

FLOOD RISK MANAGEMENT; THE ESSENTIAL ROLE OF CITIES AND IMPORTANCE OF MUNICIPAL PREPAREDNESS

**GIZ Connective Cities site event at the Africa Climate Submit
Nairobi Kenya 4-6 September 2023.**

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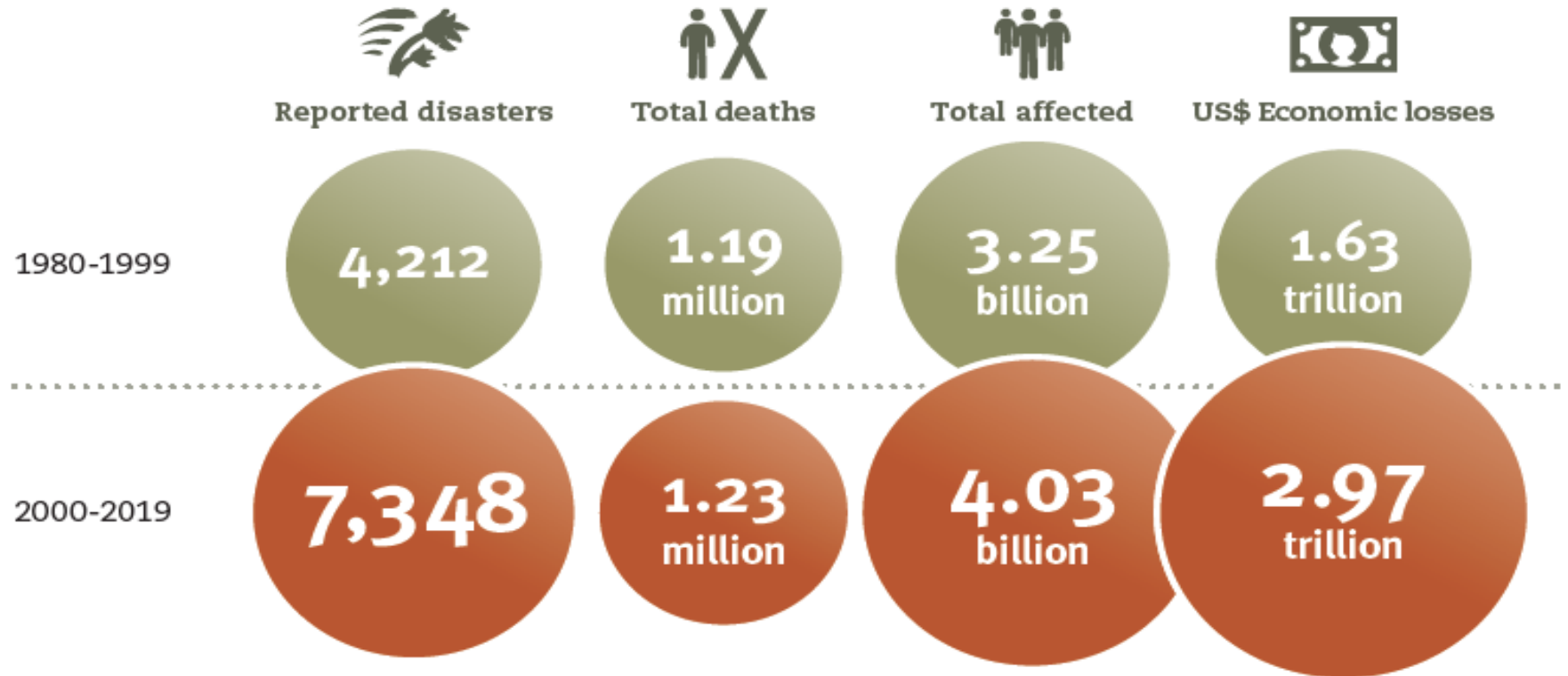


