

WATER ADAPTATION COMMUNITY WEBINAR



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WATER IN THE STATE AND TRENDS IN ADAPTATION 2021 REPORT: AFRICA

Wednesday, 15th December 2021, 10:30AM–12:00PM CET

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OUTLINE

- ❑ State and Trend in Adaptation 2021 (STAT21) Africa
- ❑ Present and Projected Climate Risks in Africa
- ❑ Africa Agriculture: the Critical Sector
- ❑ Floods in Africa
- ❑ Time for integrated solutions
- ❑ Conclusion



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- Second in the State and Trends in Adaptation Series
- First report of its kind for the continent:
 - Comprehensive overview of climate risks and adaptation solutions
 - Science-based, policy-focused, solutions-oriented



Present and Projected Climate Risks in Africa	
Section 1 Macroeconomics Finance	Macroeconomics and climate adaptation
	COVID recovery
	Finance
	Private Sector
	Youth
	Jobs
Section 2 - Focus Sectors	Agriculture
	Trade and food security
	Drylands
	Transport and energy
	Urban development
	Water resources, floods, and disaster risk management
Section 3 - Cross-cutting Themes	Health
	Gender
	Conflict and migration
	Sustainable Development Goals



Present and Projected Climate Risks in Africa

IPCC 2020 – Temperature

- Observed mean annual temperatures are increasing at 0.2°C to 0.5°C per decade.
- 1.5°C warming under all scenarios in the next decade; by mid-century 2°C or more
- Days above 35°C will increase by 20 to 160 days annually depending on scenario and region.
- Life-threatening temperatures above 40°C are projected to increase by 10 to 140 days depending on scenario and region



IPCC 2020 - Precipitation, floods and droughts

- Frequency and intensity of heavy precipitation projected to increase
- 1 in 100 year floods could become:
 - 1 in 40 years under low-warming scenarios
 - 1 in 20 years under higher warming
- **Droughts** increase in all regions except northern parts of East Africa and Horn of Africa
- Changes in **total precipitation are small** **BUT** more rain in heavy rainfall events in most regions, increasing temperatures and evaporative demand
- **Overall picture:** drier conditions over most of the continent with more droughts but also more flooding



IPCC 2020 Coastal Flooding

- African sea levels are rising slightly faster than the global average
- Virtually certain to continue rising:
 - by 0.4m to 0.5m by 2100 under low-warming scenarios
 - 0.8m to 0.9m under high-warming scenarios.
- **Coastal flooding:** A current 1 in 100 year flooding event will become:
 - 1 in 10 or 20 years by 2050
 - 1 in 5 years to annually by 2100, **even under moderate warming**

Africa Agriculture – The Critical Sector



- With a 3°C trajectory climate change will:
 - reduce income of poorest 40% by more than 8% by 2030
 - by 2050, increase undernourished from 282 million today to 350 million
 - reduce 30% of current growing areas for maize and banana and 60% for beans by 2050
 - cause 1/5 loss in West African marine fisheries, half of all fisheries-related jobs, and US\$311 million annually in income across food system by 2050

