Climate and Disaster Risk Screening Report: Hypothetical Screening for Cote D'Ivoire[1]

[1] This is the output report from applying the World Bank Group's Climate and Disaster Risk Screening National Level Tool. The findings, interpretations, and conclusions expressed from applying this tool are those of the individual that applied the tool and should be in no way attributed to the World Bank, to its affiliated institutions, to the Executive Directors of The World Bank or the governments they represent. The World Bank does not guarantee the accuracy of the information included in the screening and this associated output report and accepts no liability for any consequence of its use.

1. Introduction

The National **Climate and Disaster Risk Screening Tool** provides ***early-stage, due diligence screening*** for climate and disaster risks on an economy wide basis. The tool follows an ***exposure - sensitivity - adaptive capacity framework*** to consider and characterize risks from climate and geophysical hazards to priority sectors (see Annex 1 for tool approach).

This high level screening could inform the preparation of Systematic Country Diagnostics (SCDs), Country Partnership Frameworks (CPFs) or broader planning processes in-country. The tool does not provide detailed risk assessments, nor does it suggest specific options for increasing the sectors' resilience, but provides a characterization of climate risks that can inform dialogue, consultation and planning at a strategic level. See Annex 2 for a summary of the notes that you entered throughout the application of the screening tool.

The results of applying the national/policy level tool to screen for climate and disaster risks for Cote d'Ivoire are summarized below.

2. National Climate and Disaster Risk Screening Results Summary

2.1. Development Goals and Associated Sectors

Table 1 below summarizes information on the country's key development goals and associated sectors that are critical in achieving these goals as identified during the assessment. From associated sectors, users selected priority sectors to screen for climate and geophysical hazards risk. Table 2 summarizes geographical locations of importance to each of the priority sectors in Cote D'Ivoire. This is an illustrative list of areas and may not be comprehensive in coverage.

Table 1: Summary of Cote D'Ivoire's Key Development Goals And Associated Sectors

KEY DEVELOPMENT GOALS	ASSOCIATED SECTORS
Consolidating peace and security and promoting good governance are prerequisites for economic recovery and poverty reduction.	• Other (improving the management) • Public Administration, Law and Justice • Information and Communications
Transforming Côte d'Ivoire into an Emerging Economy. he program will consist of improved fiscal policies; deep structural reforms in the cocoa/coffee, energy and oil sectors; and improvements in transparency and governance, which are expected to strengthen investor confidence.	• Energy • Agriculture • Transport
Improve access to potable water, adequate sanitation services, energy and a livable urban and rural environment. (i) expand the national rural water and sanitation program; (ii) establish a specific budget for this program; (iii) develop a national standard for community-run water systems and a tariff system that promotes access for all; and (iv) rehabilitate damaged urban water systems in selected cities. A second priority is to improve rural water and basic sanitation, and a third goal is to improve urban water supply for secondary cities.	• Health and Other Social Services • Water • Trade

Table 2: Summary of The Locations of The Priority Sectors Identified As Critical To Meeting The Country's Goals And Priorities

PRIORITIZED SECTORS	LOCATIONS
Energy	Yampussoukro, Divo.
Agriculture	Much of the country lies within tsetse-infested areas, and cattle are therefore concentrated in the more northerly districts. Settled herders are concentrated in the dry north, mainly in Korhogo, Ferkessedougon, Bouna, Boundali, Odienne, and Dabakala.
Health and Other Social Services	
Water	Abidjan, Yampussoukro, Divo.

2.2. Historical / Current and Future Trends and Potential Impacts of Hazards on Priority Sectors

For the selected priority sectors, Public Administration, Law and Justice, Information and Communications, Other (improving the management)Energy, Agriculture, Transport, Other (improving the management)Health and Other Social Services, Water, Trade, Other (improving the management), the tables below provide an early stage due diligence screening summary of results. Please keep in mind that the greatest value of the tool is that it provides a structured and systematic process for understanding climate and disaster risks. The actual ratings themselves, while instructive, should inform further consultations, dialogue, and future planning processes.

