Africa Risk Capacity).

Under its NAPA, Niger identified droughts, extreme temperatures, flooding, insect infestations, strong winds, and sand/dust storms as the main climate hazards. The most vulnerable sectors identified in the NAPA include agriculture, cattle breeding, forestry, water resources, wildlife, health and wetlands. The major impacts of these climate hazards on the national economy and most vulnerable sectors include decrease in agricultural

production and fishery productivity, water shortages, groundwater depletion, increased rate of diseases, decrease in biodiversity, reduction of forested areas, and the formation of sand dunes.

In its NAPA Niger also identified fourteen priority adaption projects focused on fodder production improvement, creation of livestock food banks, crop irrigation, peri-urban market gardening and cattle breeding, income generation activities, water control, production and dissemination of meteorological data, creation of food banks, improvement of health conditions, development of anti-erosion infrastructures, increase of agricultural, forestry and pastoral production, protection of water resources, and capacity building of rural producers.

International

ENGAGEMENT AND SUPPORT

The international community, in particular the World Bank, UNDP, and various NGOs, has been engaged in various DRR-related initiatives, especially aimed at climate change adaptation, food security and community resilience building. UNDP has been providing financial support for the development of a national disaster prevention and management strategy and action plan, including support for the integration of DRR into development plans and strategies. Niger is also a Track II country under the World Bank's GFDRR, where efforts are also directed at building national capacity to mainstream DRR.

In the area of climate change adaptation, the UNDP Africa Adaptation Programme (AAP) in Niger conducted a study on climate risk management that was used for the development of the National System for the Prevention and Management of Food Crises, provided training on climate risk and opportunities along with strategy support for the acceleration of the integration of climate change into national development plans, and developed a framework for innovative finance and climate change programming. The AAP is being implemented along with other projects and is being closely aligned with the UNDP-BCPR Climate Risk Management programme and the UNDP/GEF-SGP Community Based Adaptation projects. The latter's "Adapting pastoral and agricultural practices to the realities of climate change" is being implemented in the village of Rombou in the Maradi region of Niger to foster sustainable water management, agricultural, and pastoral practices in order to increase the community's capacity to adapt to climate change.

The World Bank is currently implementing the Community Action Project for Climate Resilience to improve the resilience to climate change and variability of populations and production systems through mainstreaming climate resilience into development strategies at the national and local levels, including integrating climate resilience practices into agro-sylvo-pastoral systems and local populations social protection measures. The World Bank's Niger Basin Water Resources Development and Sustainable Ecosystems Management Project aims to increase regional coordination, development and sustainability of water resources management in the Niger River Basin through improved institutional coordination for regional management and development of water resources, improved performances of rehabilitated hydroelectric plants in targeted areas, improved irrigated agriculture in targeted areas, and improved watershed management in targeted areas.

World Vision is implementing a project to increase the resilience of six communes in the Zinder Region of Niger to reduce the risks of natural events, such as droughts and flooding. The project is creating, training and equipping six local Disaster Risk Reduction Committees to raise awareness and mobilise their communities in order to strengthen their capacity to prevent, prepare for, and manage disasters. The Emergency Capacity Building Project, a formal partnership agreed between CARE, Catholic Relief Services, Mercy Corps, Oxfam, Save the Children, and World Vision, and funded by DFID, is working in Niger to develop a harmonised risk assessment tool.

On the side of food security, the International Fund for Agricultural Development (IFAD) is implementing a project in Niger to combat food insecurity in the most food-insecure areas of Tahoua, Maradi and Tillabery regions through the Emergency Food Security and Rural Development Programme, which was launched as a joint initiative with the OPEC Fund for International Development and the World Bank's Global Food Crises Response Program. This aims to support the Government of Niger's efforts to mitigate the impacts of the major food and pastoral crises caused by the 2010 drought. The programme focuses on restoration of productive assets for food-insecure and other highly vulnerable households, strengthening of irrigated rice production systems and support of the development of rural infrastructure.

UNDERLYING Risk Factors: Local Perceptions

RTUs Selected

AND SUPPORTING RATIONALE

The RRI in Niger looked at three Representative Territorial Units (RTUs), each of which differs in terms of geographic locations and levels of urbanisation and economic development. The three RTUs attempt to cover, at least in part, the different types of geography, climate related challenges, natural hazards and risks Niger faces. The rural versus urban locations also provide a more comprehensive picture of the underlying risk factors affecting the people in Niger and the conditions in which they live that make them more or less vulnerable to disasters.

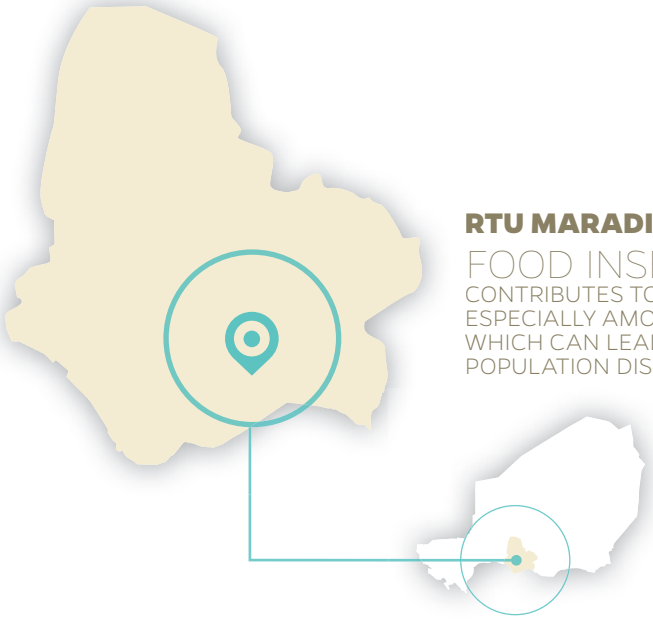
Niamey

Like many African capitals, Niamey presents a picture of the manifold challenges facing urban centres. These include rapid expansion due to unplanned settlements and zoning issues, high unemployment rates, and high levels of poverty, particularly along the city's periphery. The city of Niamey, built on a plateau, is located on the left bank of the River Niger. The River Niger and its tributaries form the bulk of the water supply in the region of Niamey, and is therefore an important natural asset. Niamey's climate is Sahelian, with high temperatures and summer rain.

Niamey has witnessed rapid population growth in recent decades. One consequence of this demographic growth has been the spatial expansion of the city, particularly after the construction of the Kennedy bridge over the River Niger, which allowed Niamey to spread on to the right bank. In 1977, Niamey's population was measured at 242,973 residents. The Rural exodus and migration into the city has added to this growth. The population in 2010 was 1,000,000 and is projected to nearly double by 2025.

The demographic explosion, the result of high fertility rates, declining mortality rates, and influx into the city from rural areas, while contributing to Niamey's growth and development, has also created significant pressures on the capital. These include strains on environmental resources and an increased need for services, including in particular energy resources, land for crops, and water for livestock and human usage. The construction of new buildings on the outskirts of the city has also resulted in less land for crop cultivation. The inhabitants of Niamey practice both purely urban activities and what are more traditionally rural activities, such as agriculture, collection and trade of wood, and livestock farming. Despite the diminishing availability of farmland, the city continues to expand, leaving what land remains subject to overexploitation. The need for wood as an energy source also has resulted in deforestation and increased soil erosion around the capital.

MARADI
(NIGER)



RTU MARADI

FOOD INSECURITY
CONTRIBUTES TO MIGRATION, ESPECIALLY AMONG YOUTH, WHICH CAN LEAD TO UNEVEN POPULATION DISTRIBUTION

Maradi

Maradi is located in the centre and south of the country, on the border with Nigeria. The climate is tropical and humid, with a hot and cold dry season and a rainy summer. Maradi is a semi-urban area with rural zones and is the economic capital of Niger. Because of its proximity to Nigeria, Maradi benefits from flourishing trade. Due to having more regular rainfall than other regions of Niger, particularly in the north, big investments are made in cultivating cash crops. The result is a contrasting agricultural production system that includes both modern and traditional methods. However, despite the rainfall and agricultural investments, Maradi has one of the highest rates of malnutrition.

The most important food crops overall include millet, sorghum and rice. Soil fertility is maintained through a system of crop rotation. This longstanding agricultural production, which has included investments from many partners, has had the additional benefit of raising environmental awareness among the community. As a result, the region benefits from reforestation activities and projects, resulting in increased density of trees per unit area.

From a demographic standpoint, Maradi has one of the highest population growth rates. This strong population growth combined with a favorable context of agricultural production has resulted in clear challenges related to the availability of land. This in turn has led to the emergence of a new class of landless peasants or farmers. The issue of limited access to land has become an increasing concern for many households as more and more are forced to make their livelihoods from agricultural wages and other non-farm based sources of income.

Ouallam

Ouallam is a rural area marked by several important characteristics. These include high levels of poverty in relation to other regions of the country, recurring climactic hazards (especially lack of rainfall), and limited agricultural production. Despite this, and perhaps due to the fact that access to land is not limited, the principal activities in the area are agricultural, mainly farming and animal husbandry. Pasture quality is high and excellent for animal raising; however, a low water table poses challenges. The most frequent hazards facing the region include repeated droughts, delays in the start of the rainy season, early stops in the rain, strong winds, and high prices for agricultural products.

Despite Ouallam's proximity to Niamey, the area has suffered from a lack of accessibility, particularly in the rainy season, which affects access to markets. It is anticipated that the construction of a paved road in 2011 will alleviate the region's isolation. Nonetheless, Ouallam is therefore highly vulnerable due to the combination of low agricultural production and a population dependent economically on agricultural activities, resulting in significant problems related to food security. The practice of market gardening activities also remains marginal despite the proximity to the capital. Other factors increasing the area's vulnerability include low levels of infrastructure and limited provision of government services.

In order to cope with these challenges, residents of Ouallam often resort to migration as a strategy to overcome recurring food shortages. This has led to the practice of young women migrating to the capital in search of seasonal work as maids. The men of the region in turn migrate to neighboring countries such as Ghana, Ivory, Togo and Benin coast in search of employment. One consequence of this dispersion of households has been low school enrollment and attendance rates for children, negative effects on the community's social structure, and an un-ending cycle of poverty.

OUALLAM
(NIGER)

RTU OUALLAM

PRODUCTIVE INFRASTRUCTURE FOR AGRICULTURE IS A KEY CONCERN, BOTH FOR BEING POORLY BUILT AND LOCATED IN DANGEROUS AREAS.

Norwegian Red Cross / Mari A. Mortvedt

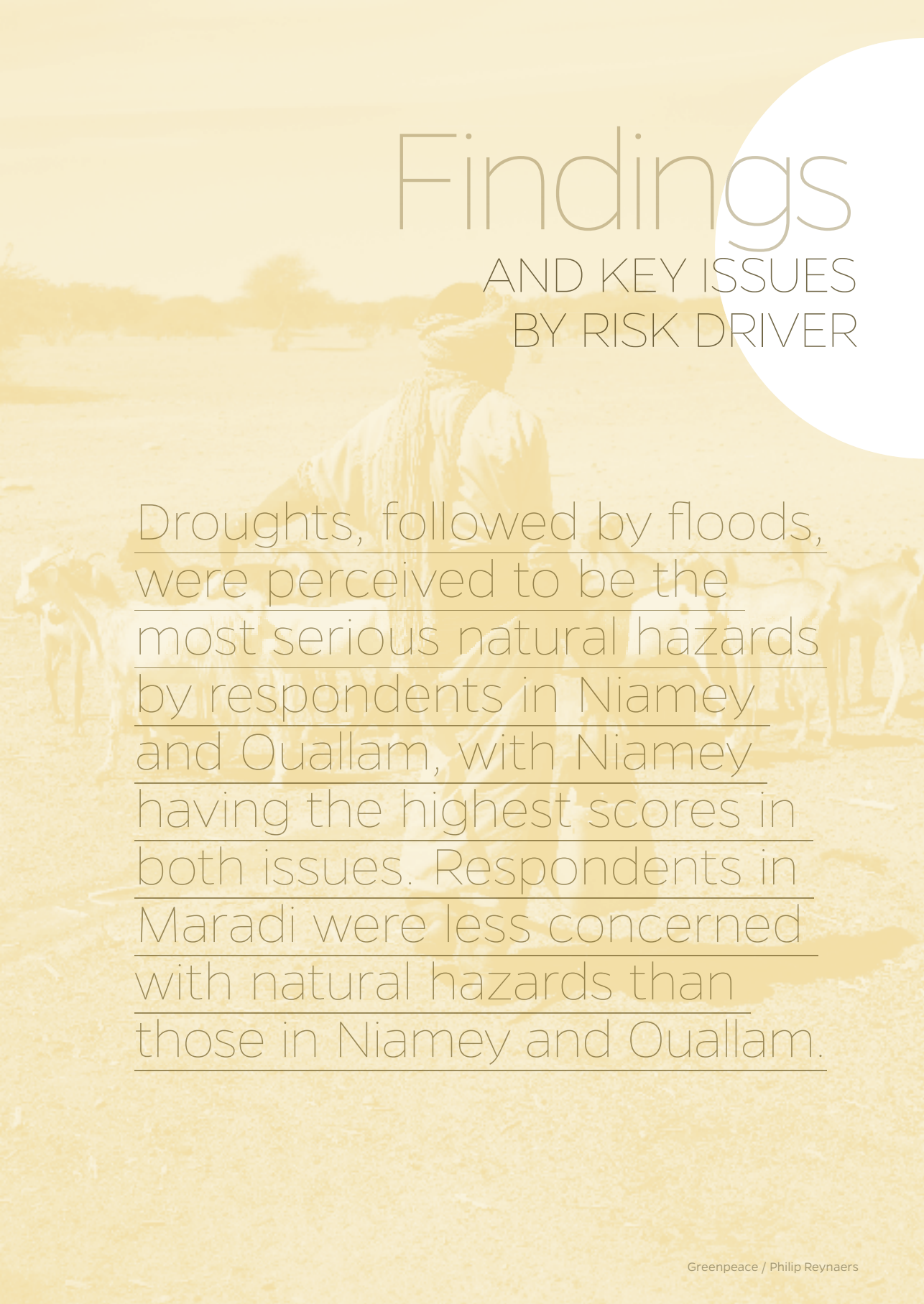
NATURAL HAZARDS AND UNDERLYING RISK FACTORS OF SELECTED RTUS

	NIAMEY (URBAN)	OUALLAM (RURAL)	MARADI (URBAN EXPANSION)
NATURAL HAZARDS	DROUGHTS, FLOODS, INSECT INFESTATION	DROUGHTS, FLOODS, INSECT INFESTATION	DROUGHTS, FLOODS, INSECT INFESTATION
RISK DRIVER 1 1	· Deforestation · Desertification · Soil erosion	· Deforestation · Desertification · Soil erosion	· Deforestation · Desertification · Soil erosion
RISK DRIVER 2 2	· Food insecurity · Unemployment · Poverty · Prevalence of infectious diseases · Low levels of literacy	· Food insecurity · Unemployment · Poverty · Out-migration	· Food insecurity · Unemployment · Poverty · Low levels of literacy
RISK DRIVER 3 3	· Housing in dangerous locations · Critical public facilities	· Housing in dangerous locations · Poorly built productive infrastructure · Productive infrastructure in dangerous locations · Poor drainage/ water disposal	· Limited access to water supply · Overcrowded conditions
RISK DRIVER 4 4	· Limited financial capacity · Corruption	· Limited financial capacity	· Limited financial capacity · Corruption

Findings

AND KEY ISSUES BY RISK DRIVER

Droughts, followed by floods, were perceived to be the most serious natural hazards by respondents in Niamey and Ouallam, with Niamey having the highest scores in both issues. Respondents in Maradi were less concerned with natural hazards than those in Niamey and Ouallam.