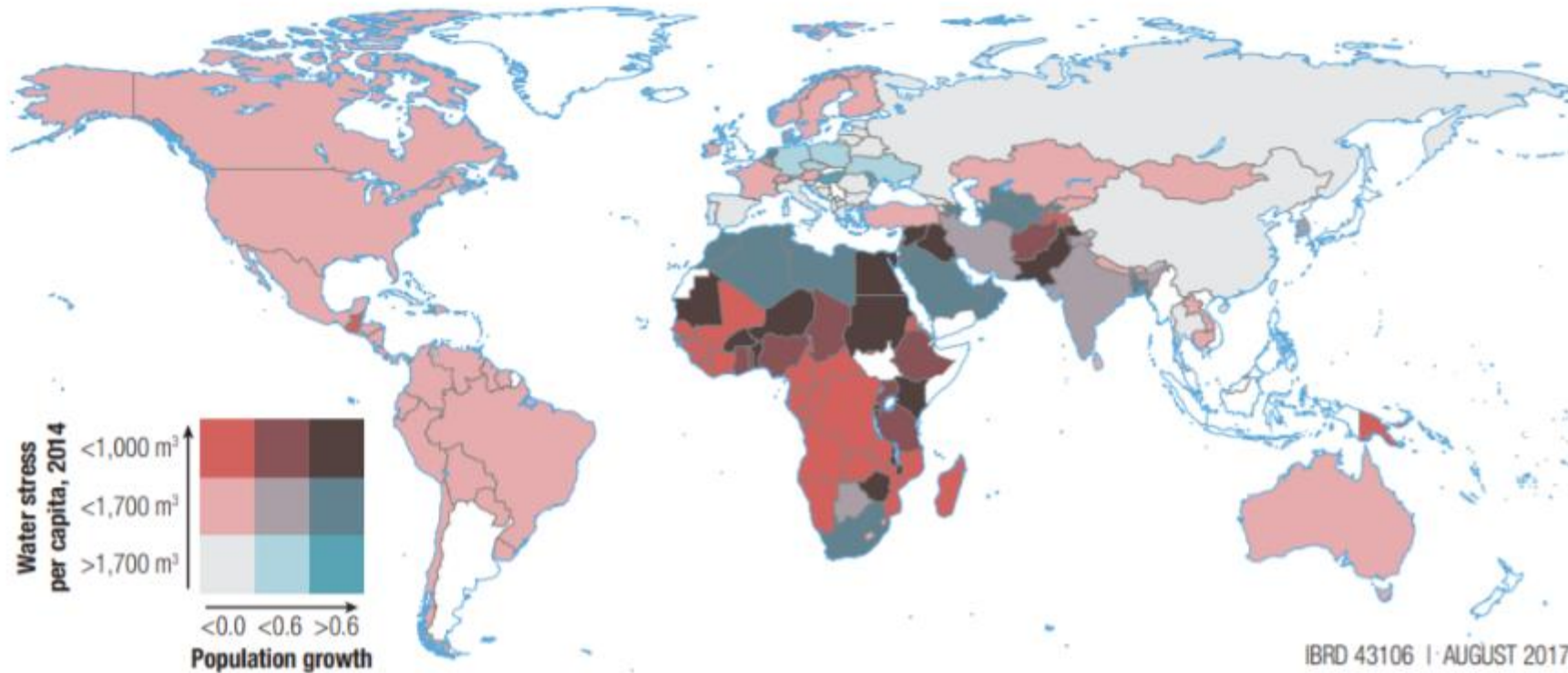
Africa Climate change and food security

- A trajectory of global temperature rise of 3°C will cause catastrophic disruption to African food systems within the next 30 years.
- A 1.5°C trajectory provides greater options for the adaptation of African food systems but still demands urgent action.



Food insecurity increases by 5–20 percent with each flood or drought.

Africa climate change, agriculture and water (1)



Sources: Freshwater availability data: FAO AQUASTAT database. Population growth estimates: United Nations Population Division, World Population Prospects, 2015 revision (moderate scenario), for the year 2050.

Note: Map 1.1 shows the intersection of water stress, measured as per capita water availability, and population growth. Data on water availability are missing for countries in white.

Projections suggest that by 2050, global demand for water will increase by 30–50 percent, driven by population growth, rising consumption, urbanization, and energy needs.