Table 3 presents a summary description of exposure to climate and geophysical hazards for the Historical/Current and Future time frames for Cote D'Ivoire. The Future time frame is based on changes projected to occur between the 1980-1999 average and a future average. This future average is most likely the 2040-2059 average (i.e., the default in the Climate Change Knowledge Portal - CCKP), but the range is dependent upon the specific time frame that the user applied using the CCKP or other climate information. Again, these descriptions, if based on information in the CCKP, may be supplemented by national data sets. The sector potential impact ratings, for both Historical/Current and Future time frames, are derived on the basis of the hazard information, subject matter expertise, and contextual understanding of the country and sector(s).

Table 3: Climate and Geophysical Hazards, and Potential Impacts for Priority Sectors for Current and Future Time Periods

NATURAL HAZARD	TIME SCALE	DESCRIPTION OF HAZARDS	ENERGY	AGRICULTURE	HEALTH AND OTHER SOCIAL SERVICES	WATER
Extreme Temperature	Current	Temperatures and humidity generally follow the same pattern, with average temperatures between 25 °C and 30 °C and ranges from 10 °C to 40 °C. Temperatures are higher in the south but may exceed 30 °C even in the far north. Annual and daily ranges of both temperature and humidity are small along the coast but increase progressively toward the north. Average relative humidity is 85 percent in the south and 71 percent in the north. Mean annual temperature has increased by 1.0°C since 1960, an average rate of 0.21°C per decade. The rate of increase has been most rapid in April May and June, a around 0.27°C per decade.				
	Future	The mean annual temperature is projected to increase by 1.0 to 3.0°C by the 2060s, and 1.5 to 5.2°C by the 2090s. The range of projections by the 2090s under any one emissions scenario is around 1.5 - 2.5°C.				
Extreme Precipitation and Flooding	Current	In the central forest region, rainfall is high (1346 - 2540 mm), high humidity, and seasons less clearly marked. The earlier, shorter dry season (November to mid- March) is followed by a short wet season (mid-March to mid-May), a short dry season from mid May to mid July and the great rains for mid July to mid November. There is a long wet season from June to October and the dry season extends to six or seven months. Mean annual rainfall has decreased by 5 mm per month per decade since 1960. The intensity of Atlantic hurricanes has increased substantially since 1980.				
	Future	Rainfall projections project a decreasing trend in rainfall during June- August. Rainfall events are projected to increase seasonal variability and extreme events.				

NATURAL HAZARD	TIME SCALE	DESCRIPTION OF HAZARDS	ENERGY	AGRICULTURE	HEALTH AND OTHER SOCIAL SERVICES	WATER
Drought	Current	Drought have occurred in the country. For example Drought settled over West Africa's Ivory Coast region when wet season rains came late in 2007.				
	Future	Drought occurrences are likely to increase with projected increases in temperature.				
Sea Level Rise	Current	Proxy sea level rise data from Santa Cruz de Tenerife I & Tenerife, Spain, indicates the mean sea level trend is 1.62 mm/year with a 95% confidence interval of +/- 0.31 mm/year based on monthly mean sea level data from 1927 to 2009 which is equivalent to a change of 0.53 feet in 100 years.				
	Future	In Cote d'Ivoire, a 1-m sea-level rise will lead to inundation of 1,800 km2 of lowland. The rate of shoreline retreat as a result of erosion is estimated to vary from 4.5 m to 7.4 m per annum (ICST, 1996). The most threatened infrastructures on the coastal zone are the Autonomous Port of Abidjan (Port Autonome d'Abidjan, PAA) and the port of San Pedro.				
Storm Surge	Current	Abidjan, Cote d'Ivoire is one of the top 20 cities where the most people will be at the greatest risk from sea level rise and storm surges in the developing world.				
	Future	Storm surge height is expected to increase, but estimates are highly uncertain.				
Strong Winds	Current	Information not available				
	Future	The maximum wind speed from tropical cyclones is expected to increase, but estimates are highly uncertain.				
Landslide	Current	Landslides Disaster Average 0.03 Per Year. in 2009 10,006 were impacted				
Other (Health Epidemics)	Current	Epidemic Disasters occurred in 2001 & 1999. Over 2,000 people were impacted				

Insufficient Understanding	No Potential Impact	Low Potential Impact	Moderate Potential Impact	High Potential Impact

2.3. Key Drivers of Impacts

Table 4 provides a summary of the key drivers of impact for each sector, in terms of hazards that are likely to pose the greatest challenge. It will be useful to get a sense of which hazard poses challenge to multiple sectors in Cote D'Ivoire.