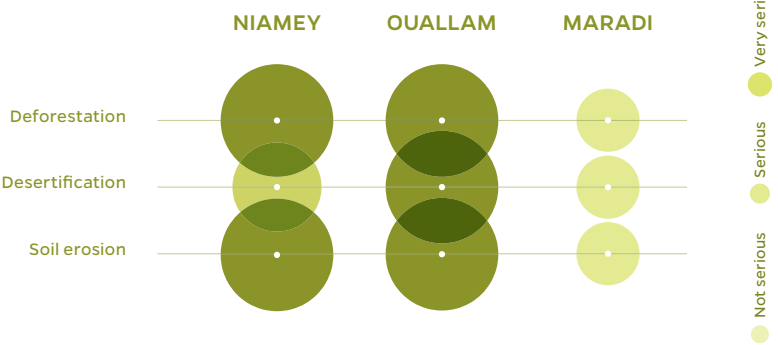
Greenpeace / Philip Reynaers

Local Perceptions on Risk Driver 1

Environmental and Natural Resources

In all three RTUs (Niamey, Ouallam and Maradi), the key environmental issues selected were soil erosion, deforestation and desertification. These three issues received particularly high scores in Niamey and Ouallam, and on par with scores given to unemployment and poverty in the next risk driver. Clearly, land and soil issues are important challenges to be addressed. Soil erosion was less of a concern in Maradi, where the climate is notably di erent than in northern regions of the country.

ENVIRONMENTAL CHALLENGES IN NIAMEY, OUALLAM AND MARADI.



DEFORESTATION

Forests play a crucial role in soil retention, soil formation and nutrient recycling. Deforestation, as respondents observed, increases water runoff, thus leaving the soil exposed by washing away the upper layers, and also exposing the soil to wind erosion. Respondents in Maradi linked deforestation with an increased risk from floods, due to the diminished water retention capacity of the soil and the subsequent increased water runoff which contributes to increased flooding.

Respondents in Maradi associated deforestation with the expansion of land for agricultural production, while respondents in Niamey and Ouallam associated deforestation with reduced agriculture and pasture productivity. Communities also identified the reduction of available wood stocks as a result of deforestation, which in turn increases the distance that must be covered to fetch wood, and subsequently the workload for those tasked with this duty, generally women. Increased deforestation is also linked with high unemployment rates, due to the increased pressure this can place on resources.

In Niamey, families are moving towards the usage of alternative sources of energy other than wood, such as gas, which should reduce the pressure on natural resources. Those with no access to alternative energy sources are rationing wood consumption. In both Niamey and Maradi, respondents informed that they were involved in reforestation activities with local species, and considered them to be very effective. In Maradi, the community is taking measures towards forest protection, with the view of protecting their heritage. Community members in Maradi also mentioned the increased use of improved stoves.

Efforts on the part of the local government in Niamey to fight bushfires were seen on average to be somewhat effective by respondents. These activities are supported by national institutions, but were criticised by respondents for the low monitoring of their implementation.

The national government and international organisations have both implemented reforestation interventions, including tree planting, which were considered to be somewhat and very effective due to their having been supported by awareness raising activities that have increased community participation and ownership of the activities. In Niamey, respondents affirmed that regulations against cutting down trees are in place and considered them to be extremely effective, correctly implemented and linked with awareness raising activities. Assisted Natural Regeneration has been implemented in Niamey and Maradi in collaboration with international organisations and was assessed as somewhat effective. Although the practice was criticised in terms of lack of monitoring, it is valued positively because of its impact on soil retention and fertility, as well as for obtaining community ownership. In Ouallam this same type of intervention was rated more highly and viewed as very effective. Forest protection measures have also been put in place in Ouallam and valued as very effective as well.

International organisations, in collaboration with local governments, have provided seeds for regeneration programmes, which respondents assessed as somewhat effective. However this is dependent on beneficiaries having sufficient technical and economic capacity. Respondents also noted the promotion of gas consumption in place of wood as an energy source in Niamey. While this was viewed as somewhat effective, related awareness raising activities on gas usage undertaken by international organisations were considered to be not effective at all by respondents, mainly due to a lack of funding.

2 DESERTIFICATION

Respondents identified desertification as a key issue namely because of its affect on the soil, which is directly related to their agricultural dependence and livelihoods. Desertification increases soil aridity through desert encroachment, which, when combined with high intensity winds, leaves the degraded soil more exposed to erosion processes. The overall degradation of natural resources was cited in connection with desertification, as well as the long term consequences of reducing agricultural productivity, and reducing biodiversity. The depletion of wood stock that is necessary for heating and cooking, especially in rural areas, was also cited as a direct result. In addition, the negative effect is compounded, wherein desertification leaves the soil so depleted that it makes it very difficult to regenerate and reforest. The impact is more severe when combined with the hazard of frequent droughts.

Respondents in Ouallam participate in land restoration activities that are part of development projects. In Maradi, communities have collaborated in tree planting, pasture sanitation and delimitation, and soil enrichment activities, all of which aim to decrease the rate of land degradation. In Niamey and Ouallam, communities are involved in the construction of wind breakers and the planting of acacia trees, assessed as very effective for protecting both soil and settlements.

The national government has implemented afforestation activities in collaboration with international organisations, which have been complemented by the development of community management committees to ensure their correct implementation. Rated as somewhat effective, respondents mentioned that the technical capacity was adequate and that there had been good awareness campaigns, including media and theater

Local Perceptions on Risk Driver 1

Environmental and Natural Resources

campaigns. Other interventions listed were the zoning of land for different uses and the establishment of live fences on farm land and land restoration interventions, which were assessed as very effective. To reduce desert encroachment, activities undertaken by the national government to promote dune stabilisation and those by the international community to construct protective dikes have been implemented. However, respondents pointed out that these types of interventions required advanced technical expertise.

3 SOIL EROSION

Soil erosion was identified as a main concern particularly in Niamey and Ouallam. In all three RTUs respondents linked soil erosion with reduced farmland productivity, as a consequence of the reduced nutrients in the soil due to soil leaching and excessive infiltration. Soil erosion leaves the soil bare and exposed to external agents, generating soil crusting (Ouallam and Maradi) and glacis (Maradi), and decreasing the soil's potential to regenerate. According to respondents in Niamey and Ouallam, in the rainy season there is an excess of water runoff due to soil erosion. This creates gullies and affects houses, tracks and riverbanks, causing collapse in some cases. Because of the reduced soil capacity for water retention, Maradi respondents observed that in the event of heavy rains, soil erosion could increase the risk of floods.

In all three RTUs, respondents mentioned soil restoration activities through the use of organic and mineral fertilisers, which are sometimes part of development projects. The limited scope of these activities was noted by respondents in Ouallam, however. In order to promote further soil regeneration, communities in Ouallam leave some lands fallow. In Maradi, communities are collaborating with Assisted Natural Regeneration and with bench terracing to reduce soil erosion. Soil restoration activities undertaken by communities have been assessed as very effective, particularly for including the most vulnerable, but respondents indicated that a wider scope for these activities is necessary.

In Niamey and Ouallam, the national government has undertaken water conservation and soil restoration projects (CES/DRS: Conservation des eaux et du sol/ Défense et restauration des sols), which were assessed as somewhat effective, in particular for employing physical restoration techniques such as bench terracing and digging medium-sized holes (or zais). Respondents explained that these interventions have been effective because of the community's awareness and ownership of the activities. In Niamey, the government has also promoted good practices in irrigation.

In Maradi, international organisations have collaborated with communities to support tree planting interventions. This has been viewed as very effective. Bench terracing using a cash for work/food work model has also been realised. In Niamey and Ouallam, international organisations have been involved in soil restoration activities that respondents rate as somewhat effective as they employ appropriate technical capacity. In Niamey, agricultural inputs provided by international organisations were assessed as very effective, especially for including the most vulnerable. Nevertheless, perceptions regarding anti-erosion projects differed significantly. Respondents in Niamey viewed these as only minimally effective due to the lack of monitoring, whereas in Ouallam they were found to be extremely effective, the reasons for which were not provided.

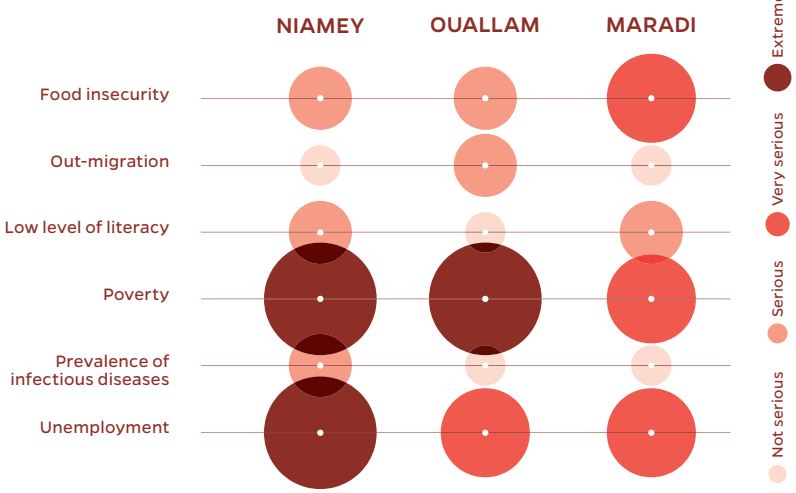
Greenpeace / Philip Reynaers

Local Perceptions on Risk Driver 2

Socioeconomic Conditions

Poverty, unemployment and food insecurity were the main issues commonly selected in all three RTUs. Niamey respondents were the only ones to select prevalence of infectious diseases as a key concern, while in Ouallam respondents identified out-migration as an important challenge. Low levels of literacy was selected as a key issue in both the capital and Maradi, but was less of a concern in Ouallam, a rural area.

SOCIAL AND ECONOMIC CHALLENGES IN NIAMEY, OUALLAM AND MARADI



UNEMPLOYMENT

Respondents in all three RTUs listed unemployment as a major concern. High unemployment rates were directly linked to poverty and pressures placed on one family member to provide for many. College graduates are also vulnerable due to the limited job market. In Ouallam, respondents associated unemployment with an increase in crime, migration rates, and the loss of family assets, all of which increases their vulnerability. In Maradi, respondents linked unemployment with food insecurity and social tensions.

To overcome the lack of income created by the high unemployment rates, households seek out income generating activities, such as gardening and small businesses, which in some cases lead to the establishment of associations and advocacy organisations. Other families with little or no resources find out-migration to be their only solution.

Respondents cited public service recruitment as the main intervention undertaken by the government to reduce the unemployment rate. However, this was assessed as minimally effective due to insufficient funding. Job insertion projects to promote employment for youth and women were also mentioned and considered to be somewhat effective for reaching a wider share of the population. Another intervention by the government and supported by international institutions is the introduction of HIMO activities (High intensity labour works or Haute intensité de main d'oeuvre). These were considered to be very effective measures as they address those most vulnerable.

2 POVERTY

Respondents in Ouallam linked poverty with recurrent droughts, which also contribute to food insecurity and malnutrition. Communities are thus limited as to what they can do to improve agriculture production. Respondents in Niamey cited an absence of savings and reduced purchasing power as particular concerns, increasing external and internal dependence (high number of family members depending on one sole worker) and potentially creating household tensions and reducing families' resilience. Respondents feel that these issues lead to an increase in the immigration rate, either from rural areas to urban settings or to other countries.

At the community level, solidarity networks exist amongst households and food for work systems that operate within the communities. Some families with ample capacity establish income generating activities (e.g. selling sand and clay) and others cope with poverty by migrating.

Government interventions to regulate prices have been viewed as very effective by respondents from Niamey, who nonetheless recognised the government's limited resources and high external dependence. The national government has developed a reference framework to fight poverty with support from international institutions in the execution of certain activities. This was evaluated as somewhat effective by respondents, but criticised for being too top down. There are national safety nets in place and cash for work systems, both considered very effective for including those most vulnerable.

Support for income generating activities has come from the national and local government as well as from international institutions. Respondents consider these activities to contribute to the improved living conditions by allowing households to generate enough income and thus be able to deal with hazardous situations, for example by reducing families' vulnerability during the dry season /lean period. Opinions differed, however, with respondents in Ouallam viewing these interventions as very effective, whereas respondents in Maradi valued them as only minimally effective given their limited financial resources and scope in targeting people.

International organisations have supported the implementation of irrigation agriculture for growing off-season crops. This was assessed as very effective by respondents for attempting to provide a solution to food crises, and increasing farmers' capacities and their resilience.

3 FOOD INSECURITY

Food insecurity was identified as a result of low agriculture productivity; it also increasing the rate of malnutrition among the population. Food insecurity contributes to migration, especially among youth, and leads to an uneven distribution of the population between overpopulated urban areas and underpopulated rural areas. Respondents observed an increase in the occurrence of food-borne diseases, also lowering their resilience in the event of a major disaster. At the household level, food insecurity is thought to create tensions within families.

To cope with food insecurity, families often reduce their number of daily meals, and as a last resort sell their productive assets to buy food, thus becoming even more economically vulnerable. Fishing, collection of wild fruits and gardening (*maraîchage*) are alternative strategies that households employ to reduce their vulnerability to food insecurity. Communities as a whole have established solidarity networks between families with average resources and those with fewer assets. Additionally, in order to improve productivity in the long term, communities have engaged in soil restoration projects.

In Niamey and Maradi, the national government and international institutions have undertaken food distribution through

Local Perceptions on Risk Driver 2

Socioeconomic Conditions

targeted emergency programs, which respondents assessed as somewhat effective due to the government's admittedly insufficient resources and high foreign dependence for program implementation. In these two RTUs, the government has also worked on irrigation development that was rated as being very effective for its thorough implementation, but is still in need of a including a wider scope. To reduce the vulnerability of families to external markets, the government has regulated food prices (*ventes à prix modérés*), an intervention that respondents found to be somewhat effective. In all three RTUs, the national government, with support from international organisations, has implemented cash for work and food for work models to execute projects such as soil restoration. Respondents see these as very effective as they address the needs of those most vulnerable and provide financial means to face disaster risks. In Niamey and Ouallam, the provision of improved seeds and fertiliser was assessed as very effective for its complete implementation.