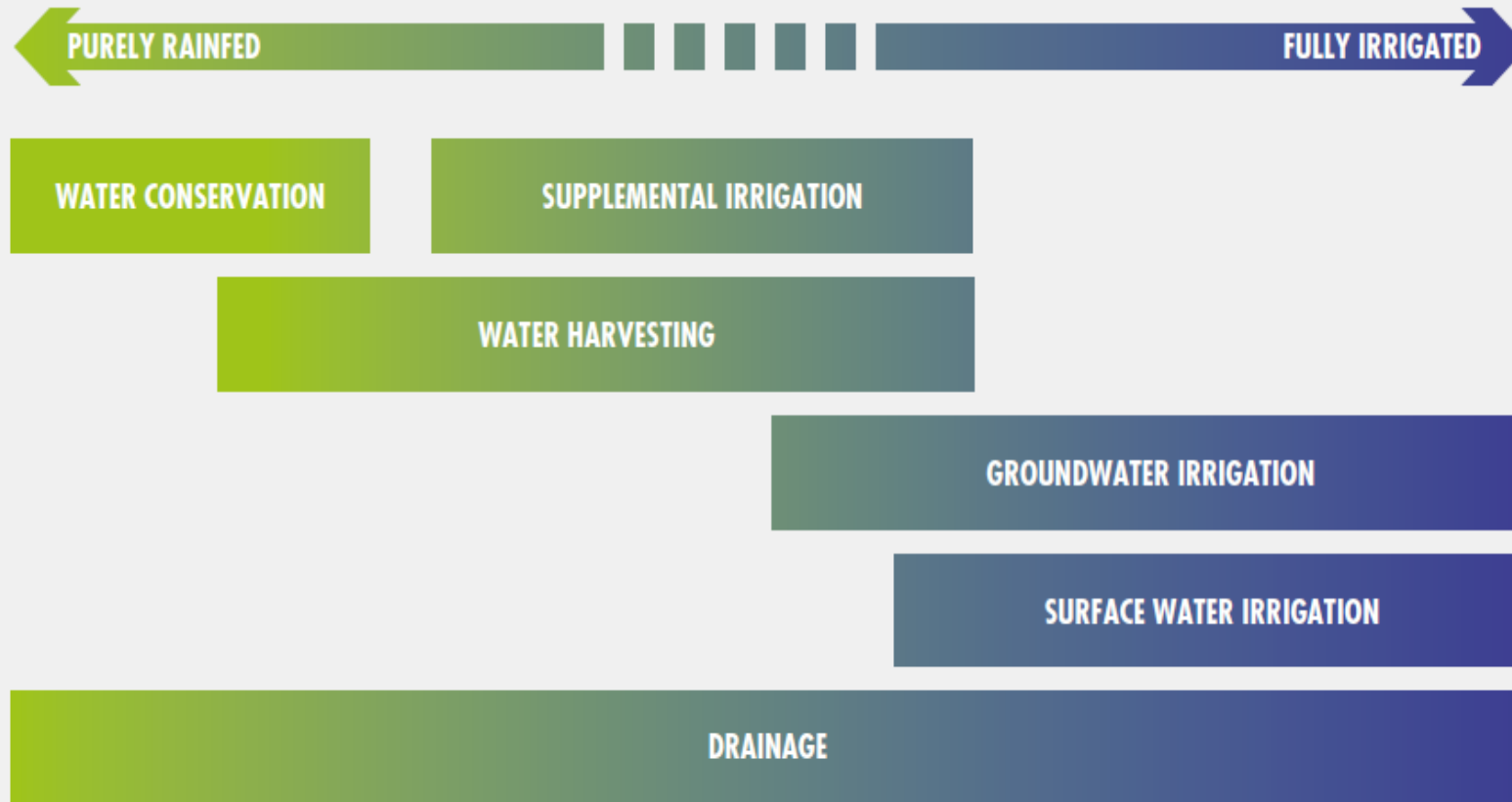
Even the most optimistic climate change trajectory (1.5°C) will put severe pressure on water resources for our food system.

Africa Climate change, agriculture and water (2)



With populations rising and climate change, water-related stresses will mount.

- Agriculture accounts for the highest percentage of total water withdrawal in Africa, up to 81 percent.
- In sub-Saharan Africa, **rained agriculture accounts for 95 percent** of the region's farmed land, more than 1.1 billion people are at risk due to water constraints.
- Only **3 percent of the cropland in sub-Saharan Africa is irrigated** or equipped for irrigation, and many irrigation schemes suffer from water wastage.
- Irrigation infrastructure could be expanded to up to 38 million hectares compared to the current 7.7 million.