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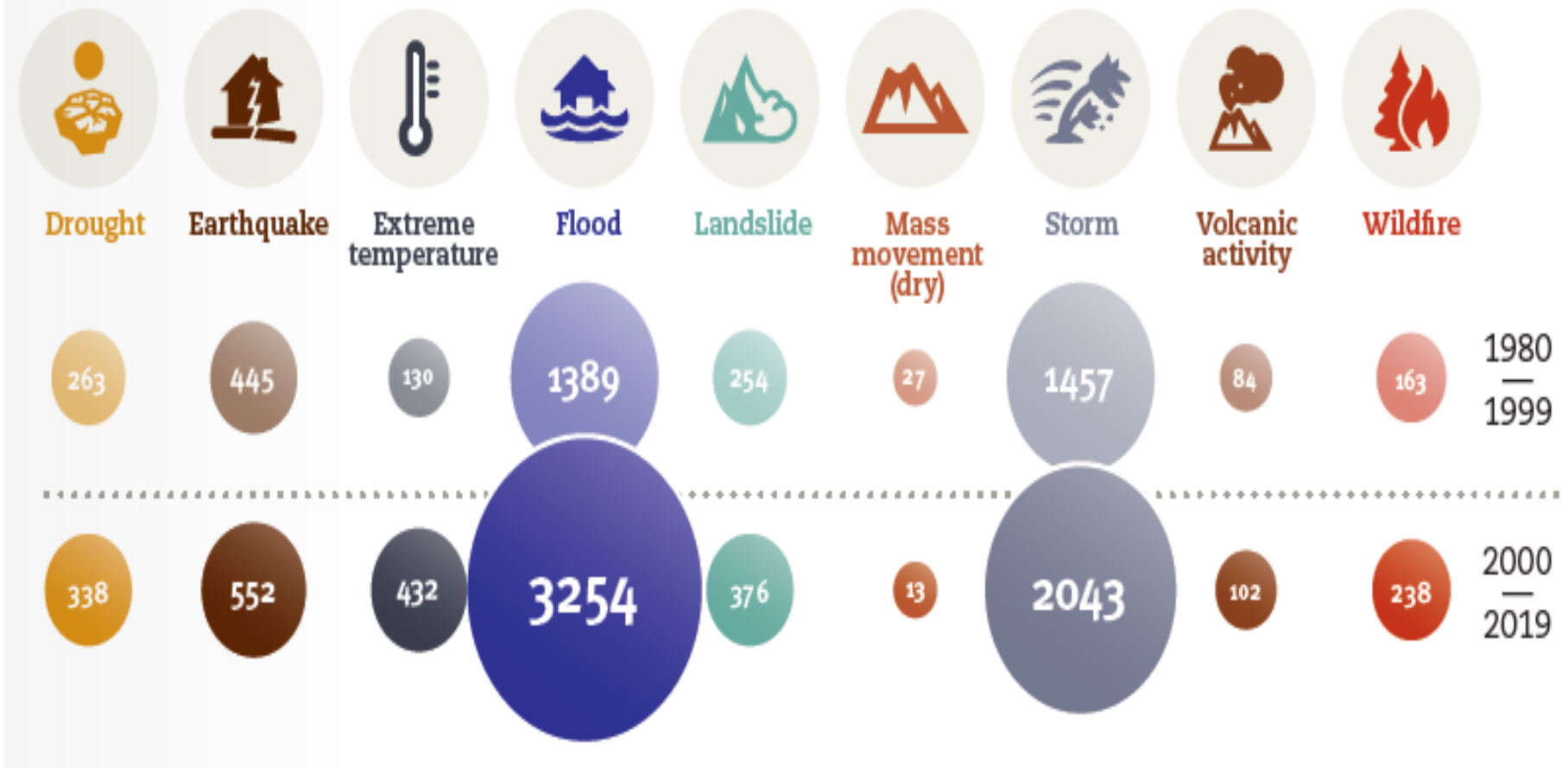
WHY FLOODS-THE MOST DESTRUCTIVE HYDROMETEOROLOGICAL HAZARD/DISASTER/CASCADING & COMPOUND

- Sharp increase in extreme events especially climate-related



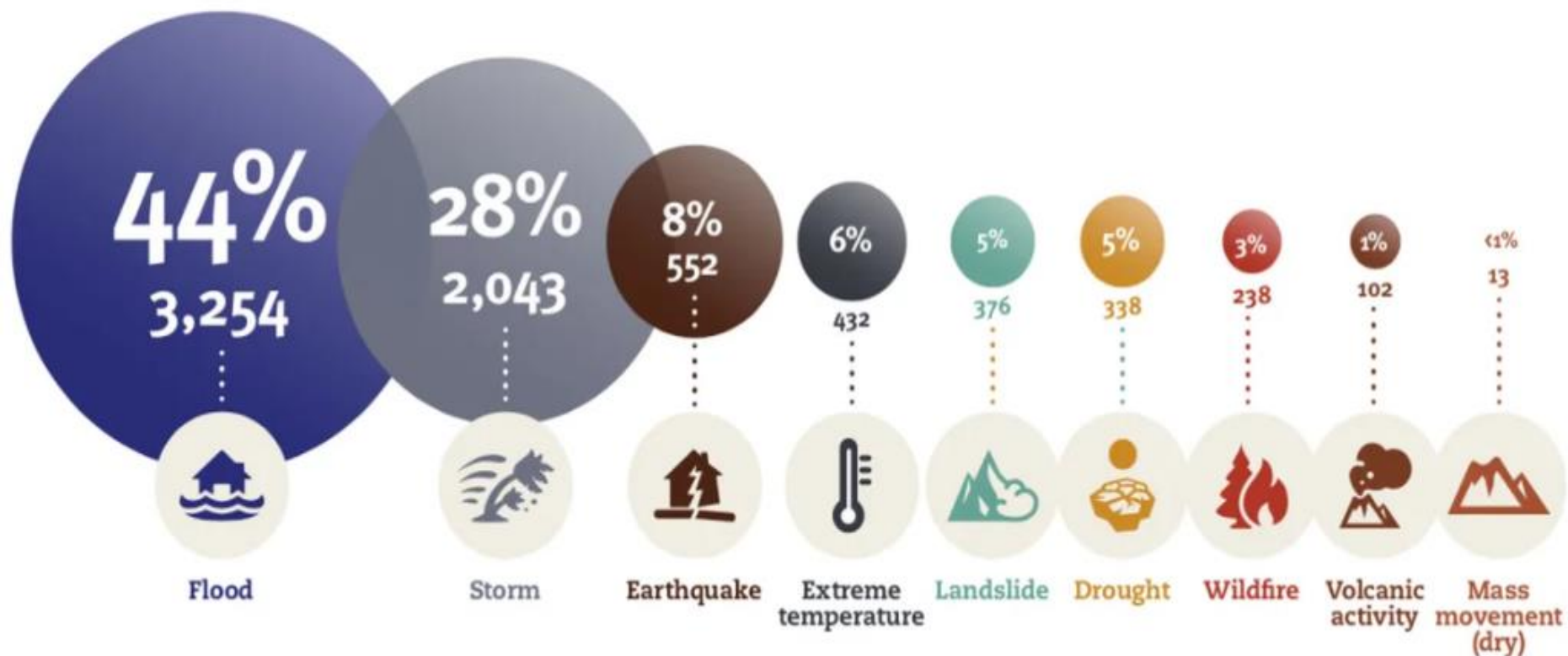
POSITION OF HYDROMETEOROLOGICAL ESP FLOOD

- Water related extreme events almost double



FLOOD FREQUENT AND MOST DAMAGING DISASTER

Percentage of occurrences of disasters by disaster type (2000-2019)



WHY FLOODS IN CITIES ESPECIALLY IN AFRICA?

