

An overview of drought occurrence, impacts and police/strategies in the in Greater Horn of Africa

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**NASA IDS: Seasonal Prediction of Hydro-Climatic Extremes in the
Greater Horn of Africa (GHA)**

The First Participatory Research and Project Meeting

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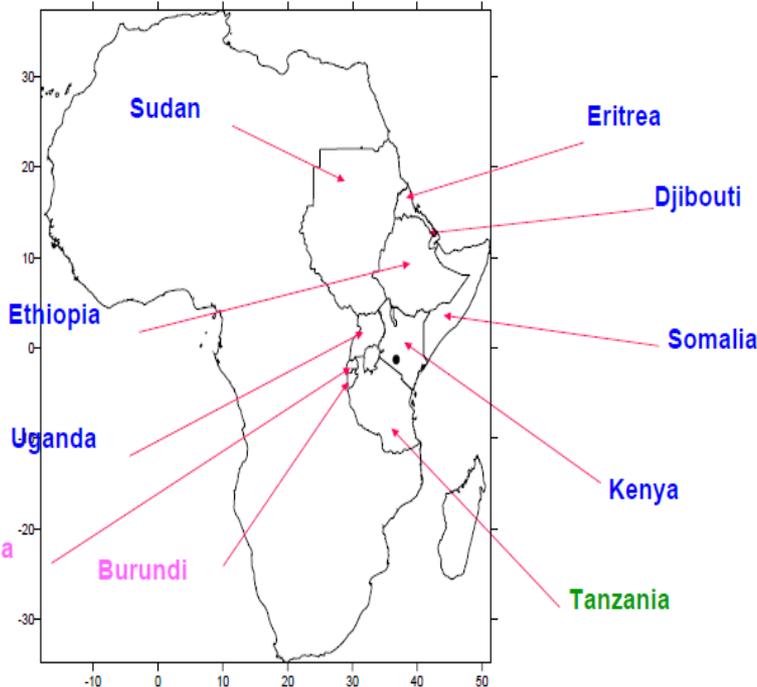
Outline

- 1. Introduction**
- 2. Climate variability and trends in the GHA region**
- 3. Drought Occurrences and Impacts**
- 4. National and regional drought policies, strategies and action plans**
- 5. Gaps, needs and Issues for discussions**

1. Introduction

About the GHA region

ICPAC PARTICIPATING COUNTRIES IN THE GHA



- The GHA region include **11 countries** with a population of about **300 million** in 2011
- There is lot of diversity in climate, biodiversity, topography, culture in the region
- The region is dominated by arid and semi-arid areas
- Poverty is widespread
- Conflict is a challenge in the region
- It is also rich in natural resources with potentially good prospect for socio-economic development