Agricultural water management along the spectrum from rainfed to irrigated.

NOTES: Predominantly green boxes include water management practices by farmers reliant on rainfall but who may still apply some form of irrigation. Predominantly blue boxes refer to irrigation by farmers in purely irrigated settings, or farmers in rainfed areas with some access to irrigation.

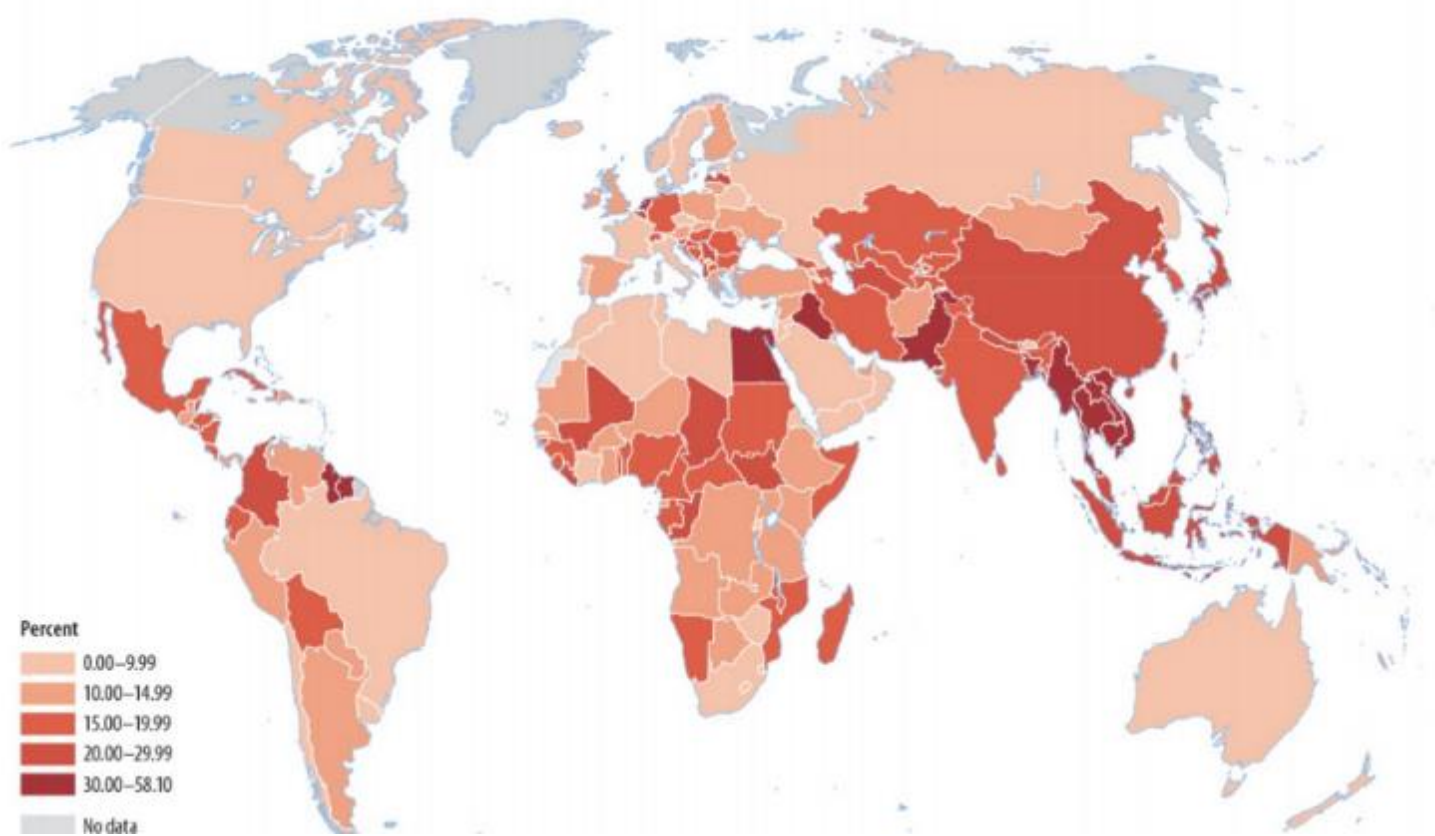
Adaptation is not an option, it is a must