- Centres for the concentration of the population(55% in 2022; 68% by 2025-UN Habitat)
- urbanization in Africa 35% 2000 to 43.5% 2020, expected at 50% by 2035
- Centres for important economic activities (30% of Africa GDP per capita in cities)
- Most vulnerable communities in urban fringes (informal settlements)
- High density of services, infrastructure, technology & innovation (heavy damages)
- Climate change- high GHGs emission, heat islands with heat waves BUT also climate mitigation, adaptation, DRR etc
- Areas of high development which should be Risk informed and resilient (Join RIUD network).

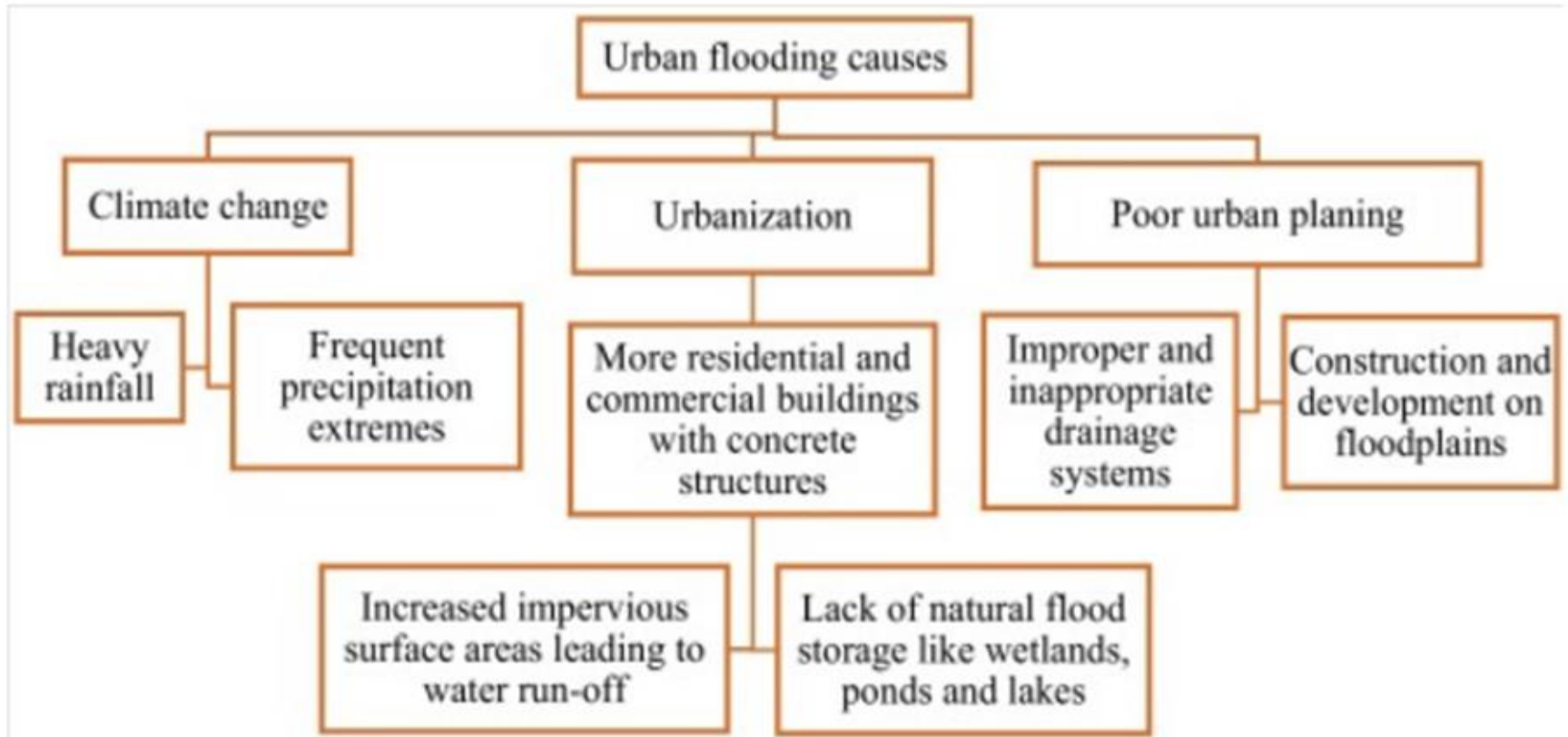
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GENERIC CAUSES OF URBAN FLOODS