International organisations oversee the 'lean period' warehouses (*banques de soudure*), which have been viewed positively by respondents in Niamey and Ouallam as they are effective in reaching those most vulnerable. In order to reduce communities' vulnerability during the lean period, respondents cited that international organisations are fostering the cultivation of off-season crops as a food security measure. This is viewed as a very effective intervention. In addition to supporting income generating activities in the three RTUs, international organisations have put in place social safety nets of which the cash transfer programmes are specifically mentioned and valued by respondents as being somewhat effective.

4 PREVALENCE OF INFECTIOUS DISEASES

Respondents in Niamey alone cited this issue as a major concern. They also linked the high rate of infectious diseases with the communities' increasing vulnerability as morbidity and mortality rates increase, especially among infants. This heightens pressure on health facilities and lowers workers' productivity in the long term. Respondents also mentioned that unsanitary conditions have led to the spread of disease. With the support of international organisations, communities have developed awareness activities on hygiene and health, which respondents considered to be very effective for the sufficient technical capacities devoted to these programmes.

The national government is providing free healthcare and medication for children less than five years of age, a measure that was very positively assessed for reaching the most vulnerable and for its complete implementation. In addition, with support from international organisations, the government has put forth a program to fight malaria, including mosquito net and malaria kit distribution, which has produced very positive results. Respondents assessed this as very effective for its complete implementation and link to the communities' degree of awareness on this topic. Also with external support, massive vaccination campaigns have taken place and received the same positive opinions.

5 LOW LEVELS OF LITERACY

Respondents in Niamey and Maradi felt that the illiteracy level is high, especially amongst women, thus reducing the population's capacity to access different sources of income. As a consequence, respondents in Niamey associate low levels of literacy with low participation in development processes and dialogues. Maradi's respondents link low levels of literacy with a lack of awareness of natural hazards, thus limiting the population's prevention and preparedness capacity in the case of hazards. In both RTUs, respondents explained that communities have developed sensitisation activities on the subject.

The national government has a literacy program in place that has created literacy centers with specific interventions targeted to women. This is supported by international institutions and assessed by respondents as somewhat effective but criticised for not having enough resources from the state. Interventions specifically targeted towards women were rated as very effective. In the education sector, respondents mentioned there is a specific ministry of literacy. In fact, there are three ministries related to education: the Ministry of Vocational, Technical Training and Literacy; the Ministry of National Education; and the Ministry of Secondary Education, Technology and Health. International institutions have developed training activities for the management teams of literacy centres and have implemented adult courses, all of which were rated as very effective.

6 OUT-MIGRATION

Respondents in Ouallam stated that two of the main causes of migration are food insecurity and regional conflicts. Migration increases land abandonment in rural areas and reduces the available workforce, lowering productivity in rural areas. Respondents pointed out that those women who are left behind are insecure and exposed.

Households have set up income generating activities to try to reduce their economic vulnerability and ultimately stem youth migration flows. Additionally, with the support of international organisations, communities have organised themselves to undertake sensitisation activities, which were considered as very effective by respondents.

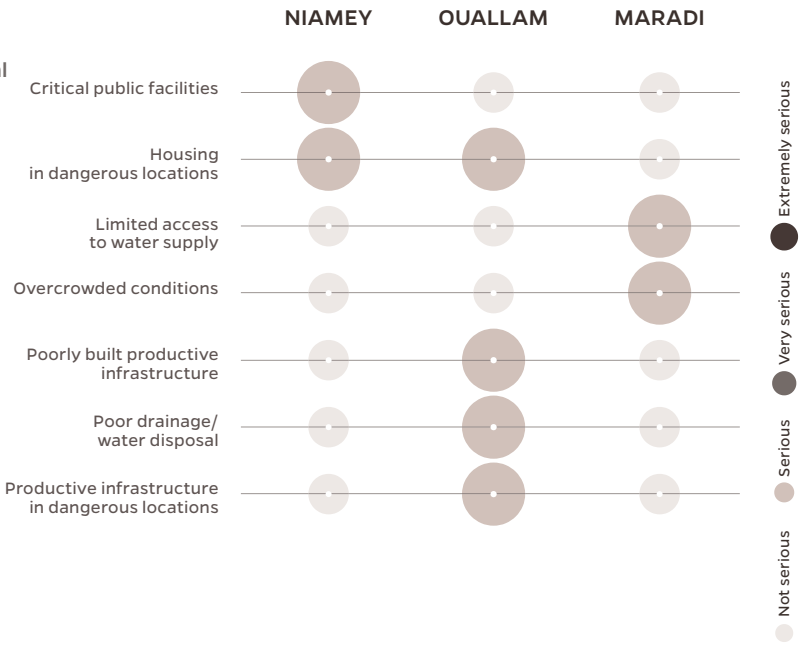
The national government is providing support to set up income generating activities towards employment creation, which was assessed as very effective both for potential employment creation and for strengthening local capacities. Other models that the government has implemented in collaboration with international institutions are cash for work and food for work models. These were rated as very effective as well, as participants receive some sort of compensation for contributing to development projects such as land restoration, and young people are involved in long term solutions for increasing land productivity.

Local Perceptions on Risk Driver 3

Land Use and Built Environment

In contrast with other rural RTUs that were included in this study, respondents in Ouallam selected several key issues under risk driver 3. Productive infrastructure, both poorly built and in dangerous locations, was a particular concern, as was poor drainage/water disposal systems. Respondents in both Ouallam and Niamey selected the issue of housing in dangerous locations, while only in Niamey was critical public facilities a key concern. Despite its rural location, or perhaps because of it and the isolation the region experiences, for respondents in Ouallam infrastructure presents a significant challenge. In contrast to other West African capitals, on the other hand, Niamey's respondents did not consider issues under driver 3 to be particularly serious. For Maradi, the two most pressing concerns were limited access to water and overcrowded conditions.

LAND USE CHALLENGES IN NIAMEY, OUALLAM AND MARADI



1 HOUSING IN DANGEROUS LOCATIONS

Respondents cited the location of houses in flood prone areas as a key issue, especially low lying areas of Niamey where unplanned settlements are often found. This situation has increased the risk of houses collapsing. The government has at times followed through on regulations to evict people from these areas. In the case of loss of housing, populations are forced to relocate, losing both their home and belongings, thus further increasing their economic vulnerability.

Building and rehabilitation usually takes place with locally available materials such as clay and seccos, a practice used to make fencing and house walls from weaved dry stems or canes. In order to protect existing settlements located in dangerous areas, the population has built temporary infrastructures, such as sand bag dikes to prevent water from flooding houses in the event of heavy rains.

The national government was the only actor mentioned as having undertaken interventions in this area. Mapping of flood prone areas was listed as one important preventative measure that has been carried out. In addition, the national government has worked to identify exposed areas with the objective of regulating urbanisation or land

parceling in zones at risk. This was viewed as only minimally effective, mainly due to its incomplete implementation and the lack of enforcement of building restrictions in areas exposed to hazards. The government has also built dikes to reduce the impacts of floods, which respondents considered to be somewhat effective. Other types of interventions to reduce the population's exposure that were cited include resettlement programs and eviction interventions, which were assessed by respondents as minimally effective due to a lack of funding to adequately carry them out.

2 CRITICAL PUBLIC FACILITIES

Respondents in Niamey linked critical public facilities with a perceived increase in the population's exposure to hazards. In addition, the lack of accessibility to public facilities on the part of the general population was cited as a concern. Public facilities are frequently built with locally available materials. In the event of a disaster, schools are generally used as temporary shelters.

The national and local governments, with the support of international organisations, have provided equipment for schools. This was assessed as very effective by respondents who thought that the intervention was thorough in its implementation. The national government has developed school rehabilitation projects, which were rated as somewhat effective by respondents who explained that there is still need for further funding for these types of activities. Respondents in Niamey also mentioned other activities undertaken by international organisations, including the construction of sheds and the rehabilitation of water points, all of which were viewed as being extremely effective for having been completed and for their usefulness to the community.

3 LIMITED ACCESS TO WATER SUPPLY

The issue of access to water was a key issue in Maradi, where respondents felt that the water supply network is not extensive enough, especially in the city's outlying areas. The issue is also a concern in the city centre where access to safe drinking water is likewise limited, thus increasing the population's exposure to waterborne diseases. Sanitation facilities are also viewed as inadequate.

Communities are involved in hygiene and sanitation awareness-raising activities. The local government has worked to improve water access through the drilling of wells, viewed as somewhat effective by respondents. Also, the national government has established water points, which, although rated as somewhat effective, are not thought to be sufficient nor broadly inclusive of vulnerable segments of the population.

4 OVERCROWDED CONDITIONS

Overcrowded conditions were a particular concern in Maradi and were linked to both the high birth rate and high population density, creating land availability issues as well. This is further compounded by the low purchasing power of the population.

In response to overcrowded conditions, communities have implemented sanitation actions and are trying to regulate the amount of space allotted between houses. In order to help control urbanisation processes, local authorities have started zoning in urban areas to regulate land for different uses. This measure has been positively viewed by respondents as somewhat effective and in line with the city's sanitation framework. However, the economic and technical capacity allocated is considered to still be insufficient.

Local Perceptions on Risk Driver 3

Land Use and Built Environment

The national government, in collaboration with international organisations, has implemented sensitisation actions to promote birth rate control. However, respondents thought the measure was only minimally effective due to the fact that the interventions are not widespread enough and need further complementary activities to be effective.

5 POOR DRAINAGE/ WATER DISPOSAL

Respondents in Ouallam cited the lack of drainage systems as a key issue, directly linked to increased unsanitary conditions, mosquito breeding, water pollution, and the rate of water-borne diseases. Furthermore, with the onset of heavy rains, poor drainage systems increase the risk from flooding, leading to the destruction of farms and agricultural land. As a coping capacity, some households practice *nomadisme agricole*, migrating in search of new farm lands as necessary.

The national government is the only actor cited by respondents as being active in addressing this issue. Drainage construction and the extension of the existing drainage network is underway. These measures are thought to be only minimally effective, however, due to insufficient funding and resource allocation. Although indirectly linked to this issue, respondents listed the government's efforts to distribute mosquito nets, which they viewed as very effective for its complete implementation and inclusion of the most vulnerable.

6 PRODUCTIVE INFRASTRUCTURE (POORLY BUILT AND IN DANGEROUS LOCATIONS)

Respondents in Ouallam cited productive infrastructure as a key concern, both for being poorly built and located in dangerous areas. In explaining why, however, the focus of their answers was on agricultural production. The lack of quality infrastructure was thought to be linked with reduced agricultural production, leading to increased food insecurity. The presence of productive infrastructure in dangerous locations, namely areas that are flood-prone, was also linked to a potential decrease in agricultural production and thus increased food insecurity.

The national government has been active in land recovery programs, while international organisations have provided watering equipment and irrigation materials. In both cases the interventions were assessed as very effective for their implementation. The construction of protective dikes was also mentioned as an intervention that has been undertaken.

The isolation and inaccessibility of Ouallam is also worth noting, despite its proximity to the capital. Productive infrastructure could be a concern in this region due to its absence. The recent construction of a paved road linking Ouallam to Niamey is a positive development in this respect.

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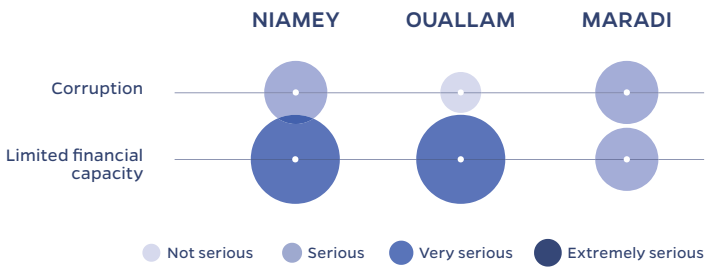
Local Perceptions on Risk Driver 4

Governance

Limited financial capacity was the only governance issue selected across all three RTUs, while corruption was a key concern in Niamey and Maradi.

GOVERNANCE CHALLENGES IN NIAMEY, OUALLAM AND MARADI



CORRUPTION

Respondents in Niamey identified corruption as one of the factors that increases poverty levels of the most vulnerable. Diversion of public funds obstructs the fulfilment of public objectives and complicates access of the most vulnerable to social services. Respondents in Maradi cited the inappropriate management of public funds as the source of misallocation of public contracts and reduced state resources.

Communities are raising awareness on transparency and democratic values through consultations, advocacy and public demonstrations, in conjunction with civil society organisations and unions. However, some respondents feel that there is a certain submissiveness on the part of local communities to traditional leaders and authorities that hinders progress in this area.

The national government has created the HALCIA (High Authority for the Fight Against Corruption and Related Offences), which respondents in Niamey and Maradi viewed as minimally effective and criticised its insufficient technical capacity and funding. Implementation needs to be improved and further training and sensitisation activities are required. The government has reinforced certain capacities by recruiting police agents and judges, which respondents thought to be extremely effective for its thorough enforcement and for promoting accountability (authorities and citizens). The national government created "the green line" (*La ligne verte*) to denounce situations of corruption in the justice system. Perceptions on the effectiveness of this programme differed, with respondents in Niamey considering it to be minimally effective due to insufficient technical capacity allocated, while respondents in Maradi considered it to be somewhat effective.

National and local authorities, with support from international organisations, have implemented awareness campaigns in the media (radio and television), which have been assessed as very effective for achieving a wide outreach and having sufficient funding allocated.

2 LIMITED FINANCIAL CAPACITY

Limited financial capacity was the key governance concern across all three RTUs. Respondents associated it with high poverty rates, limited development, and lack of production means (financial, human and logistic). In addition, the issue hinders the level of performance of public services, leading communities to manage certain services themselves, making the state ineffective and increasing social instability. It also restricts the implementation of disaster risk reduction activities.

In order to compensate for the limited financial capacity of the government, communities create self-employment through income generating activities, using their own local means of production, as well as rural exodus and out-migration. The local government in Ouallam has established synergies with development actors that respondents there rated as very effective for having sufficient technical capacities.

The national government is working on the reinforcement of financial management capacities, which respondents assessed as somewhat effective. Prioritisation and spending strategies are two other strategies that the national government has implemented thoroughly and which were viewed as very effective by respondents. To complement national income, the government has requested funding from international partners in the form of grants to be invested in micro-projects, micro-credits and to support the creation of a microfinance institute. These were all thought to be somewhat effective interventions for their adequate technical capacity, inclusion of vulnerable groups and complete implementation.