1. Introduction

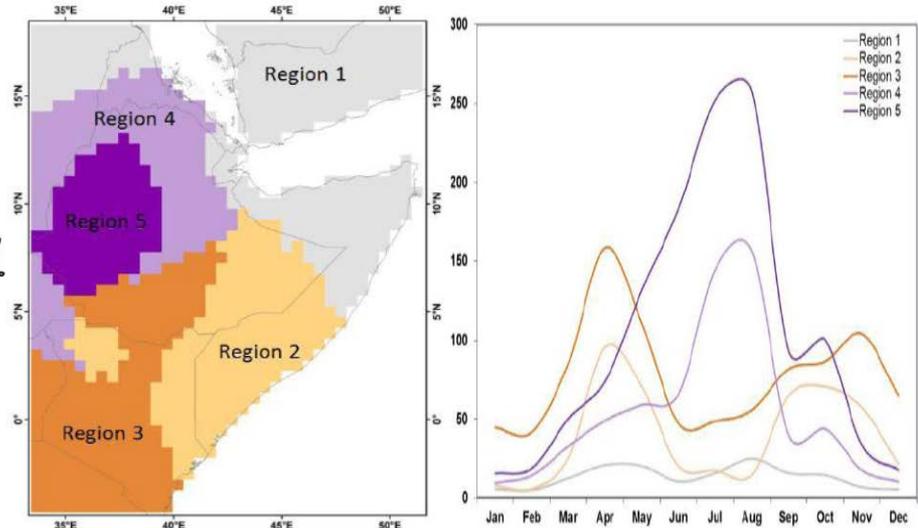
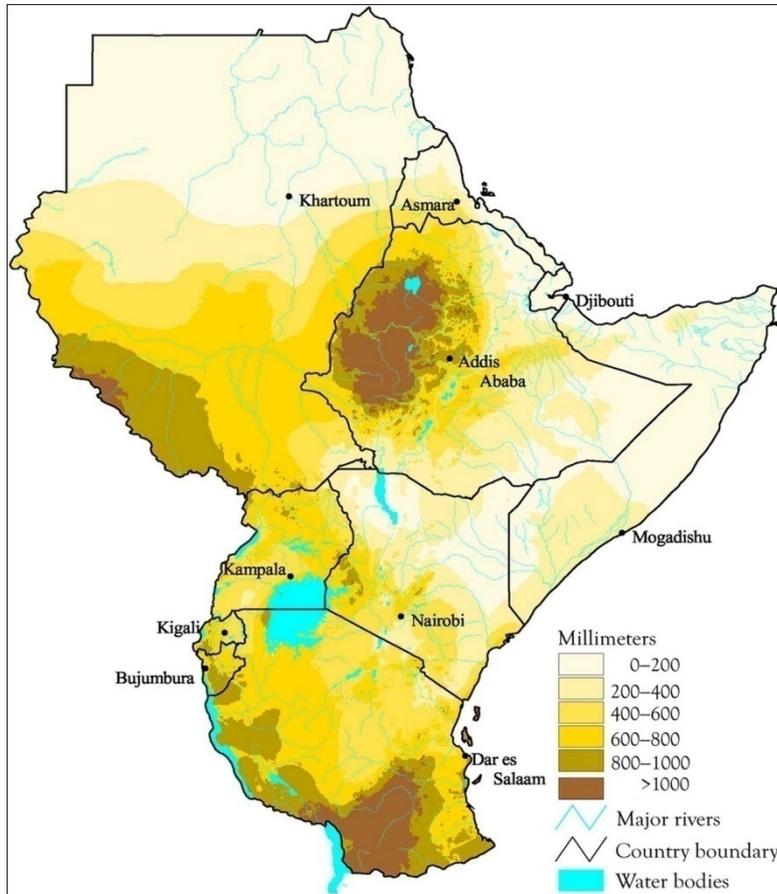
About ICPAC

ICPAC is a specialized institute of IGAD providing climate services for the GHA region

It's mandated areas of activities are

- Climate mentoring
- Climate prediction and early warning
- Climate applications to various sectors
- Climate change
- Research
- Capacity building