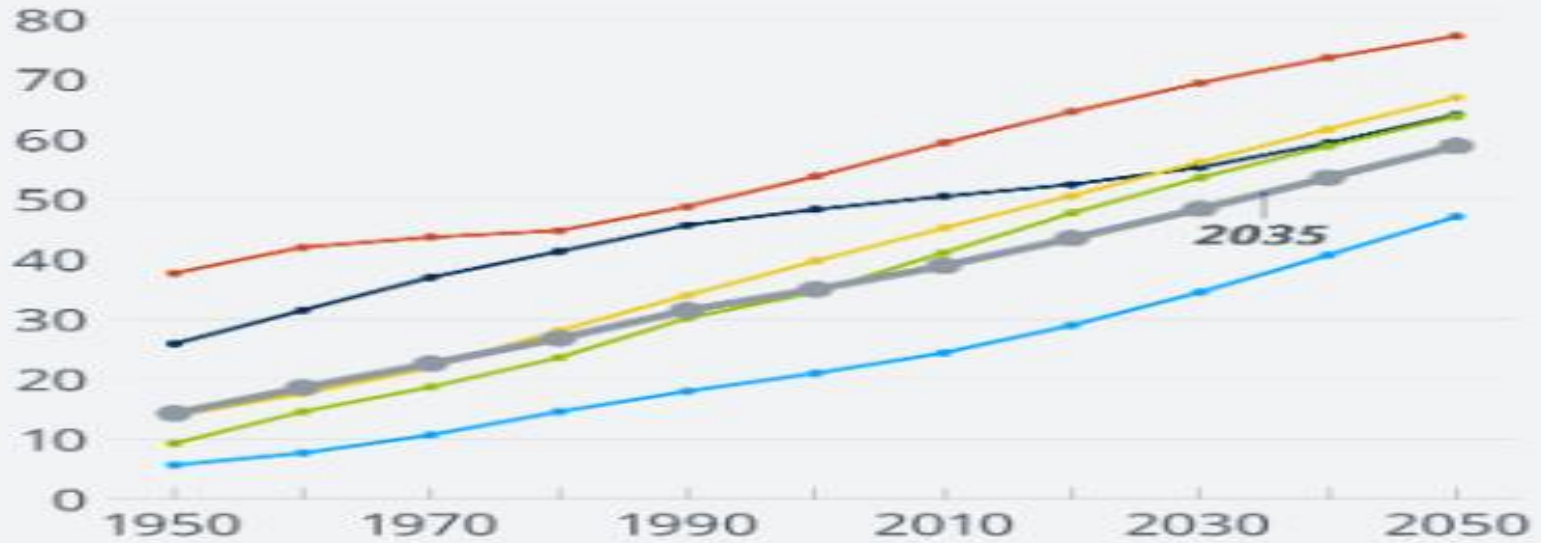
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URBANISATION IN AFRICA

Urbanization in Africa

Percentage of urban population per region

Africa North Africa West Africa
Central Africa East Africa Southern Africa



Source: UN World Urbanization Prospects 2018



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TEN TOP CITIES IN AFRICA WITH POPULATION OF MORE THAN 3 MILLION PEOPLE(AFRICA-EPICENTRE OF URBANIZATION)

Africa Cities by Population 2023

City	Country	Population
Lagos	Nigeria	9,000,000
Kinshasa	Republic Of The Congo	7,785,965
Cairo	Egypt	7,734,614
Alexandria	Egypt	3,811,516
Abidjan	Ivory Coast	3,677,115
Kano	Nigeria	3,626,068
Ibadan	Nigeria	3,565,108
Cape Town	South Africa	3,433,441
Casablanca	Morocco	3,144,909
Durban	South Africa	3,120,282



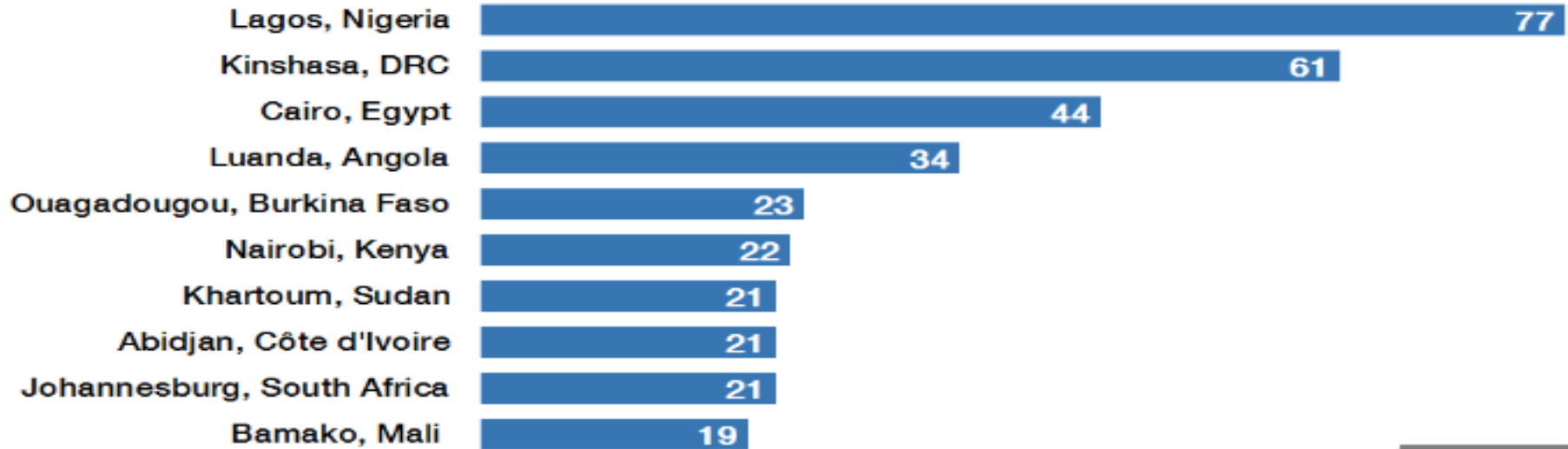
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POPULATION GROWTH PER HOUR IN AFRICA FASTEST GROWING CITIES

These are Africa's fastest-growing cities

Population growth per hour, 2010-2030



Source: UN World Urbanization Prospects, 2014

1,024 × 512

African cities will double in population by 2050. Here are 4 ways to make sure they thrive | World Econom...