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Recommendations from NIAMEY

1 INCREASING KNOWLEDGE AND AWARENESS ON ENVIRONMENT AND NATURAL RESOURCES

- Promote **LAND RECOVERY, TREE PLANTING, REFORESTATION** and **AFFORESTATION, DUNE STABILISATION**
- Raise **AWARENESS ON GAS USAGE** instead of wood.

2 BUILDING SOCIOECONOMIC RESILIENCE

- Expand the social safety net through
  - **FREE FOOD DISTRIBUTION**
  - **PRICE ADJUSTMENTS**
  - Distribution of **QUALITY SEEDS**
  - **JOB CREATION**
  - **INCOME-GENERATING ACTIVITIES**
  - **MICROFINANCE INITIATIVES**
  - **SMALL-BUSINESS OPPORTUNITIES**
  - **SEWING PROJECTS FOR YOUNG WOMEN**
  - **TRAINING AND LITERACY PROGRAMMES**

3 IMPROVING LAND USE AND THE BUILT ENVIRONMENT

- **RELOCATE AND RESETTLE EXPOSED POPULATIONS**
- **MAP FLOOD ZONES**
- **REHABILITATE DEGRADED INFRASTRUCTURE AND WATER SOURCES**
- **RE-BUILD SCHOOLS**

4 IMPROVING GOVERNANCE

- **MOBILISE FUNDS,** subsidies and grants
- Create a committee to **FIGHT AGAINST CORRUPTION**
- Promote **GREATER TRANSPARENCY AND ACCOUNTABILITY** measures

the RTUs

MARADI

- Promote **AFFORESTATION AND TREE PLANTING, SOIL RESTORATION, DUNE STABILISATION**
- Raise awareness on **GAS USAGE**
- Support **AGRICULTURAL INPUTS**

- Expand the social safety net through
  - **FREE FOOD DISTRIBUTION**
  - **PRICE ADJUSTMENTS**
  - Distribution of **QUALITY SEEDS**
  - **INCOME-GENERATING ACTIVITIES**
  - **MICROFINANCE PROGRAMMES**
  - **EMPLOYMENT OPPORTUNITIES**
  - **TRAINING PROGRAMMES**
  - **GREATER INCLUSION OF INDIGENOUS PEOPLE**

- Provide **HIGH QUALITY BUILDING MATERIALS**
- Increase **CONSTRUCTION OF CANALS, PAVED ROADS** and **PROTECTIVE DIKES**

- Expand **MICRO-CREDITS**
- Promote **GREATER SYNERGY** among actors
- Improve mobilisation and **INCREASE APPLICATIONS FOR FUNDS AND GRANTS**

OUALLAM

- Promote **LAND RECOVERY, TREE PLANTING, REFORESTATION** and **AFFORESTATION, DUNE STABILISATION**
- Raise awareness on **GAS USAGE** instead of wood.
- Support **AGRICULTURAL INPUTS**

- Expand the social safety net through
  - **FREE FOOD DISTRIBUTION**
  - **PRICE ADJUSTMENTS**
  - Distribution of **QUALITY SEEDS**
  - **CREATION OF REFUGEE CAMPS**
  - **JOB CREATION**
  - **INCOME-GENERATING ACTIVITIES**
  - **MICROFINANCE INITIATIVES**
  - **SMALL-BUSINESS OPPORTUNITIES**
  - **SEWING PROJECTS FOR YOUNG WOMEN**
  - **TRAINING AND LITERACY PROGRAMMES**

- **RELOCATE AND RESETTLE EXPOSED POPULATIONS**
- Improve **ZONING CODES** and **MAPPING OF FLOOD-PRONE AREAS**
- Provide **HIGH QUALITY BUILDING MATERIALS**
- Increase **CONSTRUCTION OF CANALS, PAVED ROADS** and **PROTECTIVE DIKES,** and more **INFRASTRUCTURE** in general

- Expand **MICRO-CREDITS**
- Promote **GREATER SYNERGY** among actors
- Improve mobilisation and **INCREASE APPLICATIONS FOR FUNDS AND GRANTS**

Key

CHALLENGES

Through the survey process and workshops, participants in the RRI research in Niger offered recommendations that demonstrate important recurring themes. These can be considered to be the key challenges identified across the three RTUs selected in Niger, and therefore where local, national and international actors should focus their efforts:

- General recommendations were given to improve synergies across efforts and initiatives, both research and government led, for the exchange of information and greater collaboration. Along these lines, greater integration of local authorities and institutions in national level DRR efforts was recommended.
- Land issues are a key concern, which include the need for improved access to land, more housing to meet increasing demand, and the mapping of flood zones. In this vein, efforts to improve soil quality and land reclamation are viewed as crucial, including the need to fight against soil erosion, desertification and deforestation. This is especially the case in Niamey and Ouallam.
- Concerns regarding natural resources are also significant, and specifically the need to increase the availability of renewable and alternative energy sources.
- The question of infrastructure is significant, particularly in Ouallam, where the focus is on the need for more infrastructure to be built. The need for improved drainage and sewage systems was also cited.
- Food security is a significant concern for Niger's population. Many recommendations centred on this issue, including price controls for food stuffs, better management of cereal banks, support for market gardens, distribution of high-quality seed, and continued free food distribution.
- Unemployment is also very serious, with respondents across the three RTUs recommending the need for job creation, professional and technical training, more income-generating activities and the creation of literacy centres and programmes.
- A need to improve the justice system and raise awareness around corruption issues was also regularly recommended. Respondents recognised the most pressing governance concern to be the country's limited financial resources and its dependence on foreign assistance.

In addition to the national government and local councils, the following partners were identified as key actors to carry forward the recommendations given:

- The Global Environment Facility (GEF)
- United Nations Development Programme (UNDP)
- Comité inter-état de lutte contre la sécheresse au Sahel (CILSS)
- World Bank
- Autorité du liptako gourma (ALG)
- Economic Community Of West African States (ECOWAS)
- Union économique et monétaire ouest africaine (UEMOA)
- Autorités du bassin du Lac Tchad

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SENEGAL

THE PRIMARY HAZARDS FACING SENEGAL ARE DROUGHT, FLOODS COASTAL STORMS, AND EPIDEMICS

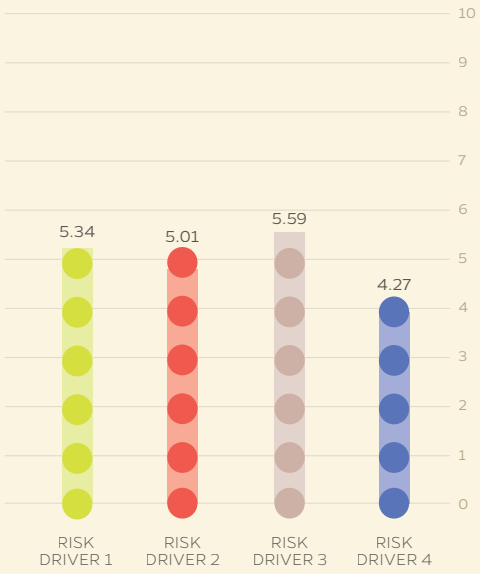
FLOODS HAVE CAUSED THE LARGEST ECONOMIC **DAMAGE**

EPIDEMICS ACCOUNT FOR THE GREATEST LOSS OF LIFE, WHILE **DROUGHT** AFFECTS THE MOST PEOPLE

SEA LEVEL RISE, **COASTAL EROSION** AND LAND DEGRADATION ARE ALSO **KEY ENVIRONMENTAL** CONCERNS

REGULAR LOCUST INVASIONS ARE A THREAT IN **THE NORTH** OF THE COUNTRY

SENENEGAL SCORES FROM WEST AFRICA RISK MAPPING



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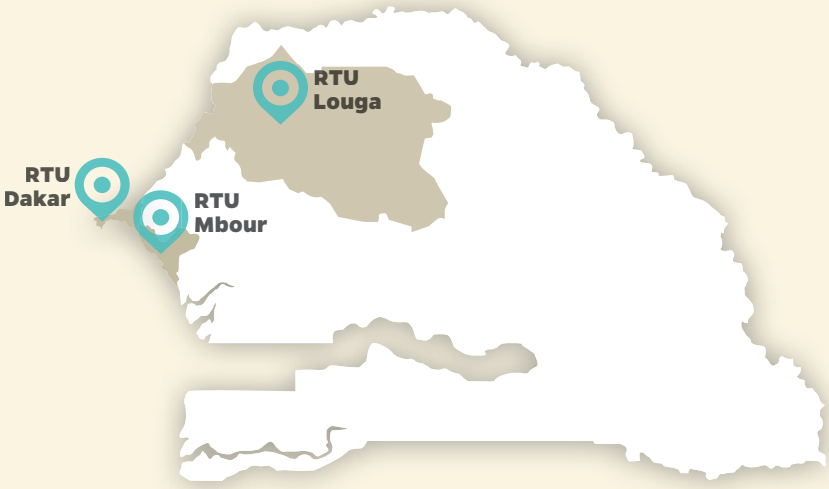


INSTITUTIONAL Capacity for DRR

DRR Institutional Setup AND LEADERSHIP

Senegal has undertaken a broad array of measures towards increasing capacity around DRR, including the creation of the Directorate of Civil Protection, a National Platform for DRR, and various national plans and strategies. Nevertheless, several problems and gaps have been identified. There are primary obstacles to realising effective disaster risk management in the country: the lack of coordination among the various government departments, the lack of clearly defined roles and responsibilities, as well as insufficient financial resources. DRR at the sub-national and local levels is particularly inadequate, again related to a lack of budgetary allocations.

The Direction de la Protection Civile (DPC), or directorate of civil protection, is located in the Ministry of the Interior and is primarily responsible for DRR efforts in the country. The DPC is the focal point for Senegal's National Platform for DRR, which was established in 2008. The DPC is also the home of the Plan ORSEC (Organisation des Secours), Senegal's National Relief Organisation Plan. Other frameworks of note include the National Action Plan on DRR 2010-2015, also under the direction of the DPC and with a budget of $9 million over 6 years, and the Plan de Contigence National (PCN), which targets seven regions: Dakar, Saint Louis, Matam, Kaolack, Thies, Diourbel and Tambacounda.

The DPC is the secretariat of the High Commission for Civil Protection, which advises the Ministry of the Interior on related issues. Regional and Auxiliary Civil Protection Commissions serve to coordinate activities at the local level. However, there is little decentralisation of the DPC in its activities or resources, with no regional or communal offices in place, and thus a low level of local DRM. This contributes to the evaluation of the DPC as being weak institutionally and in need of reform in order to raise its status and capacity for intervention. There are also problems related to capacity of the DPC. The capacity of the Plan ORSEC at central and local level, for example, remains limited compared to the magnitude of the problems.

Senegal has also created various other measures related to DRR and CCA, which, while not covered in detail here, are worth noting. These include a National Flood Prevention and Control Unit, an Operational Early-Warning Centre, National Committee for the Fight against Locust Invasion, National Strategy for the Protection and Fight against Coastal and Marine Erosion, and a National Plan to Combat Desertification. Various relevant laws have also

been passed, including laws related to fisheries, forestry, water usage, the environment in general, and mining. The extent to which these incorporate DRR has not been analysed in the context of this study, but their existence exhibits awareness of the challenges related to issues such as coastal erosion and desertification, among others. How these risk drivers are addressed at a more general level is part of this study's purpose.

Senegal has directed efforts primarily at drought and locust invasion, including monitoring and assessment mechanisms and risk mapping. The government has also determined that protection against flooding is one of its current priorities as shown by the establishment of the *Ministère de la Restructuration et de l'Aménagement des Zones d'inondation*.

At the regional level, Senegal participated in the recently launched, EU-led Global Alliance for Resilience Initiative (AGIR). It is also a member of the *Comité Permanent Inter Etats de lutte contre la Sécheresse dans le Sahel* (CILSS). The African Urban Management Institute (IAGU) is based in Senegal, and offers research and technical assistance for the West and Central African regions on urban risk management, planning, and environmental management.

Overall, while DRR now figures in the country's national strategy, including the government's most recent PSRP (2011-2015), financing remains limited and actual programming is highly dependent on outside donors.

Strategic

DOCUMENTS AND PLANS

Disaster Risk Management was a priority pillar in Senegal's Poverty Reduction Strategy Paper 2006- 2010 (Pillar 3, Social Protection and Risk Management), when the government recognised the need to implement a national social protection strategy, extend its social security coverage, and integrate DRR and DRM into its development planning. Senegal's most recent PRSP (PRSP III, 2011-2015) continues along the same line, and likewise includes a third section on "social protection, risk and disaster prevention and management (drought, floods, locust invasion)".

According to Senegal's National progress report on the implementation of the Hyogo Framework for Action (2009-2011), DRR has been integrated into development plans and strategies, including the government's 2006 PRSP and more recent PSRP (2011-2015), as well as in local development plans. DRR has not been included in sectoral plans, however. Overall, while DRR now figures in the country's national strategy, financing remains limited and actual programming is highly dependent on outside donors. Indeed, Senegal has not allocated any percentage of the national budget to DRR. Similarly, while legislation has made local governments responsible for DRR planning (Code des Collectivitiés Locales 1996), no budget has been allocated to them in order to do so. Thus DRR policies in practice remain more focused on rescue and response support to victims of disasters, rather than actual prevention, preparedness, and mitigation measures.

In addition to highlighting the lack of financial resources and budgeting for DRR implementation, the HFA progress report also found an overall lack in terms of awareness raising and information sharing related to DRR. Furthermore, multi-risk evaluations are not currently conducted. Nonetheless, Senegal reports progress along several fronts. Evaluations of potential impacts of building projects are carried out, as are environmental impact studies, although dissemination of findings is limited. In addition, a mapping of risk zones has occurred, and a comprehensive early warning system is currently being developed as a government priority. Regional contingency plans are in the process of being developed, and the national DRR platform is being reinforced through the expansion of a research network involving universities, NGOs and local organisations. In general, the government reports that the inclusion of DRR in the political discourse is well on its way.

In 2006 Senegal produced its National Adaptation Programme of Action (NAPA) for climate change adaption. Under its NAPA, Senegal identified salt water intrusion, coastal zone inundation, drought and low flows, storm surges, and extreme temperatures as urgent climate-related hazards and as such in need of immediate action to avoid further increasing vulnerability. In looking at areas of vulnerability and possible adaptation options, Senegal's NAPA focused on the water resources sector, agriculture sector, and coastal zones. In line with these principal hazards and areas of concern, Senegal's NAPA prioritises adaption projects related to the development of agro-forestry, programmes to promote the rational use of water, protection of the coastline, and programmes to raise awareness and educate the public on related issues.

International

ENGAGEMENT AND SUPPORT

Donors have demonstrated a commitment to DRR in Senegal through a number of projects and by integrating it into various initiatives, including the UNDAF 2007-2011. The World Bank (WB) has been active in Senegal in a range of initiatives related to DRR and CCA, including a US$1.1 million project that will support the country's disaster risk reduction plans, with support from the World Bank's Global Facility for Disaster Reduction and Recovery (GFDRR), Disaster Risk Management and Climate Change Adaptation project. The project will focus its efforts on increasing the capacity of the civil protection agency in the first instance, with various other components to follow. Other projects include the US$55.5 million WB International Development Association credit agreement with Senegal for storm water drainage in Dakar's suburban neighborhoods.