- Financing adaptation to climate change will be more cost-effective than frequent disaster relief.
- **Annual agricultural adaptation cost is \$15 billion (0.93% of regional GDP), but the cost of inaction could be more than \$201 billion (12% of GDP)**

	Research and extension	Water management	Infrastructure and market access	Sustainable Land Management	Climate information services	Total
Cost of action (\$ billion)	3.88	6.12	2.08	3.35	0.053	15.48
Cost of inaction (\$ billion)	71.21	90.67	12.56	26.76	0.488	201.69
Cost of action as proportion of cost of inaction (%)	5.44	6.75	16.56	12.51	10.86	7.67

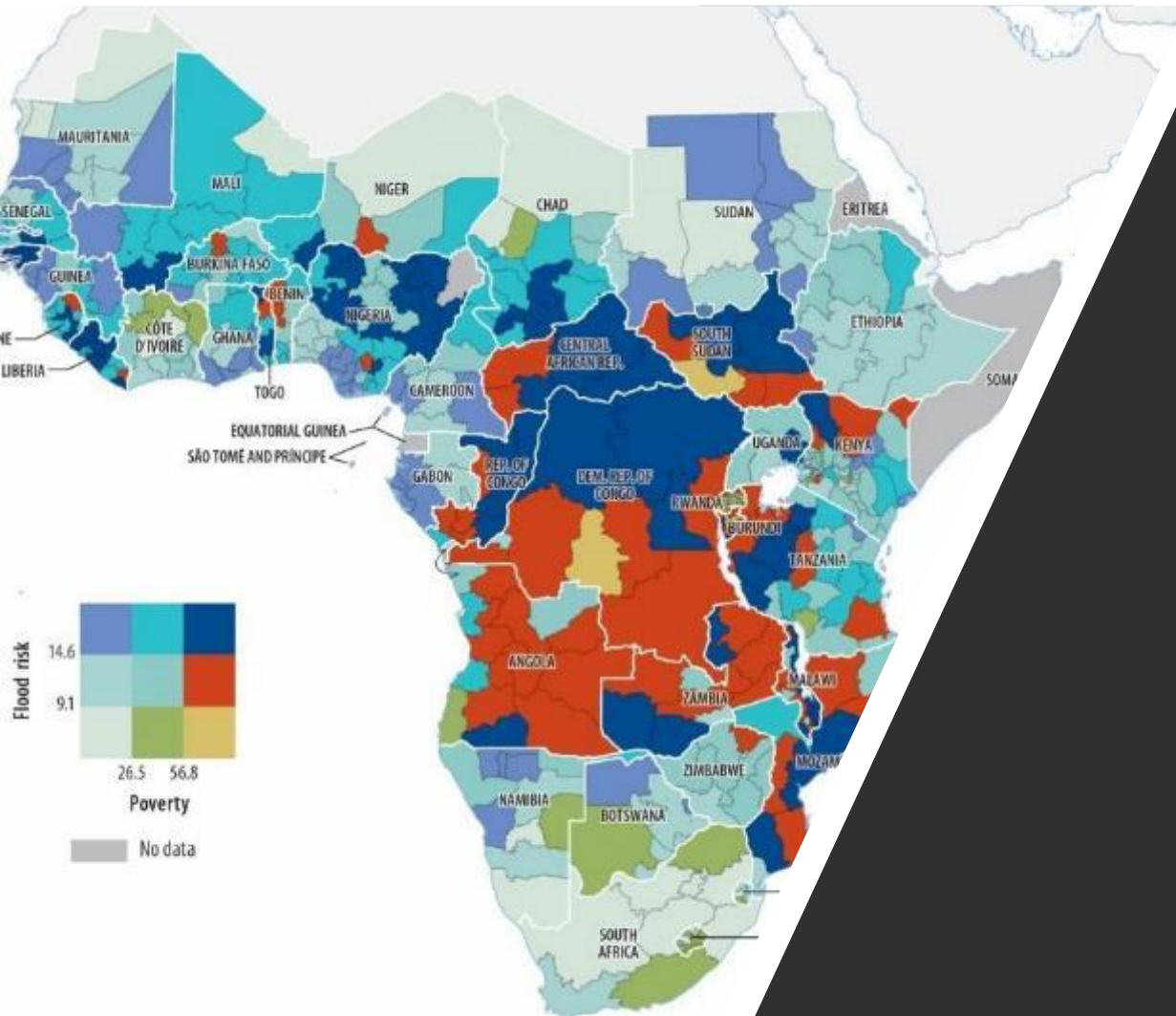
Source: Based on Nkonya et al. (2016); Alene et al (2010); Fenta et al. (2020); Fuglie (2018); Nin Pratt (2021) Venton et al. (2019); Ludwig et al., (2016); and various calculations. See the Annexe on Methodology for more details.