[Visit](#)

THE APRIL 2022 FLOOD/LANDSLIDE IN DURBAN-SOUTH AFRICA-COMPOUND DISASTER

- eThekweni metropolitan municipality in KZN coastal city 98 km of coastline, 18 major river catchments, 16 estuaries and 4 000 km of rivers
- Hilly with steep slopes
- informal settlements in flood plains,
- Subtropical climate with high temperature & rainfall
- Durban the main city with the busiest seaport
- Aging infrastructure
- Environmental degradation illegal dumping, waste disposal, invasion of alien species, sand mining etc

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WHAT HAPPENED IN KZN IN APRIL 2022

- Between 300mm-400mm of RF in 24 hours (April 11, 2022), due to severe cut-off low pressure system
- Already saturated soils
- 459 casualties; 88 still missing (May 2022)
- 4000 homes destroyed,
- 40 000 people left homeless,
- 45 000 people temporarily left unemployed.
- USD 2 billion infrastructure damages houses, businesses, road, bridges, water and electricity, rail and telecommunications infrastructure

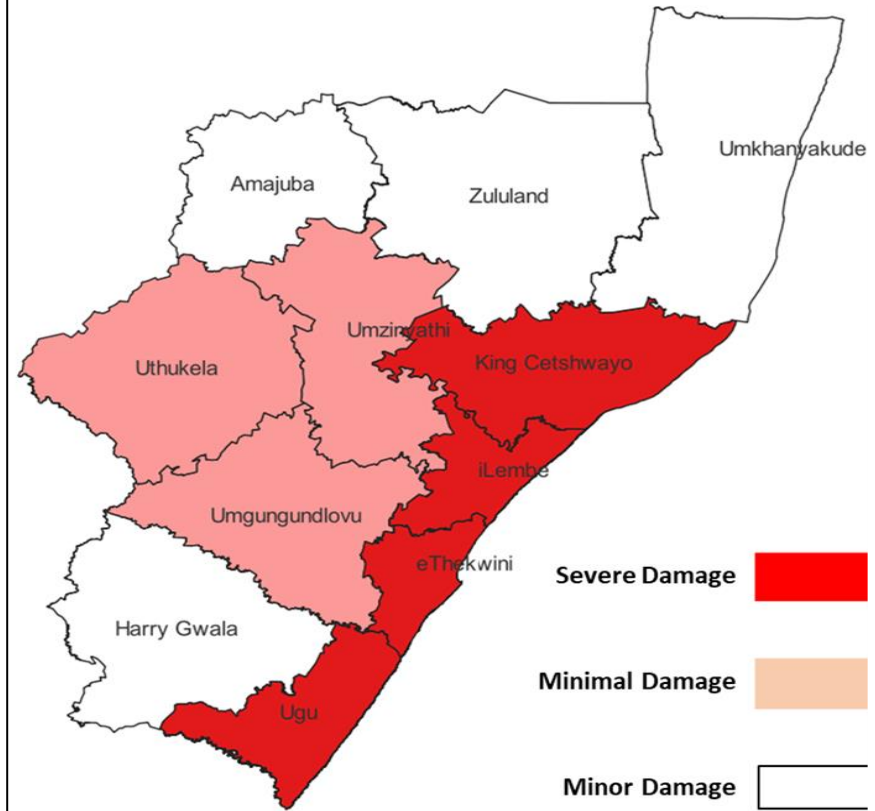
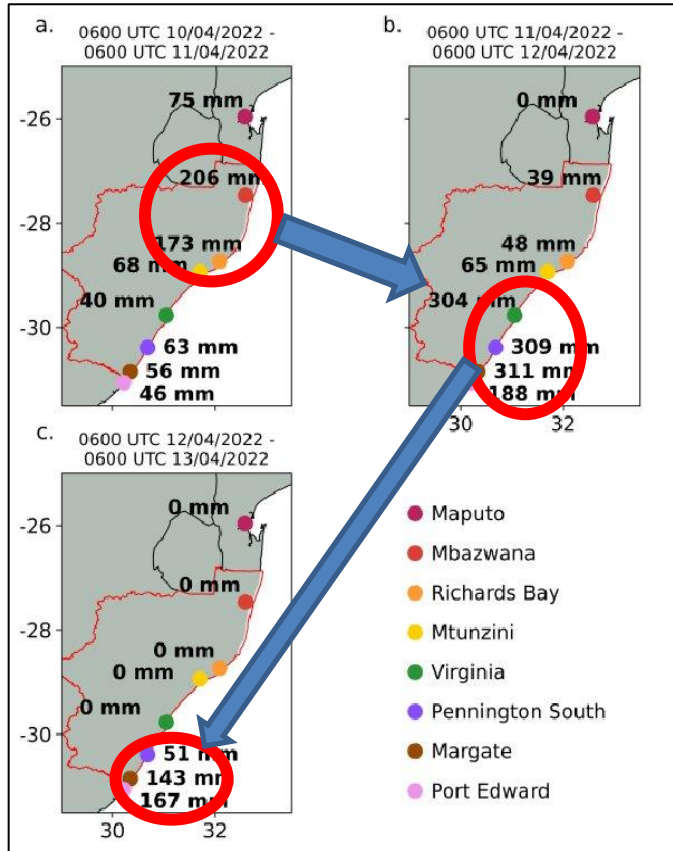
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THE APRIL 2022 FLOOD/LANDSLIDE IN KZN-SOUTH AFRICA