Senegal is a priority country for GFDRR's Disaster Risk Management and Climate Adaptation (Track II). GFDRR efforts have included spatial hazard mapping of coastal erosion and risk mapping in peri- urban areas of Dakar, mainstreaming DRR within sustainable development programmes, and building capacity for DRR at the local level and in coastal communities. Other donors active in the country include: the International Federation of Red Cross and Red Crescent Societies (IFRC), DRR at School, partnership with the national meteorological services and CCA in the community; the United Nations Office for Disaster Risk Reduction (UNISDR), Strengthening National Platforms for DRR; the United Nations Development Programme (UNDP), mainstreaming DRR within development programs; and Prevention Consortium, African Urban Risk Analysis Network (AURAN).

UNDERLYING Risk Factors: Local Perceptions

RTUs Selected

AND SUPPORTING RATIONALE

The RRI in Senegal looked at three RTUs, each of which represented a different risk typology —Dakar, the capital (urban), Mbour, a coastal, semi-urban area (urban expansion), and Louga, a rural, agricultural region further inland (rural). All three RTUs are located in the Niayes zone, which represents characteristics of Senegal's coast. Senegal presents an interesting case for disaster risk reduction work, given its location both on the West coast of Africa and on the southern border of the Sahel and with territory expanding into this zone. The three RTUs attempt to cover at least in part the different types of geography, climate-related challenges, hazards and risks Senegal faces. The rural versus urban locations also provide a more comprehensive picture of the underlying issues affecting the people of Senegal and the conditions in which they live that make them more or less vulnerable to natural hazards.

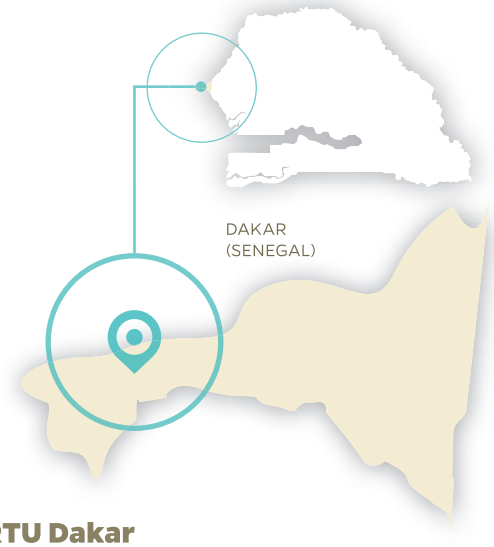
Dakar

The Dakar metropolitan area accounts for approximately 25% of Senegal's population (est. 2.45 million), but represents less than 1% of the national territory. It is the capital and largest city in Senegal, and is located on the Cap-Vert peninsula. The main natural hazards facing Dakar are floods and coastal erosion. These hazards are compounded by the effects of climate change, including sea level rise, advancing sand dunes and threats to urban agriculture. Degradation of forest cover in the region of Dakar is another concern, as is illegal logging.

Dakar provides an excellent picture of the particular risks facing urban centre in West Africa. Urbanisation is occurring at such a fast pace that already scarce land reserves and agricultural areas are being transformed into residential areas. While Dakar represents the bulk of the country's economic activities and is the social and cultural centre of Senegal, the high concentration of the population in the capital city and its corresponding high rate of urbanisation have had a negative impact on the living conditions of its households.

One of the key concerns in Dakar in light of the rate of urbanisation is its poor and inadequate infrastructure, particularly related to water drainage and waste removal systems. Rapid expansion, both demographically and physically as the capital spreads, has rendered current drainage systems insufficient. The combination of increasing population and inadequate drainage and sewage disposal systems directly contributes to the city's increased flood risk. Heavy rains in 2005 and 2009 revealed the shortcomings of the water drainage system, especially in the suburbs where many neighborhoods experienced severe flooding. This justified the initiation of the Plan ORSEC and the continued and accelerated construction of retention basins and pumping stations in low-lying areas, particularly along national Highway No. 1.

For residents of certain low-lying neighborhoods, floods have become a regular occurrence every rainy season. One way in which the government has sought to address this issue is through relocation of families through the Plan Jaxaay (*plan gouvernemental de relocation*). Some 3,000 families have been moved from flood-prone areas in Dakar's crowded suburbs to a new settlement located 15 miles east of the city. Experts have been positive about the Plan Jaxaay as a long-term solution to the floods that affect Dakar's suburbs each year. However, with floods affecting more than 100,000 a year, the plan is in fact quite limited in scope. In addition, not all residents feel that the housing is adequate, given their small size and distance from the capital.



RTU Dakar

POOR DRAINAGE / WATER DISPOSAL SYSTEMS
ARE LINKED WITH HEALTH RISKS FROM CONTAMINATED WATER AND ENVIRONMENTAL PROBLEMS

CRITICAL PUBLIC FACILITIES
SUCH AS SCHOOLS LOCATED IN FLOOD-PRONE AREAS, INCREASE EXPOSURE TO WATERBORNE DISEASES

LOUGA
(SENEGAL)

RTU Louga
DEFORESTATION
CONTRIBUTES TO INCREASED
RISK OF DROUGHT
AND MORE SEVERE
WINDSTORMS

Louga

Louga is a predominantly rural area located in northwestern Senegal that represents characteristics of Senegal's Sahelian regions, with a particularly hot and dry climate. The population of Louga is estimated at 831,309 inhabitants (2009), with an average annual growth rate of 2.7%. It is a cattle market centre and has rail and road links with both Dakar and the port city of Saint Louis. The primary hazards in Louga are drought, locust infestation, soil erosion and desertification. Louga is on the northern edge of the country's peanut and groundnut producing agricultural areas. Agriculture is difficult in the region, due to the climate, quality of the soil, and increasing desertification. The area experiences low and unstable levels of rainfall.

Various factors contribute to making the area highly vulnerable. These include high levels of poverty, drought, susceptibility to locust invasions, rain-dependent agriculture, soil degradation, low levels of education, poor access to basic social services, child malnutrition and inadequate health care. The region also experiences a high rate of out-migration. Indicators suggest that poverty has increased in the last five years. The proportion of households living below the poverty line is estimated at 65%. Levels of educational achievement in Louga are extremely low, particularly for girls and women, and access to other essential social services is weak.

Louga is part of the Millenium Cities Initiative (Earth Institute, Columbia University), a programme that works with local governments and partners towards the realisation of the Millennium Development Goals. As part of the programme, needs assessments have been completed (in French and English) in the arenas of gender, public health and education, and a water/sanitation needs assessment is planned for 2013.

Mbour

Mbour, a principal city in the region of Thiès, is located on what is known as the Petite Côte about 80 km south of Dakar. Thiès is an important area for tourism in Senegal, as well as fishing and to a lesser extent agriculture. The region is the most populous after Dakar, with its population having increased from 1,322,579 inhabitants (2002) to 1,610,052 inhabitants (2009), an average annual growth rate of 2.85%. Mbour's population is 153,503 (2002 census), and the city's major industries are tourism, fishing, and peanut processing. The main natural hazards in the Thiès region are drought, coastal erosion, locusts, and desertification. Studies of the vulnerability of the Senegalese coast also indicate its risk from salinisation of land. The socio-economic costs of these impacts are significant.

Agriculture in the region is heavily dependent on rainfall, as elsewhere in the country. But market gardening is also practiced and provides an alternative source of produce. Fishing is the region's main economic activity, both artisanal and industrial. This is also characteristic of Senegal as a whole. In both sectors there is a problem related to inadequate equipment and access to markets. Tourism is the second most important economic activity after fishing. In the period between 2005-2009, the number of hotels in the Thiès region more than doubled, from ninety-one to two hundred ten, with the majority (87.6%) concentrated in Mbour.

Mbour is Senegal's fifth largest city and one of its fastest growing. As a gateway city to the capital, Mbour is experiencing trends related to urbanisation, including increasing population, inadequate infrastructure and housing, and poor drainage and waste disposal systems that are characteristic of larger cities in the West Africa region. High unemployment is also a pressing concern, as Mbour is the destination of migrants from more rural areas in search of work in the tourism sector. Findings from the RTUs confirmed these similarities between Dakar and Mbour.

RTU Mbour
COASTAL EROSION
IS IDENTIFIED AS A THREAT TO BOTH HOUSING AND THE LOCAL TOURISM-BASED ECONOMY

DARA / Ana Rodríguez

NATURAL HAZARDS AND UNDERLYING RISK FACTORS OF SELECTED RTUS

	DAKAR (URBAN)	LOUGA (RURAL)	MBOUR (URBAN EXPANSION)
NATURAL HAZARDS	FLOODS, INSECT INFESTATION	DROUGHTS, INSECT INFESTATION	INSECT INFESTATION, FLOODS, WILDFIRES
RISK DRIVER 1 1	· Air pollution · Coastal erosion · Deforestation · Water contamination · Soil erosion	· Soil erosion · Deforestation	· Coastal erosion · Deforestation
RISK DRIVER 2 2	· Poverty · Unemployment · Limited access to land · Low levels of literacy	· Limited access to land · Low levels of literacy · Food insecurity · Poverty · Unemployment	· Poverty · Unemployment · Poor levels of health
RISK DRIVER 3 3	· Overcrowded conditions · Poorly built housing · Housing in dangerous locations · Poor drainage/water disposal · Basic infrastructure in dangerous locations · Critical public facilities in dangerous locations · Productive infrastructure in dangerous locations	· None selected	· Overcrowded conditions · Poor drainage/water disposal · Productive infrastructure in dangerous locations
RISK DRIVER 4 4	· Corruption · Lack of accountability · Limited financial capacity	· Corruption · Lack of accountability · Limited financial capacity	· Corruption · Lack of accountability · Limited financial capacity · Non-compliance with the law

Findings

AND KEY ISSUES BY RISK DRIVER

In Dakar, respondents identi ed oods as the most serious natural hazard, followed by insect infestation. Insect infestation was selected as most serious in Louga, followed closely by drought. In Mbour, respondents did not score natural hazards as being particularly serious.

DARA / Soledad Posada

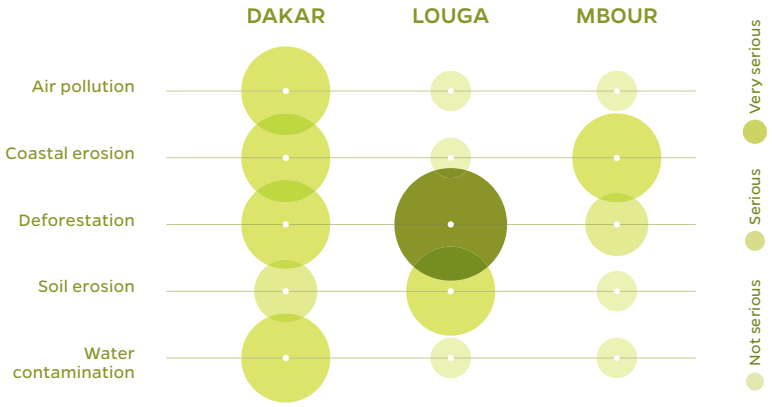
Local Perceptions on Risk Driver 1

Environmental and Natural Resources

Overall, the key concerns identified under environment and natural resources were coastal erosion, soil erosion, deforestation, water contamination and air pollution.

Coastal erosion was a pressing concern in both Dakar and Mbour, while in Louga soil erosion was identified as a serious issue. Water contamination and air pollution were key issues in the capital. In all three RTUs, deforestation was identified as a concern. In Louga, deforestation received the most serious overall score of all the RTUs in Senegal and across all risk drivers.

ENVIRONMENTAL CHALLENGES IN DAKAR, LOUGA AND MBOUR



1 AIR POLLUTION

Air pollution was only identified by respondents in Dakar, and was particularly linked to the presence of the Mbeubeuss waste dumping site and the odours/fumes it emits. Respondents perceived air pollution to be a cause of respiratory diseases.

2 COASTAL EROSION

Coastal erosion was cited as an important factor in Dakar and Mbour, where it was identified as a threat to housing and for increasing the impact of coastal flooding. Housing is often built in the coastal buffer zone, and erosion and related flooding is in some cases forcing the local population to relocate further inland. In Mbour, the potential impact from coastal erosion to the local economy was also cited in relation to its affect on hotel and tourism facilities.

The local population has been involved in the construction of physical barriers in collaboration with local and national government institutions. Community-based organisations have also initiated awareness-raising campaigns against illegal sand extraction and, in collaboration with the PEPAM (Millennium Water and Sanitation Program), interventions that demonstrate the importance of trees for the coastal ecosystem. In order to monitor illegal sand winning, some surveillance brigades have been formed in Dakar. Reforestation with filao (casuarina eqisetifolia) through the "*caravanes vertes*" initiative is foreseen as an activity that could protect the coastline.

At the local government level, laws have been created to prohibit the extraction of sand. However, respondents explained that the main challenge is a lack of monitoring and law enforcement mechanisms. The national government has built physical barriers (gutters, dikes, etc.) and implemented reforestation programmes to prevent coastal erosion and reduce its current impact. However, as in the case of local efforts, these activities are not considered

to be effective in the long term due to the lack of monitoring and maintenance. The Coastal Management Scheme (Dakar) and a validation workshop against erosion (*Atelier de Validation pa Contre Érosion*) were both given as examples of very effective efforts, namely because of their foundation in specialists' research.

3 DEFORESTATION

Deforestation was identified as a consequence of intense and unplanned urbanisation as well as illegal logging. The reduction of the forest cover was linked by respondents to both a decrease in fertile farming areas and the encroachment of coastal sand dunes. Deforestation was also cited as increasing the risk from drought and more severe windstorms, due to a lack of forest coverage to buffer the effects.

Civic engagement, mainly involving youth, was noted in reforestation activities and awareness-raising efforts on the impacts of illegal logging. These activities were considered to be effective in the short term for their community and local government support (PEPAM), but ineffective in the long term due to a lack of funding, resources and continuity. Overall, respondents cited a lack of political will and failure to prioritise environmental issues on the part of the national government. Reforestation programmes are considered to be effective activities to reduce desertification processes and recover agricultural productivity. However, respondents in Louga questioned certain elements of the programme, in particular the types of species planted. While illegal logging has been banned, a lack of resources and corruption have made it difficult to enforce these laws. This, together with ongoing demand for fuel wood, means that deforestation continues apace.