Floods in Africa



- Last decade: floods accounted for 65% of events and caused 24% of deaths
- Globally, 1.47 billion people live in areas with high flood risk, 132 million of them are poor
- In Sub-Saharan Africa: 10 percent of the total population with high flood risks
- BUT more than half of the global poor who face high flood risks

Floods: similar story at sub-national level



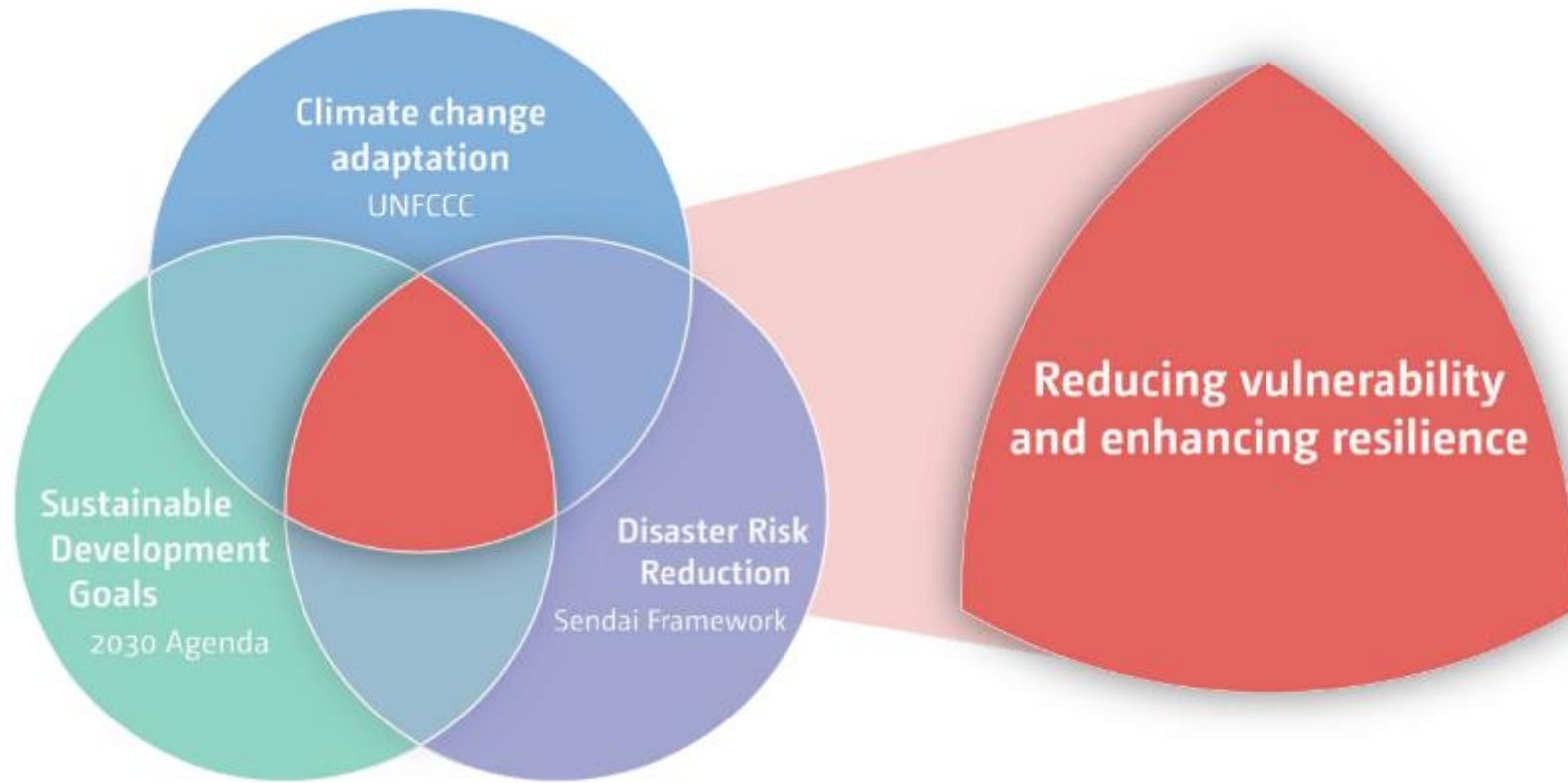
- Poor people often overexposed to floods
- Some countries in Southern Africa and the Horn of Africa and Egypt have a strong over-exposure of poor people to floods
- In Western Africa, countries with larger rivers and delta areas (notably Benin, Nigeria, and Cameroon) tend to have poor people disproportionately exposed to floods.
- Overall, 73 percent of analyzed populations live in countries with a positive poor-exposure bias to fluvial floods