Table 4: Key Drivers of Impacts

KEY DRIVERS OF IMPACTS		
SECTOR	**HISTORICAL/ CURRENT DRIVERS**	**FUTURE DRIVERS**
Energy	--	Sea Level Rise; Storm Surge
	Extreme Temperature; Storm Surge	Extreme Temperature
Agriculture	Drought	Extreme Temperature; Extreme Precipitation & flooding; Drought; Sea Level Rise; Storm Surge
	Extreme Temperature; Extreme Precipitation & flooding; Storm Surge; Landslide	--
Health and Other Social Services	Other (Health Epidemics)	Extreme Temperature; Drought
	Extreme Temperature; Drought; Landslide	Extreme Precipitation & flooding; Sea Level Rise; Storm Surge
Water	Drought	Extreme Temperature; Extreme Precipitation & flooding; Drought; Storm Surge
	Extreme Temperature; Extreme Precipitation & flooding; Storm Surge; Landslide;Other (Health Epidemics)	Sea Level Rise

Key: High Risk Moderate Risk

2.4. National and Sector Institutional Readiness Scores (IRS)

Institutions play an important role in building adaptive capacity to address the potential impacts and risks identified. In this tool, the ability to adjust to and cope with potential impacts is evaluated based on four key elements of an institution's adaptive capacity.

Table 5 presents an overview of Cote D'Ivoire's readiness to act on potential climate and geophysical impacts based on rapid assessment of capacity at the national and sector level. The scores are summed across each topic into a total institutional readiness score at the national and sector levels. Aspects of the country that have higher readiness will contribute to Cote D'Ivoire's ability to cope with natural hazards, whereas aspects that have lower readiness could potentially benefit from investments that would tend to reduce risks presented by natural hazards.

Table 5: National and Priority Sector Readiness Scores

CURRENT READINESS SCORES	NATIONAL LEVEL CAPACITY	ENERGY CAPACITY	AGRICULTURE CAPACITY	HEALTH AND OTHER SOCIAL SERVICES CAPACITY	WATER CAPACITY
Awareness of Climate and Geophysical Hazards	2-Moderate	2-Moderate	3-Signficant	1-Minimal	3-Signficant
Ability to Conduct Risk and Impact Assessments	2-Moderate	1-Minimal	2-Moderate	1-Minimal	1-Minimal
Ability to Plan and Implement Adaptation Measures	2-Moderate	2-Moderate	2-Moderate	1-Minimal	2-Moderate
Adaptive Management Capabilities	2-Moderate	3-Signficant	2-Moderate	2-Moderate	2-Moderate
Total Institutional Readiness Score	8-Moderate	8-Moderate	9-Significant	5-Moderate	8-Moderate

The radar diagram below presents the above Institutional Readiness Scores for Cote D'Ivoire at the national level and sector level based on the rapid assessment. Each axis of the ‘spider diagram’, below, depicts the score for each of the four questions related to institutional readiness. The Total Institutional Readiness Score, while not directly shown in the diagram, is the sum of each of these four axes for a given sector. If a previous scoring is available, it is presented in Table 6, which could provide information to track progress and changes in institutional readiness for a Country over time.