4 SOIL EROSION

Respondents indicated that in their communities there is a high level of awareness of the effects of deforestation on soil erosion, reducing agricultural production and fodder availability for livestock, and accelerating desertification processes. Respondents identified one programme in particular, entitled Assisted Natural Regeneration (RNA in French), among community interventions that are thought to be effective against soil erosion. However, it would benefit from the involvement of a larger percentage of the population, more resource allocation and more technical assistance. The national government has deployed fertilisation campaigns (phosphatisation) and an information campaign focused on Assisted Natural Regeneration practices, which are assessed as only somewhat effective, due to limited funding and scope in terms of rural population reached.

5 WATER CONTAMINATION

In selecting water contamination as a serious issue, respondents linked it to various concerns, including the lack of hygiene practices by the population and the salinisation of water and soil resulting from sea water intrusion. Furthermore, as drinking water becomes more contaminated, especially in urban areas, the population is in turn more exposed to waterborne diseases. This was particularly noted in Dakar.

Dakar municipality has put in place a platform of local actors involved in water issues in order to reduce the potential impacts of flooding and other environmental issues. Water treatment and analysis as well as awareness-raising campaigns are being deployed by organisations such as SODIS, which are considered to be effective for their solid basis in technical knowledge. At the national level there are water treatment (chlorination), disinfection and awareness-raising policies to combat pollution of water channels. These awareness-raising campaigns are valued as very effective by respondents for their ability to educate and positively affect society on a large scale. At the community level, GIEs (Groupement d'Intérêt Economique) have been created for waste collection and sanitation in neighbourhoods, especially to clean drainage systems. In collaboration with NGOs, the local population is involved in efforts towards drilling wells and purifying water.

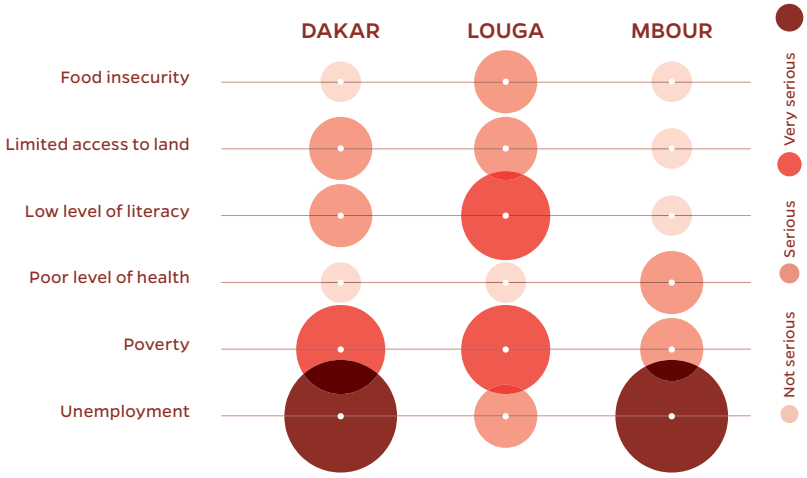
Local Perceptions on Risk Driver 2

Respondents in all three RTUs in Senegal identified the highest number of serious issues under Driver 2, perhaps unsurprisingly given the direct link between socioeconomic issues and people's daily lives and well-being.

Across all three RTUs, poverty and unemployment were the two issues under Risk Driver 2 that respondents perceived to be the most serious. For Dakar, limited access to land was also identified as a serious concern. Low levels of literacy were a moderately serious concern in Dakar, but were identified as more pressing in Louga. Food insecurity was also a principal concern in Louga, while in Mbour and Dakar respondents considered poor levels of health as a major issue.

Socioeconomic Conditions

SOCIAL AND ECONOMIC CHALLENGES IN DAKAR, LOUGA AND MBOUR



1 FOOD INSECURITY

Food insecurity (identified as a key issue only in Louga) was linked to low agricultural productivity, and higher rates of drought as a consequence of deforestation practices. The result has been an increase in rural out-migration, with the remaining population suffering from nutritional deficits and related increased vulnerability to illness.

Louga inhabitants have tried to diversify their crops, considering these practices as somewhat effective. The introduction of community shops by FAPAL (Fédération des Associations Paysannes de Louga) was viewed as an effective intervention as it prevents families from selling their goods to address food needs during lean periods.

International organisations in collaboration with the national government have implemented a Seed Multiplication Program, which rural inhabitants viewed as quite effective for its help in warehouse acquisition and in securing agricultural production through seed production. However some drawbacks were also cited, including credit constraints and a need for capacity building. WFP carried out food distribution, which was considered somewhat effective, but criticised for not reaching all vulnerable groups. There have been some microfinance

projects with limited effectiveness due to the high interest rates.

The national government's SEMENCE project was criticised for the low quality of seeds, discrimination among beneficiaries and for its insufficient distribution as compared to GOANA. Local government interventions, such as buying produce and providing some level of food support, while acknowledged as very effective, still suffer from insufficient resources to adequately reach people in need.

2 LIMITED ACCESS TO LAND

Limited access to land was identified as a key concern in urban and urban expansion areas only, and cited as the cause of land disputes, overcrowded conditions and unplanned settlements. In Mbour people claimed that land had been appropriated by SAPCO (*Société d'Aménagement et de Promotion des Côte et Zone Touristiques du Sénégal*).

Efforts by international organisations to develop housing cooperatives were cited, and viewed as very effective because they respond to the concerns of the population. At the national level, GOANA (*Grande Offensive agricole pour la nourriture et l'abondance*, launched in 2008) was valued as an effective initiative, but one that could have been more useful if there were more resources available. Land redistribution efforts were highlighted by several respondents in Mbour as highly effective.

3 LOW LEVELS OF LITERACY

Respondents linked low levels of literacy to a poor understanding of environmental problems and associated risks, difficulty in disseminating information on prevention and preparedness actions and practices, and the lack of integration of the population in decision-making processes. It was widely recognised that this issue increases people's vulnerability overall.

International organisations (UNESCO, UNICEF, WHO) in collaboration with the national government have carried out education programmes for vulnerable groups, which respondents valued as very effective for their efforts to empower vulnerable groups and increase their coping capacities. An important factor related to the effectiveness of these initiatives is that they have been disseminated through community radio stations (Louga). Awareness raising programs within schools have also been implemented and are valued as effective by respondents, but suffer from a lack of financing and require broader inclusiveness policies.

4 POOR LEVEL OF HEALTH

A lack of health facilities was identified as a principle cause of poor levels of health, particularly among the rural population. This is also linked to reduced coping capacity in the face of illness. A direct consequence of the poor levels of health and lack of adequate healthcare is the high rate of maternal and child mortality.

International organisations have been assessed as very effective in their efforts, especially related to reducing malaria. The national government was likewise viewed as effective in its HIV prevention programmes, although respondents criticised an imbalance in terms of targetting beneficiaries most in need. International organisations in coordination with the national government have implemented several projects to address this issue, such as vitamin supplements, children's nutrition programmes, cooking demonstrations, nutrition training, free healthcare provision, and nutritionist assessments. They have been valued as very effective in most cases, but in need of funding over the long term.

Local Perceptions on Risk Driver 2

Socioeconomic Conditions

5 POVERTY

After unemployment, poverty was the most serious issue selected by respondents and was linked to increased vulnerability to illness, environmental problems, and unplanned settlements in flood- prone areas, as well as limited access to existing social services. While respondents in all RTUs selected poverty as a major concern, the admittedly broad nature of this issue did not lend itself to more detailed explanations on the part of respondents. International organisations were mentioned, and their programs to tackle poverty were viewed as effective and well targeted to the specific concerns of the population.

6 UNEMPLOYMENT

Respondents cited high unemployment, especially among youth, as a key concern and linked it to violence, crime, lack of opportunities, social imbalances, and out-migration. Lack of good employment policies were identified as a principal source of the problem.

The national government has undertaken initiatives to combat unemployment, including establishing Funds for Youth Employment and a national program for youth training. These are considered as minimally effective for various reasons, including insufficient funding and inadequate technical capacities. Furthermore, several respondents considered the Funds to be ineffective due to the arbitrary manner in which potential beneficiaries are targeted. The National Agency Return to Agriculture programme (Plan REVA), aimed at creating modern farms that would encourage people to return to agricultural work, was criticised for a lack of information and transparency. Promotion of the industrial sector was identified as a potential solution to rebalance the economy and provide alternative livelihoods to vulnerable populations exposed to natural hazards.

Efforts on the part of international organisations were criticised for their high interest rates. These organisations have also implemented training programmes that were considered to be somewhat effective, but constrained by the lack of long-term funding and the low technical capacity of the population.

Greenpeace / Clément Tardif

Local Perceptions on Risk Driver 3

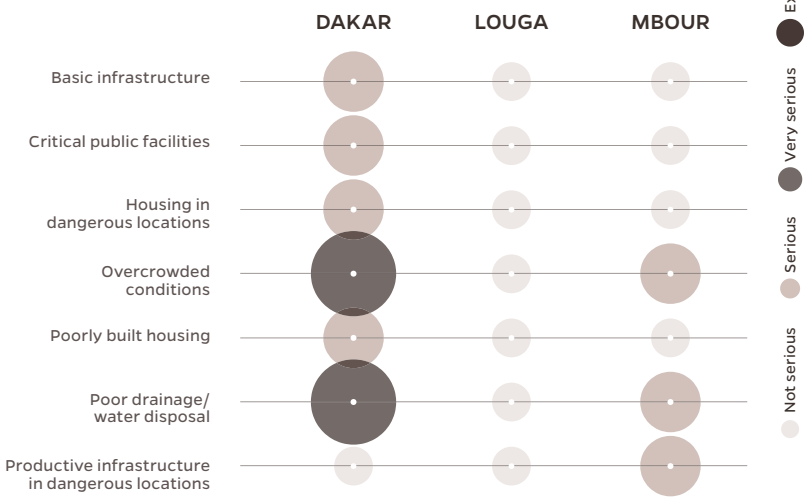
Land Use and Built Environment

There was a marked distinction among the RTUs related to Risk Driver 3, and specifically along a rural versus urban divide.

While Louga respondents were not able to identify serious problems in their region under this category, Mbour respondents noted three issues of concern and respondents in Dakar indicated up to six issues that they considered to be somewhat or very serious. Issues identified were overcrowded conditions, poorly built housing, housing in dangerous locations, poor drainage/water disposal systems, basic infrastructure, and critical public facilities. This points clearly to the city's need to address a lack of quality infrastructure and housing in the face of rising demographic pressures. Overcrowded conditions and poor drainage systems were also considered serious in Mbour, as was productive infrastructure in dangerous locations.

It should be noted that respondents in Louga had difficulties understanding Risk Driver 3 of the questionnaire. Respondents were not always clear whether their region was urban or rural, perceptions often being based on their area of employment. This led to challenges in accurately analysing the data for Risk Driver 3 responses in Louga.

LAND USE CHALLENGES IN DAKAR, LOUGA AND MBOUR



1 BASIC INFRASTRUCTURE AND CRITICAL PUBLIC FACILITIES IN DANGEROUS LOCATIONS

Public facilities and basic infrastructure were identified by respondents in Dakar as serious issues and related to risks including electric shock, high risk of fires and flooding and lack of available electricity. School flooding was highlighted as a serious concern, particularly for exposing children to waterborne diseases. The extremely poor condition of roads was also cited.

People have organised themselves to advocate to the local and national authorities to attract attention to these issues. The national government has developed a code of construction that is viewed as minimally effective, namely due to limited funding available to implement it. The expansion of the electrical network is deemed to be extremely effective, but there is concern that it could be jeopardised by low political will. An intervention for the rehabilitation of electrical facilities was valued as minimally effective, due to a lack of preliminary studies. The national government's

efforts to control new building permits, in contrast, were viewed as very effective. The national government's efforts to maintain public facilities was considered only somewhat effective, namely due to insufficient financial and technical resources.

2 HOUSING IN DANGEROUS LOCATIONS

The issue of housing in dangerous locations was linked by respondents to the risk of building collapse, floods, landslide risk, unsanitary conditions and insecurity.

A surveyor was employed by the local government, which was viewed as very effective for its role in making the population aware of the risks related to inhabiting these areas. The national government's *Plan Jaxaay* (see above), for relocating people from flooded areas, was well accepted and judged to be very effective for its success in reducing people's exposure to contaminated waters, but criticised for failing to adequately involve the affected population.

3 OVERCROWDED CONDITIONS

The issue of overcrowding in Dakar and Mbour was linked to security problems, unhygienic practices caused by the lack of appropriate sanitation systems, and access problems in case of fire.

The Plan REVA (see above) was viewed as ineffective for the lack of appropriate resource allocation and political will. The national government has created resettlement areas for inhabitants of flooded areas, which has been valued as very effective by respondents, particularly as a measure to reduce exposure to contaminated water and related illnesses.

4 POORLY BUILT HOUSING

Poorly built housing was identified as a serious issue in particular as related to unplanned settlements in urban areas, the result of increasing urbanisation. These settlements suffer from poor quality building materials and structures highly exposed to flooding and collapse. The inhabitants of these areas have resorted to infilling (*remblaiement*) and sand bagging to protect their homes in case of floods.

The national government is implementing a "habitability policy", considered by respondents as very effective for its water provision through wastewater treatment plants. A cooperative housing program has also been implemented and is viewed as very effective for its consistency in the allocation of resources.

5 POOR DRAINAGE / WATER DISPOSAL SYSTEMS

Respondents cited the lack of adequate drainage and water disposal systems as a key concern, and have in particular linked the issue with health risks from contaminated water and environmental problems. Residents have complained to local government authorities asking for pumps to drain overflowing water, and have organised themselves to advocate for improved management and remediation of hazardous areas. In the interim, residents have established archaic drainage systems in order to evacuate rainwater.

International institutions have undertaken some pipeline construction, acknowledged to be effective for consistency and adequate technologies, which are also inclusive and look at the big picture. Respondents have highlighted the need to address the infrastructure situation in the capital and to allocate resources accordingly.

Local Perceptions on Risk Driver 4

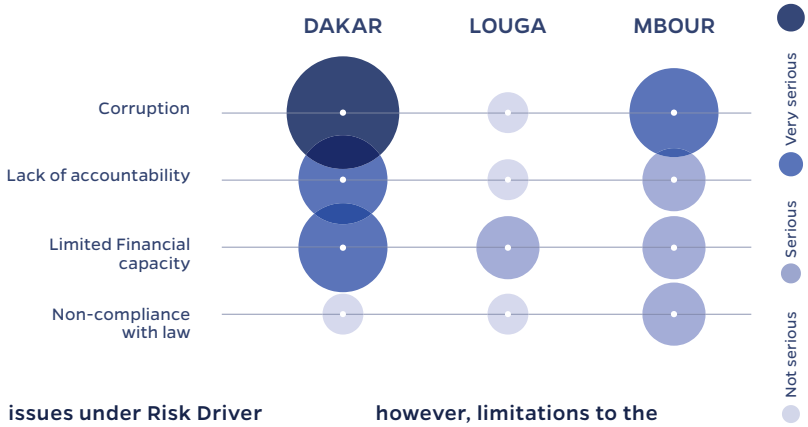
Governance

Similar to Risk Driver 2, respondents across the three RTUs identified the same key issues under governance.