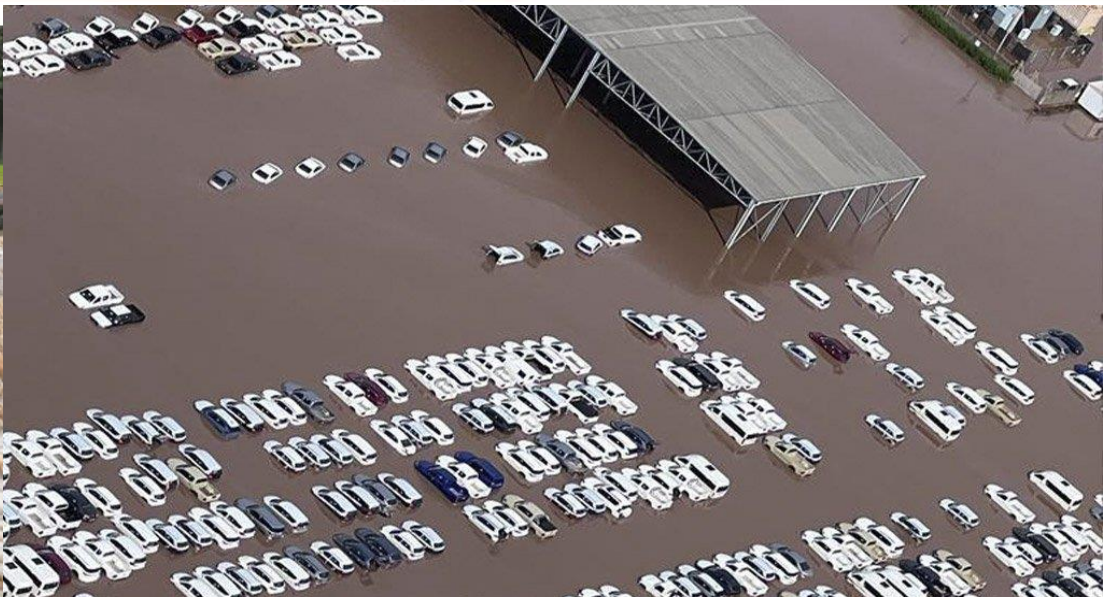
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IMAGES FROM KZN



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FLOOD IN DURBAN-WARD 15-TSHELIMNYANA

- Pop =20,689
- Area =4.14 km²
- Households = 6121
- Recent flood history
 - 2017 = many houses damaged
 - 2019 =189 houses damaged
 - 2022 = 1523 houses damaged; 21 dead; seven still missing; 21 roads damaged; 260 IDPs in temporary accommodations
- The sad story of Ms



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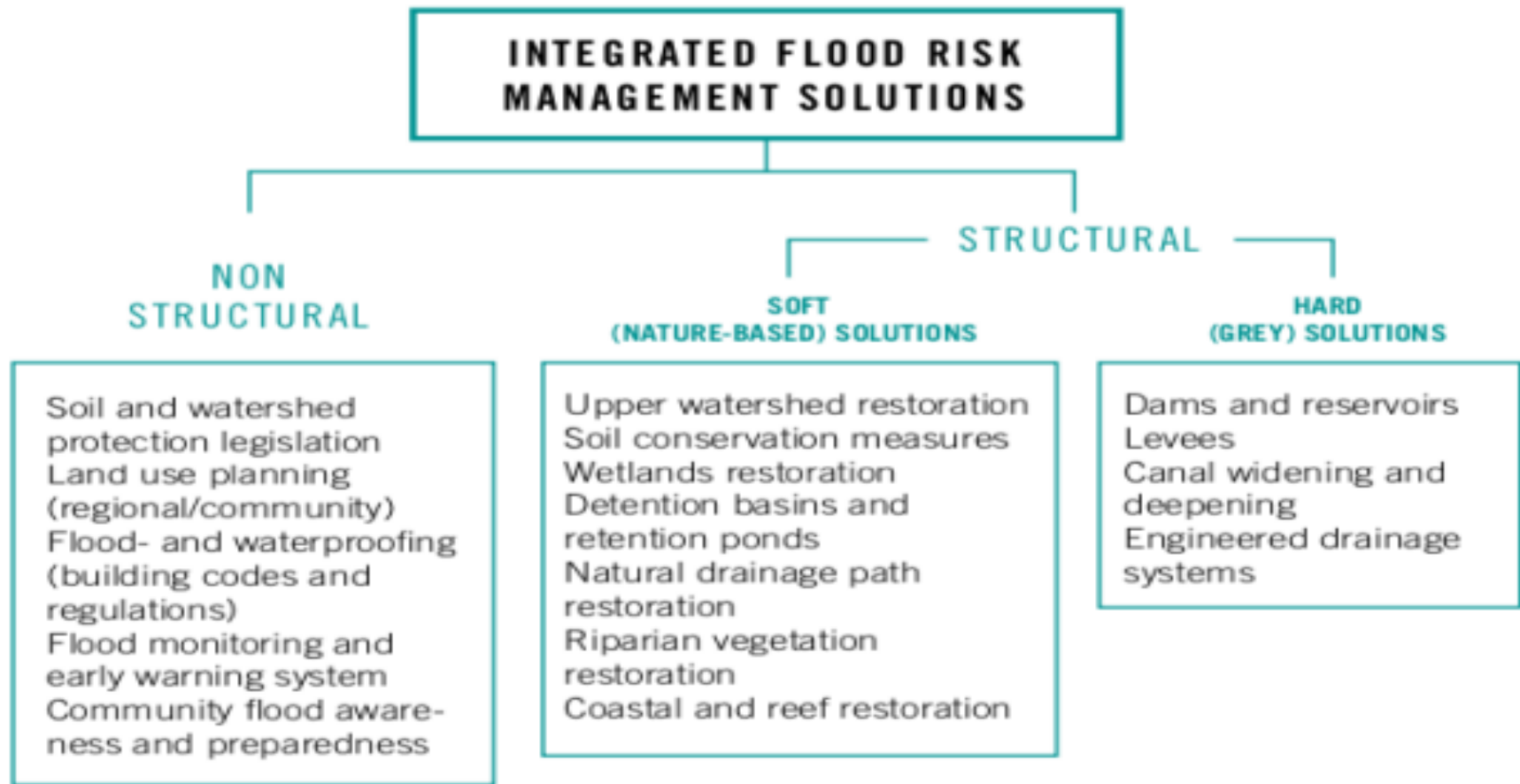