2. Climate variability and trends in the GHA region

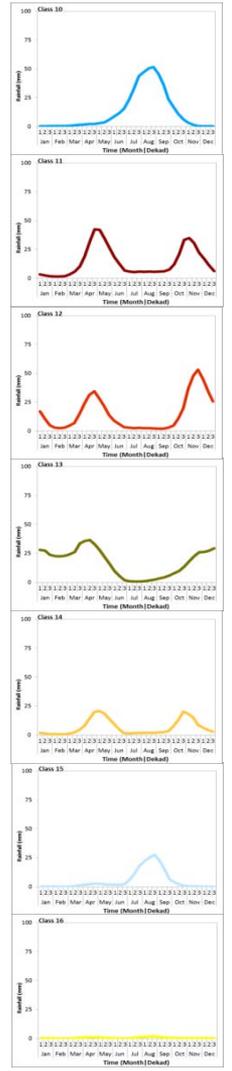
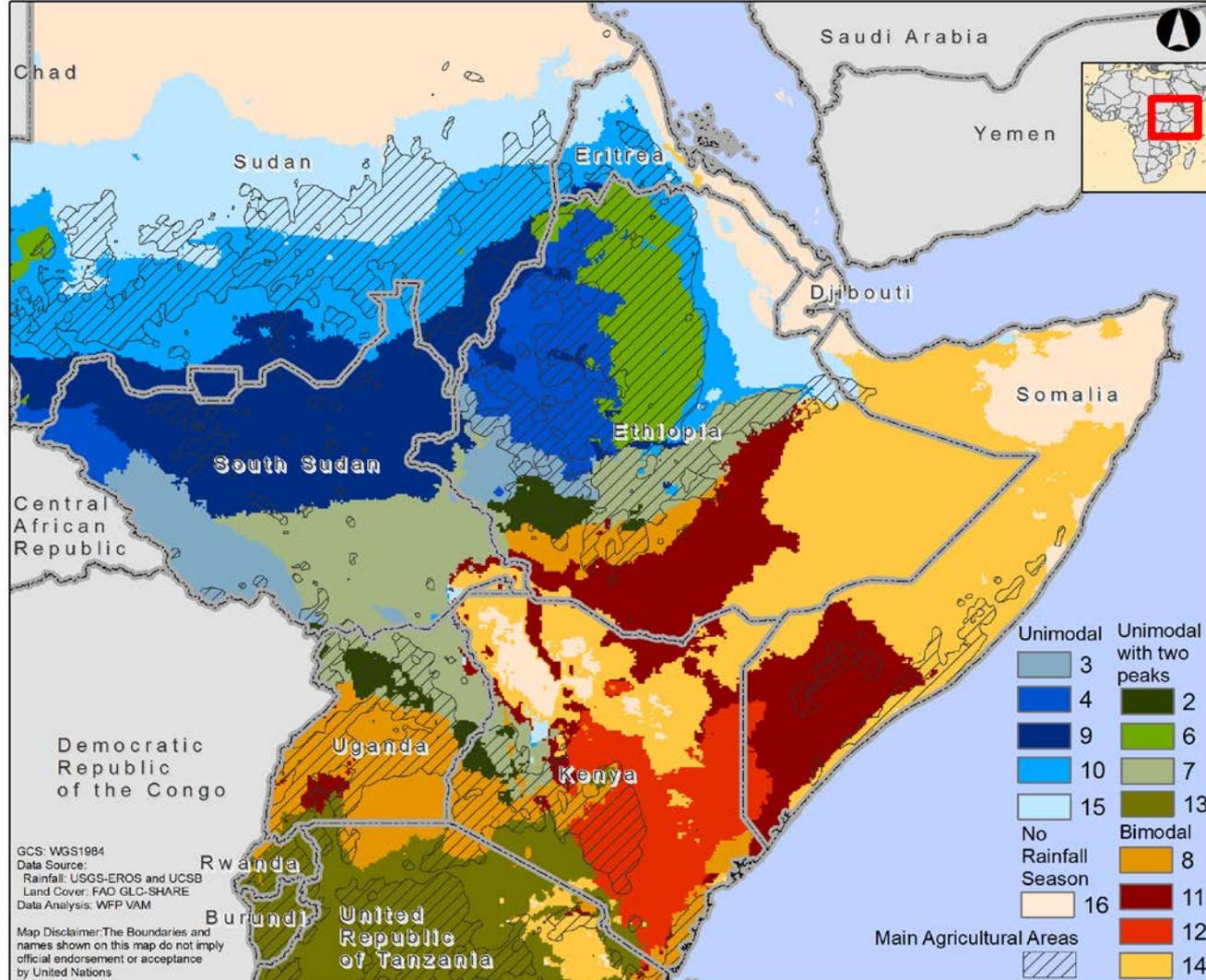
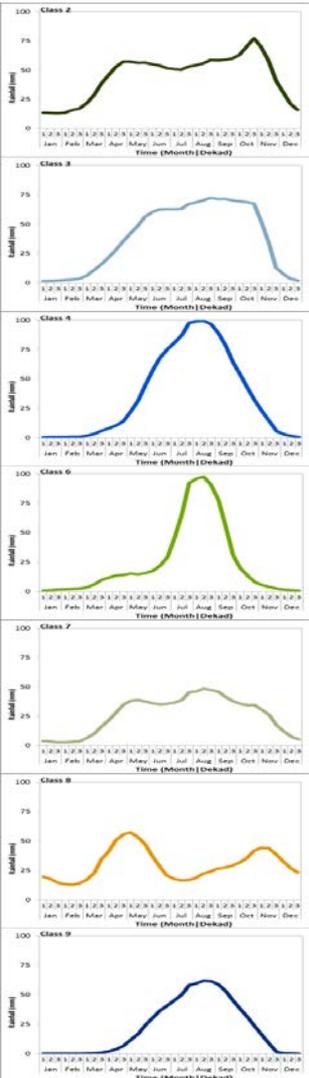


Seasonal rainfall regimes in the Horn of Africa

Annual mean rainfall distribution

2. Climate variability and trends in the GHA region

EASTERN AFRICA RAINFALL SEASONALITY
 Analysis based on the last 20 years data (1994-2013)



GCS: WGS1984
 Data Source:
 Rainfall: USGS-EROS and UCSB
 Land Cover: FAO GLC-SHARE
 Data Analysis: WFP VAM

Map Disclaimer: The boundaries and names shown on this map do not imply official endorsement or acceptance by United Nations