Corruption was a major concern in both Dakar and Mbour, as was lack of accountability. Limited financial capacity was a key issue across all three RTUs, and in fact in Louga it was the only issue identified in Risk Driver 4. Non-compliance with the law was specifically cited in Mbour as being a key concern, although no specific legislation was mentioned in this context. Governance issues were presented in the survey in general terms, and not necessarily linked to DRR-related concerns.

Respondents in Louga did not identify many governance issues under Risk Driver 4, perhaps pointing to a disconnect between the federal government and more distant municipalities. As previously mentioned, however, limitations to the data collected in Louga should be noted in terms of a lower number of respondents and less complete questionnaire responses.

GOVERNANCE CHALLENGES IN DAKAR, LOUGA AND MBOUR



1 CORRUPTION

Respondents indicated a crisis of confidence between the general population and government authorities, which they viewed as a hindrance to local development. Communities have organised themselves in local panels to raise awareness among local authorities and the population at large on citizens' rights and responsibilities. International organisations have facilitated the organisation of intercommunity dialogues, which are recognised as very effective and have played a role in raising awareness among the population related to the failures of current decision-making processes. Auditing and sanction processes that have been implemented by the national government are considered to be somewhat effective, but a lack of transparency has limited the further involvement of the population. There is a national programme to reinforce capacities to fight against corruption, and since it has been framed under international norms, it is viewed as somewhat effective. Respondents cited corruption as a key reason as to why vulnerable communities have not received adequate attention.

2 LACK OF ACCOUNTABILITY

Respondents linked lack of accountability with a lack of transparency, evident in the local councils in particular with regard to account management. Overall, respondents explained that the population is not well informed. Some civil society organisations (FORUM CIVIL) are currently involved in the management and oversight of local accounts. The national government has developed a transparency and communications policy, assessed by respondents as very effective, but only for providing people with access to further information regarding roles and responsibilities in case of disaster.

3 LIMITED FINANCIAL CAPACITY

Respondents specifically cited limited financial capacity as a concern at the local level and stated that the local authorities do not have the capacity to assume the responsibilities required under the decentralisation framework, nor the financial resources to do so.

Communities in Louga have created banking cooperatives, which are considered to be effective and help to address the difficulties communities face in accessing credit, but need further capacity building. Partnerships between donors and local governments were viewed as very effective, but suffered from a lack of human resources in local government to manage funds and failed to reach a wide range of the population. In Louga the local government has put in place a local development plan, which respondents considered to be effective, although lacking sufficient knowledge of DRR.

The national government has undertaken several financial interventions, such as the creation of a line of credit (which was criticised for having little coordination mechanisms) and the control of financial/credit institutions. Some income generation activities have been developed as well and are thought to be very effective. However, these fail to include most vulnerable groups.

International organisations have developed partnerships with local authorities. The Millennium Villages Project (PVM in French) was cited and considered very effective for its inclusion of people in the decision-making process. Other training initiatives have also been carried out, such as a training program on the importance of the rural tax. Overall, capacity building activities were valued very positively as a tool for empowering communities and community-based organisations.

Recommendations from DAKAR

1 INCREASING KNOWLEDGE AND AWARENESS ON ENVIRONMENT AND NATURAL RESOURCES

- Increase and improve **KNOWLEDGE** speci cally **RELATED TO FLOOD RISK**
- Promote a **CULTURE OF RISK AWARENESS AND PREVENTION** by implementing more awareness raising campaigns
- Strengthen **TECHNICAL CAPACITIES AROUND RISK MANAGEMENT**, including improved knowledge and usage of meteorological data, and putting in place a well de ned and functional early warning system

2 BUILDING SOCIOECONOMIC RESILIENCE

- Strengthen **SOCIAL PROTECTION AT THE LOCAL LEVEL,** including **REVENUE GENERATING MICRO PROJECTS** for **YOUTH AND WOMEN**
- Identify **POTENTIAL EMPLOYMENT AREAS** and opportunities and provide related **SKILLS TRAINING** for **YOUTH AND WOMEN**

3 IMPROVING LAND USE AND THE BUILT ENVIRONMENT

- **RATIONAL USE OF LAND** and **REGULATE BUILDING IN RISK-PRONE AREAS**, including more diagnostic studies of these zones to better understand limitations due to risk
- **ADVOCATE FOR MORE ADEQUATE BUILDING AND PLANNING,** through workshops and studies

4 IMPROVING GOVERNANCE

- **FIGHT AGAINST** all forms of **POOR GOVERNANCE**, including more training for relevant persons on good practices in governance and risk management
- Create an **OBSERVATORY WATCH FOR GOOD GOVERNANCE** at the local level
- Increase **SUPPORT FOR ACCOUNTABILITY, SPECIFICALLY** at the local level
- Improve **LAWS RELATED TO DRR**, as well as **SUPPORT TO CIVIL SOCIETY AND MEDIA** for them to be more engaged and participate in constructive dialogues with decision makers, in order to improve the public's access to information

the RTUs

LOUGA

- **DISSEMINATE INFORMATION** through workshops and studies, and related **TRAININGS AND CAPACITY-BUILDING EFFORTS**
- Increase **KNOWLEDGE AND AWARENESS** around key serious issues
- Strengthen **CAPACITIES** around **PREVENTION, PREPAREDNESS AND RESPONSE**

- **IMPROVE FOOD SECURITY**, including support for the development of **QUALITY SEEDS**, improving **SOIL FERTILITY** and promoting **RURAL ENTREPRENEURSHIP** and self- su ciency
- **REDUCE THE VULNERABILITY TO THREAT OF LOCUST INVASIONS** by making agricultural production systems resilient to locust risk

- Improve **LAND USE** and **NEW APPROACHES TO BUILDING, RAISE AWARENESS** and **IMPROVE PLANNING**
- **PROMOTE THE POAS** (*plans d'occupation et d'aménagement des sols*) in rural communities

- Address **GOVERNANCE ISSUES** speci cally in terms of **RISK MANAGEMENT**
- **REINFORCE CAPACITIES AT THE LOCAL LEVEL** in the matter of risk management and climate change adaptation with studies, information dissemination, and training sessions
- Promote the **INTEGRATION OF DRR AND CCA INTO LOCAL LEVEL PLANNING**

MBOUR

- **INCREASE AWARENESS** and communication e orts with **TRAINING SESSIONS** and **ENVIRONMENTAL IMPACT STUDIES**

- Strengthen **PROTECTION OF LIVELIHOODS,** including promoting alternative livelihoods for vulnerable populations
- Increase access to **POTABLE WATER**, improve **HEALTH** and **HYGIENE**
- **FOCUS ON POPULATIONS MOST EXPOSED** to risk due to coastal erosion

- Increase access to **DRAINAGE AND WATER DISPOSAL SYSTEMS**
- Improve systems for disposing of **HOUSEHOLD WASTE**

- Increase **PUBLIC PARTICIPATION IN PREVENTION AND RISK MANAGEMENT**
- **REINFORCE LOCAL LEVEL CAPACITY,** focusing on training sessions, awareness-raising, and improved information channels

Key

CHALLENGES

The RRI research, while based on evidence gathered at the local level in the three RTUs, does point to certain patterns in terms of general findings and key challenges across Senegal. These include:

- Floods, insect infestation and drought are cited as the principle hazards across the country.
- Changes in rainfall patterns are the primary climate -related issue selected in all 3 RTUs– this is especially the case in Louga and Mbour, agricultural zones heavily dependent on rainfall.
- The highest number of issues selected across all three RTUs was under Risk Driver 2- Socioeconomic conditions, with a special emphasis on unemployment and poverty.
- Similarities between Dakar and Mbour (urban and urban expansion RTUs) in terms of number of issues selected, versus Louga (rural RTU), where a fewer number of issues were identified as serious overall, potentially indicate an increased level of awareness among residents in and near the capital.
- Similarities between Dakar and Mbour in terms of which key issues were selected (coastal erosion, limited access to land, overcrowded conditions, poor drainage systems, corruption, lack of accountability) highlight an increasing urbanisation trend and point to the particular challenges facing urban and urban expansion areas in West Africa.

DARA / Ana Rodríguez

- In Dakar there is a need to address Risk Driver 3 (land use and built environment), where a high number of issues were selected, indicating serious problems of infrastructure in the capital (poor drainage/water disposal, basic infrastructure, critical public facilities), as well as urbanisation-related concerns (overcrowded conditions, poorly built housing, housing in dangerous locations).

While Senegal has certainly made progress in integrating DRR and CCA into its national policies and plans, as evidenced by the creation of the DPC, the National DRR Platform, and other legislations and strategic documents, key challenges do remain, in particular in the area of mainstreaming DRR programming into development planning. In both the key issues identified as being of concern in their communities, as well as in the recommendations drafted in the workshops, respondents in the three RTUs have indicated important areas where local, national, and international actors should target their efforts. In summary, these can be categorised as follows:

1. Challenges related to leadership, coordination and enforcement of laws and regulations, especially at the national government level.
2. Lack of human and financial capacity, particularly related to adequate funding and budget allocations at both the national and local levels.
3. Need for more knowledge sharing, awareness-raising, and dedicated studies and trainings related to disaster risk reduction at all levels.

CONCLUSION

FINDING WAYS FORWARD IN WEST AFRICA

The RRI research into the key underlying risk factors in a selection of communities in West Africa has led to some important conclusions that merit further attention, both on the part of national governments and the international community. It is certainly the case that the realities in each of the sixteen communities we worked in vary considerably, as do the national contexts in which they exist. Nevertheless, among the many issues that came to the fore during the course of the study, certain key themes do recur and should be highlighted. The RRI in West Africa points to the need to address these pressing concerns in a coordinated way. Until thorough efforts are made to dramatically advance on these issues, vulnerable populations across West Africa will continue to face an unacceptably high level of risk in the face of natural hazards, threatening both lives and livelihoods, as well as the development gains they have achieved.

ENVIRONMENTAL MANAGEMENT AND CLIMATE CHANGE

Environmental degradation is an important underlying risk factor across West Africa. While more needs to be done to protect the environment, insufficient law enforcement capacities currently limit how much can be done. In addition to legal measures, other options to promote sustainable management should be reinforced, such as reducing the pressure on natural resources and finding ways for communities to play a more active role in protecting their environment.

No consideration of West Africa's exposure to natural hazards can fail to include climate change and the challenges it poses. Indeed, the greatest threats in the region, such as floods and drought, are clearly related to climate change trends. The relationship between these hazards and climatic trends such as sea level rise, coastal erosion, and desertification cannot be overlooked. For many of these issues there is scope for trans-boundary collaboration, and even regional level engagement.

Several of West Africa's countries share a long coastline and face similar pressures. Coastal zone and fisheries management is one area where greater coordination and collaboration is needed. The same could apply to the management of drought, epidemics and pests. For this to occur, regular and substantive exchange of information and knowledge sharing across boundaries needs to be strengthened.

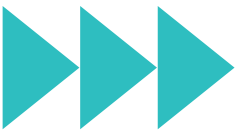
The potential for trans-boundary collaboration and sharing of best practices is also of importance to early warning systems and could serve to increase their effectiveness. This is especially the case if they are multi-hazard and linked to stronger monitoring, information analysis, communication and outreach. Effective early warning systems would also need to be supported by contingency plans and improved response capacity at local and district levels, and tested through drills and simulations. This would require a coordinated effort by several agencies, including between ministries of environment, agriculture, water, energy and health, and would depend on improved climate information services for decision-making.

2 IMPROVING LIVELIHOODS AND INCREASING HOUSEHOLD RESILIENCE

Unemployment and poverty without a doubt continue to plague the region. The result is that households, and by extension communities, have limited capacity to cope when confronted with disasters, be they sudden or slow on-set. It is clear that more needs to be done to improve socioeconomic conditions and opportunities. Access to social services is one area that requires greater attention, both in urban and rural areas. Further decentralisation of social services could help to slow down the rapid pace of urbanisation, by meeting the needs of rural communities where they are located. Increasing household resilience also means creating more income-generating activities, especially for women, to help care for households in lean periods. This, in turn, could also help address on-going challenges related to food security. More training and income-generating activities for youth are also needed and could reinforce their capacity to enter the labour market.

3 ADDRESSING THE CHALLENGE OF ADEQUATE INFRASTRUCTURE AND PLANNING

West Africa's cities are currently faced with significant challenges related to their infrastructure and spatial planning, which will only increase if the trend in urbanisation rates continues. The strain that is being placed on current drainage and waste disposal systems, which are wholly inadequate to meet the needs of urban populations, is a direct threat to flood risks. Drainage and waste disposal systems clearly need to be updated and expanded. In a similar vein, urban planning also needs to catch up with demographic trends and pressures. A specific area that requires greater attention is building codes. Time must be spent to both develop appropriate building codes that take into account risk-prone zones and map key assets and infrastructure. There must then be proper follow-up and enforcement of building codes, especially in marginal, low-lying and other at-risk areas. This implies the need for greater accountability and anti-corruption measures. If these steps are not taken, West Africa's cities will continue to grow in an unsustainable way, one that only increases their risk to natural hazards. Deficient infrastructure seems to be particularly an urban challenge; however, rural conditions should not be overlooked here. Rural communities suffer a lack of sufficient infrastructure, which potentially plays a role in contributing to out-migration. Developing adequate infrastructure in both urban and rural areas must be picked up and soon.