Flood risk management in Africa – policy options

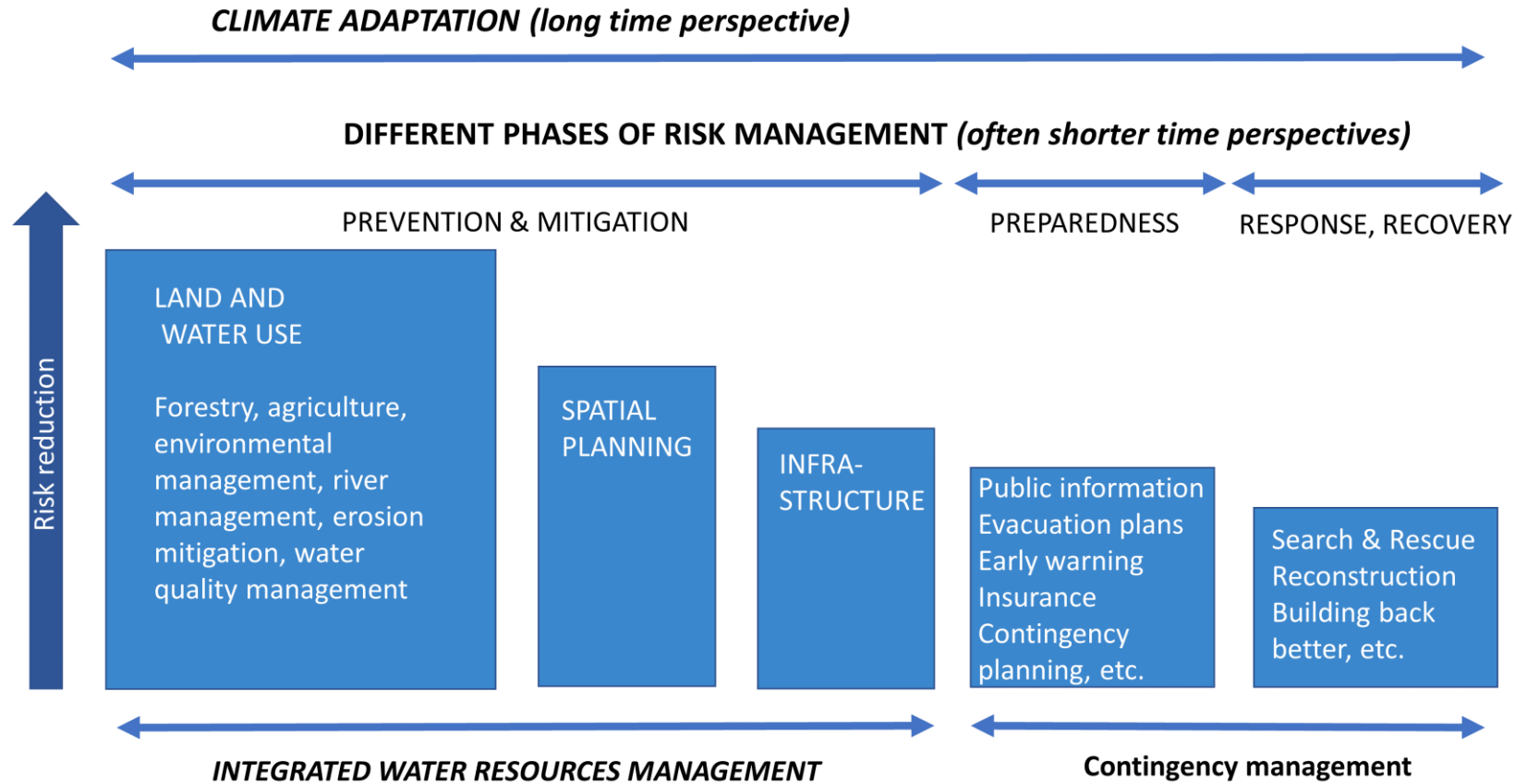


- Understanding flood risk is fundamental
- Traditional structural flood reduction infrastructure is expensive and needs careful targeting
- The most essential and cost-effective non-structural flood risk management measures are planning and preparedness
- The next level of non-structural measures is related to land use planning and management
- Rapid changes in Africa make flood prediction in the short- and medium-term challenging
- Other structural measures to reduce flood risks with lower costs and greater flexibility are nature-based solutions
- Flood risk management needs, at times, to look at large spatial scales

Disaster Risk Reduction and Climate Adaptation



Water and Climate in Africa: Time to merge disaster risk response and integrated water resources management





Transboundary waters in Africa – key to adaptation

- As over 90 percent of Africa's surface water is in transboundary basins, climate adaptation options will be a lot more limited if they only consider national boundaries
- Regional cooperation expands the range of possibilities for climate adaptation.
- The collaboration can range from simple data sharing to joint implementation of large transboundary infrastructure projects.

Lessons on transboundary cooperation and climate adaptation

Lessons from a WB review of transboundary and adaptation case studies:

- Shared, trusted information enables better preparedness
- Shared planning tools can help riparian's jointly decide ways to optimize water use, manage trade-offs, and share benefits
- Flexible, adaptive institutions enable alignment of regional and national policies to build climate resilience
- Shared approaches to infrastructure enable better investments in both natural (watershed management and reforestation) and built (multipurpose dams) infrastructure
- Countries pool together technical capacity and jointly mobilize financial resources



In conclusion

- Priority actions for African governments to enable adaptation of water management and food systems encompass both policy interventions and public financial investments.
- **For the policy interventions, the financial costs are relatively low, but political effort is needed.**
- IWRM, DRR, and Climate Adaptation need common approaches
- There is a sound evidence base from which to build a business case for climate finance and private finance. There is also substantial practical experience to draw on for implementation, both from African contexts and globally.

Five key areas of investment

Research and extension services

Water management

Climate-resilient infrastructure

Sustainable Land Management

Climate information services