HOW CAN CITIES PREPARE FOR FLOODS

DISASTER PREPAREDNESS FRAMEWORK

Vulnerability Assessment	Planning	Institutional Framework
Information Systems	Resource Base	Warning Systems
Response Mechanisms	Public Education and Training	Rehearsals

HOW BEST CAN WE MANAGE URBAN FLOODING



NATURE-BASED SOLUTIONS FOR FLOOD MANAGEMENT IN CITIES OF AFRICA (GREAT HOPE AND POTENTIALS)



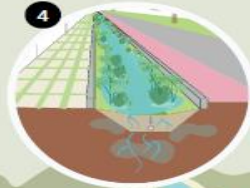
Wetland Restoration



Mangrove Restoration



Reviving Ecologically Important Regions



Bio-swales



Rain Water Harvesting



Green roofs and walls

NATURE-BASED SOLUTIONS



River / lake Restoration



Riparian Vegetation Restoration



Bioremediation of water bodies



Recharge wells



Restoring Natural Drainage Terrain



Permeable Ground Surfaces



Retention Ponds



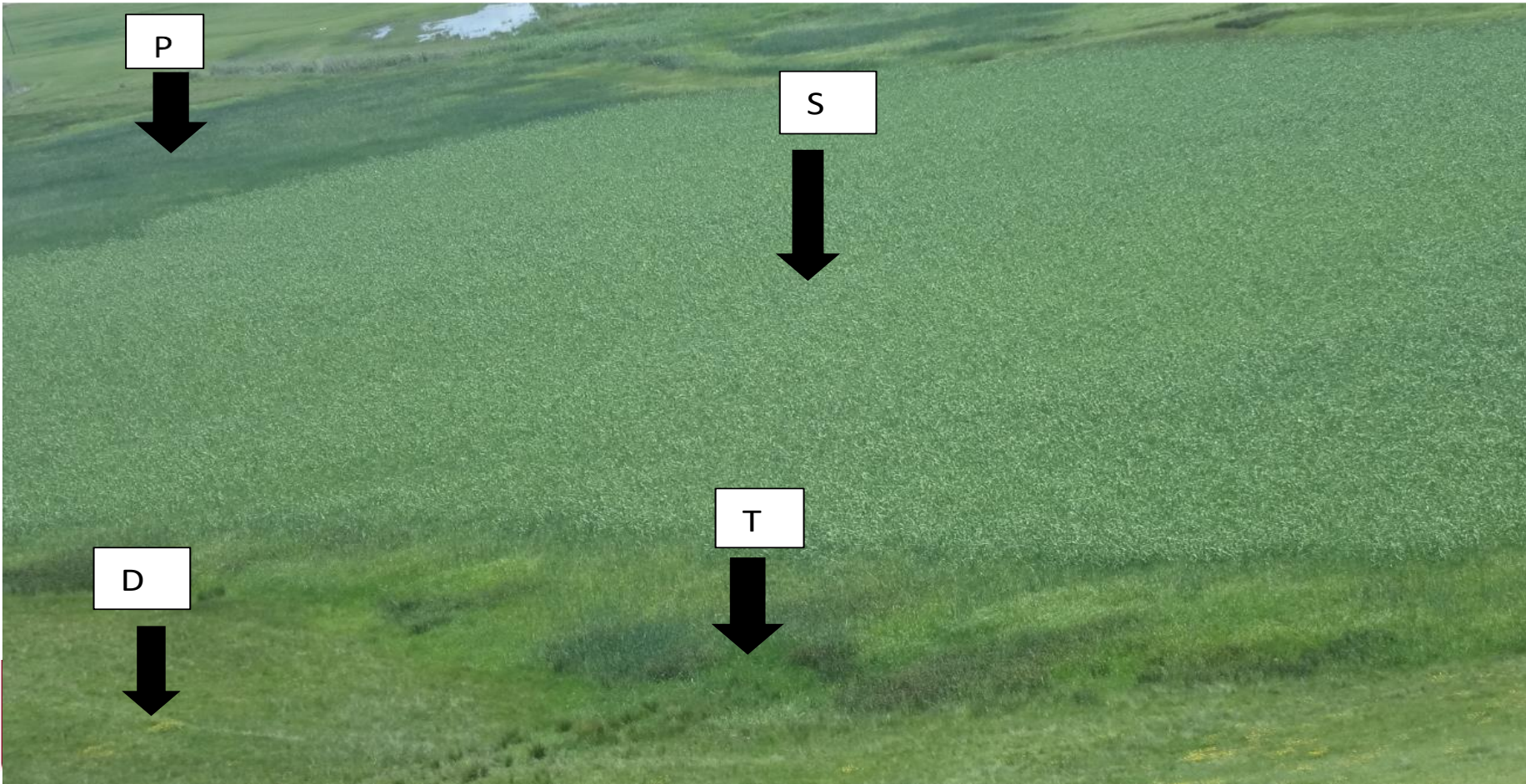
Bioretention Systems



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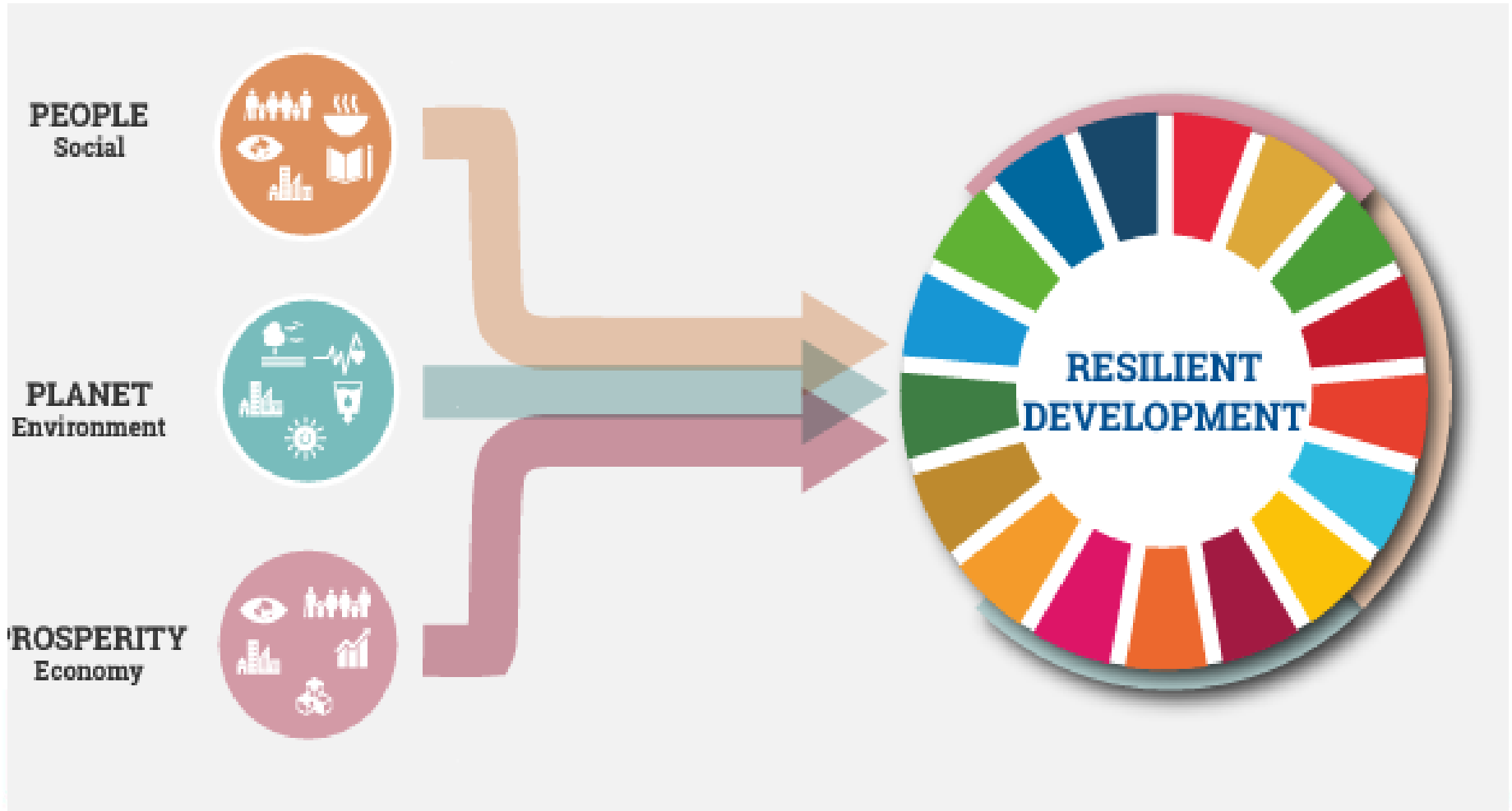
GREEN INFRASTRUCTURE FOR FLOOD MANAGEMENT IN CITIES IN AFRICA-WETLANDS



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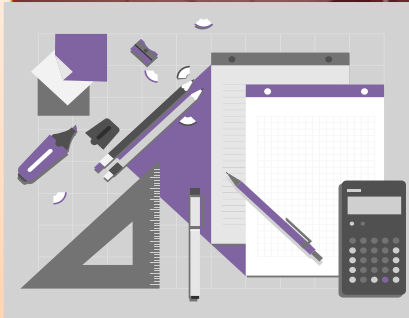


RESILIENT DEVELOPMENT MUST BE RISK INFORMED



THANK You!
BAI Dankie!
Kea leboha!
Merci!

“When you fail
to prepare, then
you prepare to
fail”!



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