

### Understanding El Niño: projecting impacts and implications on food security & livelihoods in Somalia

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#### Outline

- Seasonal rainfall outlook for the region
- El Niño in Somalia: Past vs. present
- Food security situation update and outlook
- Risks and opportunities



# Seasonal rainfall outlook in the Horn of Africa



#### **Climate drivers impacting East Africa weather: El Niño**



#### El Niño



-1.2

-0.8

-0.4

-0.2

0

0.2

0.4

0.8

1.2

#### La Niña



#### **Climate drivers impacting East Africa weather: El Niño**



MAP 1: Typical precipitation patterns under El Niño conditions (teleconnection)



#### **Climate drivers impacting East Africa weather: Indian Ocean Dipole (IOD)**





#### **Combined effects of El Niño and IOD for the October – December season**





Source of graphics: Hameed 2018



#### **El Nino forecast**



*"El Niño conditions are present* and are expected to gradually strengthen into the Northern Hemisphere winter 2023-24." - CPC ENSO Update



#### **Positive Indian Ocean Dipole forecast**



Source of graphics: Australian Government Bureau of Meteorology



#### **Combined effects of El Niño and IOD for the October – December season**





Source of graphics: Hameed 2018



#### Increased probability of above-average rains between October and December



Probabilistic Multi-Model Ensemble Forecast Beijing,Montreal,Seoul,Tokyo,Washington





WORLD WORLD ORGANIZATION

> COLUMBIA CLIMATE SCHOOL INTERNATIONAL RESEARCH INSTITUTE FOR CLIMATE AND SOCIETY



Source: ECMWF, NOAA, UK MET, IRI, WMO



## El Niño in Somalia: Past vs Present:



#### **Climate of Somalia: Gu and Deyr**

Temperature and Precipitation, and their combination, are the two defining parameters for the growth of natural resources including agriculture produce and rangeland vegetation, sustaining this agro-pastoral society.

GU season	Hot & Humid			
DEYR season	Cold & Humid			
'				







#### Somalia seasonal calendar





#### El Niño trend analysis



Multivariate ENSO Index Version 2

There have been at least 30 El Niño events since 1900, with the 1982-83, 1997-98 and 2014-16 events among the strongest on record.



#### **Projected long term scenarios for seasonal change 2020-2085**



Source: Ogallo, L.A., Omondi, P., Ouma, G. and Wayumba, G. (2018) Climate Change Projections and the Associated Potential Impacts for Somalia. American Journal of Climate Change, 7, 153-170. ICPAC, 2022. Report on State of Climate, Peace and Security in the Horn of Africa. November 2022



### El Nino Somalia: Food security situation update and outlook



- Rising level of needs, exacerbated by increasing frequency of shocks, rising population, continuing displacement and unmet needs (humanitarian and recovery/development needs)
- El Nino likely to exacerbate the extended humanitarian impact of a multi-season drought





- El Nino likely to exacerbate the extended humanitarian impact of a multi-season drought
- Disease outbreak due to contaminated and stagnant water could also occur, with likely exacerbating impact on acute malnutrition





 Protracted humanitarian crisis





- El Nino likely to cause riverine and flash floods, leading to loss of lives, property, population displacement, destruction of infrastructure and crops in the field
- Impact likely to be greatest in riverine livelihoods (along Shabelle and Juba rivers). However, flash floods in other (low-lying) areas receiving above average rainfall are also likely
- Not all EL Nino years necessarily lead to flooding. However, severe flooding has been observed in several El Nino Contingency planning can be based on historical data on reported impacts

	# of People Affected			
Year	Flood	Cyclone/Strorm	Total	
2000	373,500		373,500	
2001	6,500		6,500	
2002				
2003	300		300	
2004	1,500		1,500	
2005	7,520		7,520	
2006	486,500		486,500	
2007	10,012		10,012	
2008	52,000		52,000	
2009	1,750		1,750	
2010	16,200		16,200	
2011	2,800		2,800	
2012	32,200		32,200	
2013	105,000	142,380	247,380	
2014	90,000		90,000	
2015	916,296	4,000	920,296	
2016				
2018	700,000	228,000	928,000	
2019	500,000	30,000	530,000	
2020	1,191,020	120,000	1,311,020	
2021	400,000		400,000	
2022	4,416		4,416	
Notes:				
1/ El Nino Years are higlighted in red text				
2/ Non-El Nino years with over 100,000 people affected				
are higlighted in vellow.				



#### 2023 Gu Season Rainfall Performance







#### Percent of Mean NDVI/Vegetation Cover 21-30 Jun 2023





#### Shabelle and Juba River Levels



Historical data for Station Dollow on Jubba River

Historical data for Station Belet Weyne on Shabelle River





Historical data for Station Jowhar on Shabelle River



Historical data for Station Bardheere on Jubba River



# Risks and opportunities



#### **EL NINO: RISK OR OPPORTUNITY?**





#### **Scenario planning**



LEVEL OF INVESTMENT REQUIRED FOR MITIGATION



#### Likely impacts in the absence of intervention

#### **IMPACT MEASUREMENT**

Likely scenarios without intervention





#### WHY EARLY ACTION?

#### LOSS OF

We can substantially mitigate loss of human life by alerting people in time with reliable information & slowing flood waters

#### LOSS OF LIVELIHOODS

We can partially prevent loss of livelihoods & productive asset by telling people when and where to move with their animals, when to plant & when not to

#### DISPLACEMENT

Displacement will be a key coping strategy but access to information on safe evacuation points & higher ground is critical

#### WITHOUT EARLY ACTION

without early action ahead of Deyr 2023 and a high likelihood of a 100 yr flood event loss of lives & livelihoods will be high with a growing humanitarian caseload

#### WITH EARLY ACTION

Investment in EW & preparedness ahead of Deyr 2023 will save lives & livelihoods and lower the cost of the humanitarian

response

#### IMMEDIATE PRIORITY ACTIONS

Flood defence infrastructures to slow flood waters & give people more time

Set up robust EW systems and emergency response plans

Flood management planning with local & national authorities

Coordinate with all actors to enact safe evac points based on available data set up for prolonged presence Continuous monitoring of river levels Repair existing infrastructure to slow flood water Prepositioning of stocks of food, water and NFI



COST OF RESPONSE



### THANK YOU