4 GOVERNANCE: THE NEED FOR INCREASED FINANCIAL CAPACITY AND A MORE ENGAGED CITIZENRY

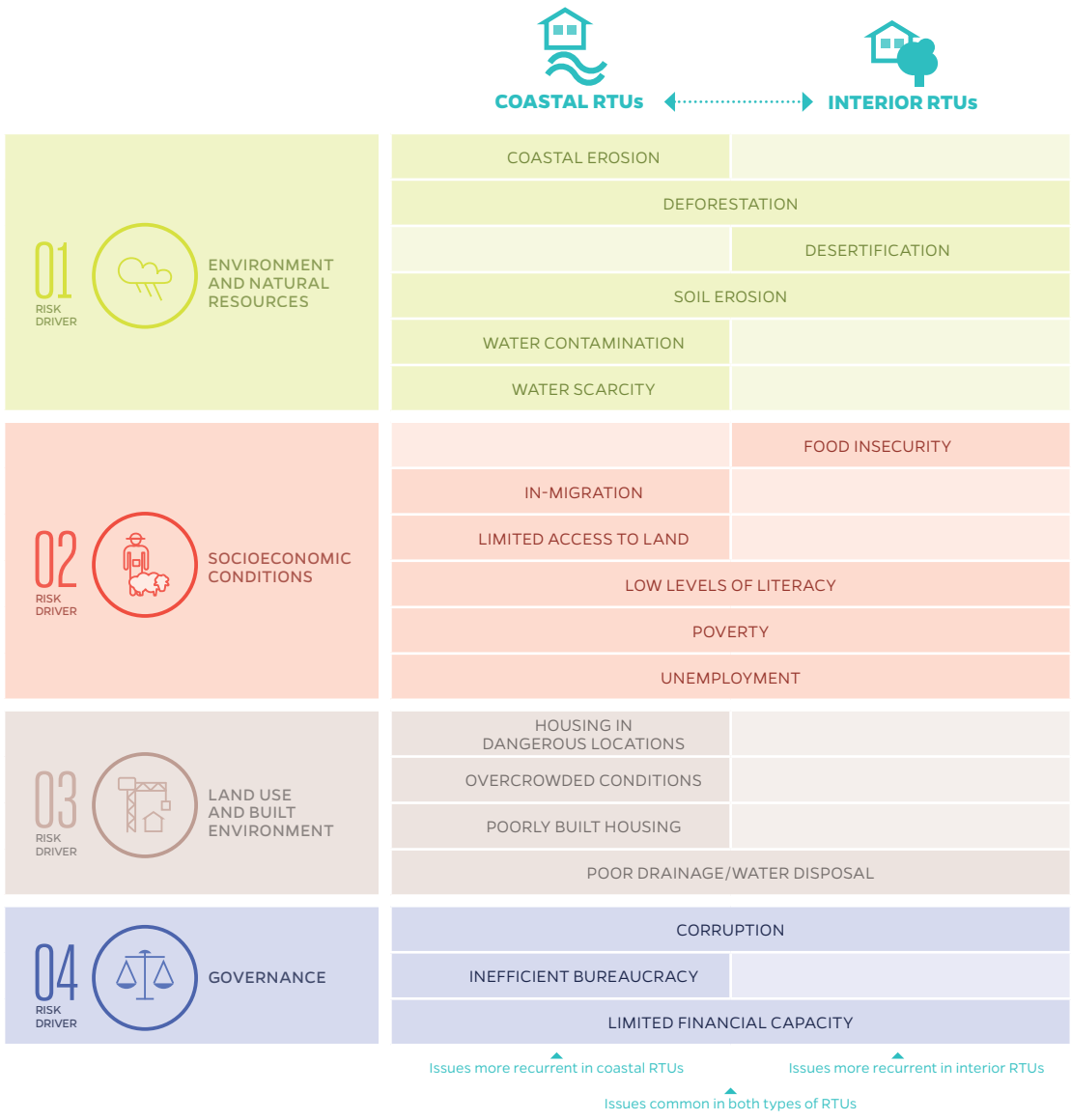
In order for governments to effectively act on behalf of their citizens to reduce underlying risk, more attention must be paid to financial management and financial capacity. The lack of sufficient funds was selected as the outstanding reason for the ineffectiveness of interventions in most of the West African communities engaged in this study. National governments must find ways to increase their financial capacity, while also working to improve public resource management. One way of doing this is by expanding partnerships with international organizations. Interventions implemented by international organizations were in general more highly regarded than any others. Since interventions in which the government collaborated with international organizations were perceived as having more value, partnerships could be an important way for governments to carry out proposed action plans. Another important avenue to pursue is renewed efforts to fight against corruption. Support for the creation or strengthening of anti-corruption agencies needs to be defined as a priority. This will help to promote better management of public funds and transparency in finances, as well as serving to strengthen citizens' trust in their government, thereby increasing its legitimacy.

A citizenry that is engaged and aware is an important asset for any society and one that needs to be further cultivated in West Africa. There is a clear need to raise awareness among communities and to engage them in multi-hazard risk and vulnerability assessments with the appropriate tools and technology. A better informed citizenry will also contribute to improving the accountability of government. The keen desire for more training in a range of topics was frequently mentioned in the West African communities in which we engaged. Overall, more efforts need to be made to increase knowledge and awareness on DRR and climate change adaptation at all levels and across sectors. Doing so will help convince decision-makers of the need to improve and increase risk management capacities.

ANNEXES

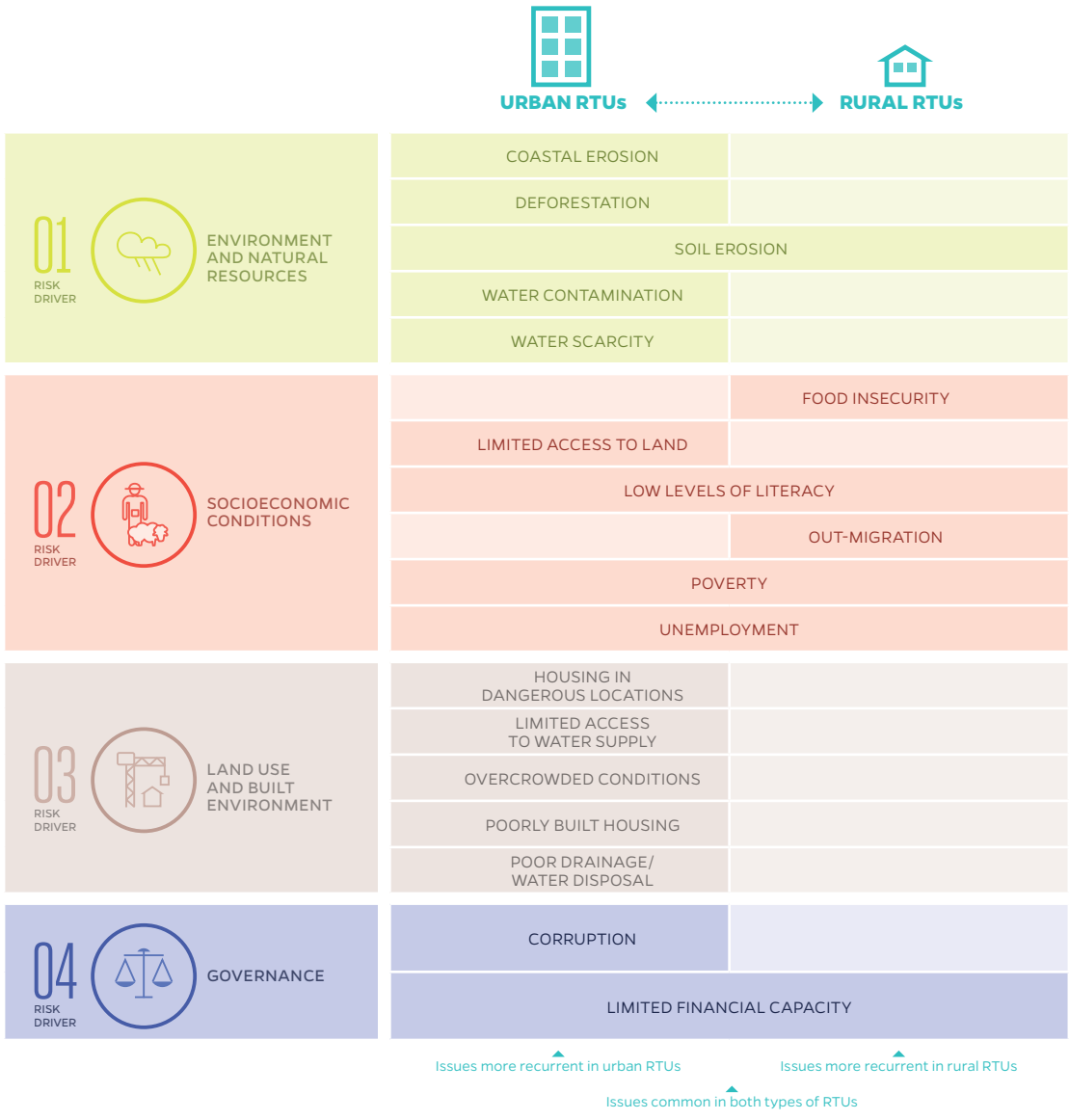
ANNEX 1: ISSUES COMPARISON

RECURRENT ISSUES IN COASTAL RTUs VS INTERIOR RTUs



RECURRENT ISSUES IN

URBAN VS RURAL RTUs



ANNEX 2: RESPONDENTS' PROFILE

RESPONDENTS' PROFILE IN CAPE VERDE

RTUs IN CAPE VERDE		PRAIA	SANTA CRUZ	TOTAL / AVERAGE
QUESTIONNAIRES COLLECTED (ABSOLUTE NUMBERS)		61	54	115
DISTRIBUTION BY SEX (%)	FEMALE	64	43	53
	MALE	36	57	47
DISTRIBUTION BY AGE GROUP (%)	<30	31	41	36
	>30 <50	43	44	44
	>50	26	15	21
DISTRIBUTION BY YEARS OF EXPERIENCE (%)	< 7	59	67	63
	> 7	33	30	31
	MISSING RESPONSES	8	4	6
DISTRIBUTION BY SECTOR (%)	LOCAL	3	13	8
	NATIONAL	30	31	30
	INTERNATIONAL	7	17	12
	PRIVATE SECTOR	13	19	16
	COMMUNITY ORGANISATIONS	48	20	34

RESPONDENTS' PROFILE IN

THE GAMBIA

RTUs IN THE GAMBIA		GREATER BANJUL AREA	NORTH BANK REGION	TOTAL /AVERAGE
QUESTIONNAIRES COLLECTED (ABSOLUTE NUMBERS)		57	48	105
DISTRIBUTION BY SEX (%)	FEMALE	10	46	30
	MALE	90	54	70
DISTRIBUTION BY AGE GROUP (%)	<30	19	2	10
	>30 <50	71	77	74
	>50	10	21	16
DISTRIBUTION BY YEARS OF EXPERIENCE (%)	< 7	21	37	29
	> 7	77	63	70
	MISSING RESPONSES	2	0	1
DISTRIBUTION BY SECTOR (%)	LOCAL	21	12	17
	NATIONAL	17	16	16
	INTERNATIONAL	17	4	10
	LOCAL CIVIL SOCIETY	13	37	25
	NATIONAL CIVIL SOCIETY	17	16	16
	PRIVATE SECTOR	17	16	16

RESPONDENTS' PROFILE

RESPONDENTS' PROFILE IN GHANA

RTUs IN GHANA		ACCRA AREA	EAST COAST	BOLGATANGA AREA	TOTAL / AVERAGE
QUESTIONNAIRES COLLECTED (ABSOLUTE NUMBERS)		40	41	44	125
DISTRIBUTION BY SEX (%)	FEMALE	23	12	9	15
	MALE	78	88	91	85
DISTRIBUTION BY AGE GROUP (%)	<30	28	12	11	17
	>30 <50	60	46	73	60
	>50	13	41	16	23
DISTRIBUTION BY YEARS OF EXPERIENCE (%)	< 7	45	39	25	36
	> 7	40	61	64	55
	MISSING RESPONSES	15	0	11	9
DISTRIBUTION BY SECTOR (%)	LOCAL	23	20	25	22
	NATIONAL	28	39	30	32
	INTERNATIONAL	8	0	14	7
	LOCAL CIVIL SOCIETY	20	15	18	18
	NATIONAL CIVIL SOCIETY	10	0	2	4
	PRIVATE SECTOR	13	27	11	17

RESPONDENTS' PROFILE IN

SENEGAL

RTUs IN SENEGAL		DAKAR	LOUGA	MBOUR	TOTAL / AVERAGE
QUESTIONNAIRES COLLECTED (ABSOLUTE NUMBERS)		38	39	36	113
DISTRIBUTION BY SEX (%)	FEMALE	13	21	25	20
	MALE	87	79	75	80
DISTRIBUTION BY AGE GROUP (%)	<30	5	3	12	7
	>30 <50	68	41	67	58
	>50	26	57	21	35
DISTRIBUTION BY YEARS OF EXPERIENCE (%)	< 7	39	15	51	36
	> 7	37	56	43	45
	MISSING RESPONSES	24	28	5	19
DISTRIBUTION BY SECTOR (%)	LOCAL	28	21	21	23
	NATIONAL	3	10	21	11
	INTERNATIONAL	11	15	6	11
	LOCAL CIVIL SOCIETY	36	3	15	18
	NATIONAL CIVIL SOCIETY	8	0	21	10
	PRIVATE SECTOR	14	51	18	28

RESPONDENTS' PROFILE

RESPONDENTS' PROFILE IN GUINEA

RTUs IN GUINEA		CONAKRY	KINDIA	DABOLA	TOTAL / AVERAGE
QUESTIONNAIRES COLLECTED (ABSOLUTE NUMBERS)		50	44	49	143
DISTRIBUTION BY SEX (%)	FEMALE	28	25	20	24
	MALE	72	75	80	76
DISTRIBUTION BY AGE GROUP (%)	<30	6	14	16	12
	>30 <50	56	50	57	54
	>50	38	36	27	34
DISTRIBUTION BY YEARS OF EXPERIENCE (%)	< 7	36	16	55	36
	> 7	64	84	45	64
DISTRIBUTION BY SECTOR (%)	LOCAL	18	11	11	14
	NATIONAL	22	20	20	21
	INTERNATIONAL	8	18	18	15
	LOCAL CIVIL SOCIETY	14	18	18	17
	NATIONAL CIVIL SOCIETY	18	14	14	15
	PRIVATE SECTOR	20	18	18	19

RESPONDENTS' PROFILE IN

NIGER

RTUs IN NIGER		NIAMEY	OUALLAM	MARADI	TOTAL / AVERAGE
QUESTIONNAIRES COLLECTED (ABSOLUTE NUMBERS)		42	48	46	136
DISTRIBUTION BY SEX (%)	FEMALE	7	15	28	17
	MALE	93	85	72	83
DISTRIBUTION BY AGE GROUP (%)	<30	0	0	2	1
	>30 <50	88	75	78	80
	>50	12	25	20	19
DISTRIBUTION BY YEARS OF EXPERIENCE (%)	< 7	21	60	50	44
	> 7	79	40	48	55
	MISSING RESPONSES	0	0	2	1
DISTRIBUTION BY SECTOR (%)	LOCAL	7	19	20	15
	NATIONAL	19	4	2	8
	INTERNATIONAL	19	13	7	13
	LOCAL CIVIL SOCIETY	14	42	33	30
	NATIONAL CIVIL SOCIETY	21	19	13	18
	PRIVATE SECTOR	19	4	26	16

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ANALYSIS OF THE CONDITIONS AND CAPACITIES FOR DISASTER RISK REDUCTION

The Risk Reduction Index (RRI) provides in-depth analysis, carried out within geographically well-defined risk prone areas, of the existing conditions and capacities that either hinder or enable local and national actors to carry out effective risk management.

The RRI aims to influence development processes and promote better integration of Disaster Risk Reduction (DRR) into development and poverty reduction strategies and policies.

DARA seeks to generate DRR knowledge in the West Africa region to raise awareness on the need to address the underlying risk drivers, make risk management more effective and, thereby, contribute to an increased resilience of the most vulnerable populations.

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