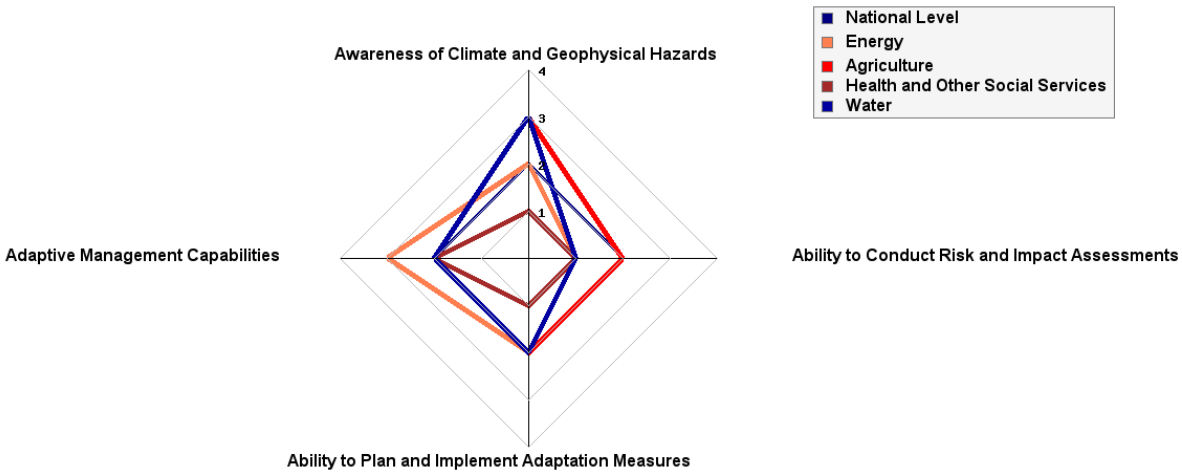

Table 6: Institutional Readiness Prior Results

	NATIONAL	ENERGY	AGRICULTURE	HEALTH AND OTHER SOCIAL SERVICES	WATER
Current Scores	8	8	9	5	8

3. Summary of Overall Sector Risks

Table 7 presents the overall risk to each sector, based on climate and geophysical hazards, but adjusted for the sector's institutional readiness and for the challenges and opportunities presented by the larger development context. This table serves to flag potential risk and associated development context considerations that affect programs and country level planning while working to achieve the development goals of Cote D'Ivoire.

The results indicate where there are potential risks. Further consultations, diagnoses, and studies may be required to identify and ultimately reduce the risks posed by climate change and other natural hazard risk. An ongoing process of monitoring risks, refining climate and other information, and regular impact assessment is recommended.

By understanding which of your country’s national development goals are most at risk from climate change and other natural hazards, the country for which you are applying the screening tool can begin to take measures to avoid their impacts by:

- Using your risk screening analysis to inform strategic discussions about priorities for WBG and other development interventions.
- Guiding the establishment of more hazard-resilient national development goals in the CPF or other planning documents.
- Applying the information leaned here about climate and disaster risks, both national and and regional, at the project level, using the Project Level Screening Tools.

It is best to revisit the outputs from this National Climate and Disaster Risk Screening Tool on an occasional basis. The results can be strengthened significantly by engaging country and sectoral experts in workshops or other settings.

Table 7: Overall Sector Risk

	ENERGY		AGRICULTURE		HEALTH AND OTHER SOCIAL SERVICES		WATER	
	Historical/ Current	Future	Historical/ Current	Future	Historical/ Current	Future	Historical/ Current	Future
Potential Impact								
Extreme Temperature								
Extreme Precipitation and Flooding								
Drought								
Sea Level Rise								
Storm Surge								
Strong Winds								
Landslide		X		X		X		X
Other (Health Epidemics)		X		X		X		X
Preliminary Sector Impact								
Institutional Readiness Score								
	8-Moderate		9-Significant		5-Moderate		8-Moderate	
Development Context Considerations								
	• Access to technology : Decreases risk • Political instability : Decreases risk • Population growth : Increases risk • Urbanization : Increases risk		• Access to technology : Increases risk • Prices (particularly food and energy) : Increases risk • Land and soil quality : Does not affect risk • Population growth : Increases risk • Pollution : Increases risk • Urbanization : Increases risk		• Nutrition : Increases risk • Education : Decreases risk • Political instability : Decreases risk • Population growth : Increases risk • Urbanization : Increases risk • Other (Infrastr ucture) : Increases risk		• Access to technology : Decreases risk • Population growth : Increases risk • Pollution : Increases risk • Urbanization : Increases risk	
Overall Sector Risk								

Insufficient Understanding	No Potential Impact	Low Potential Impact	Moderate Potential Impact	High Potential Impact

Annex 1: Tool Approach

The framework below describes the approach taken to screen the country. Climate and natural hazards information used to screen the project is most likely obtained from the World Bank's Climate Change Knowledge Portal, which houses numerous global data sets with both historical records and future projections and adaptation profiles.

Figure 1: National Level Climate and Disaster Risk Screening Tool: Approach