Main Agricultural Areas

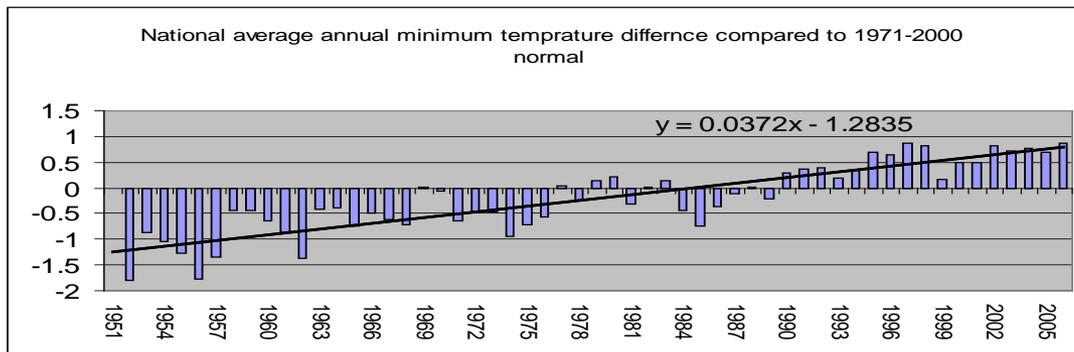
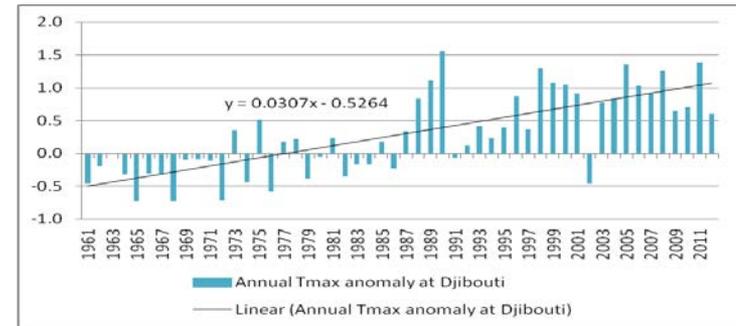
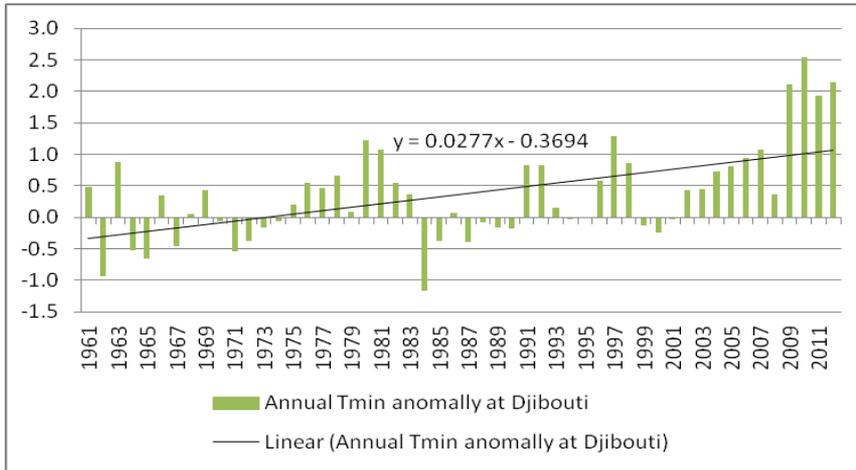
2. Climate variability and trend in the GHA region

Drivers of spatial and temporal Climate variability in the GHA region

- Inter-Tropical Convergence Zone (ITCZ)
- Sub-tropical anticyclones
- Monsoon winds and ocean currents
- Jet-streams
- Easterly waves
- Tropical cyclones
- Teleconnections
- Regional factors

2. Climate variability and trend in the GHA region

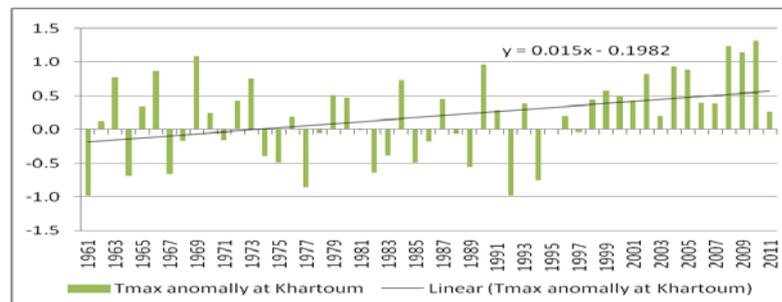
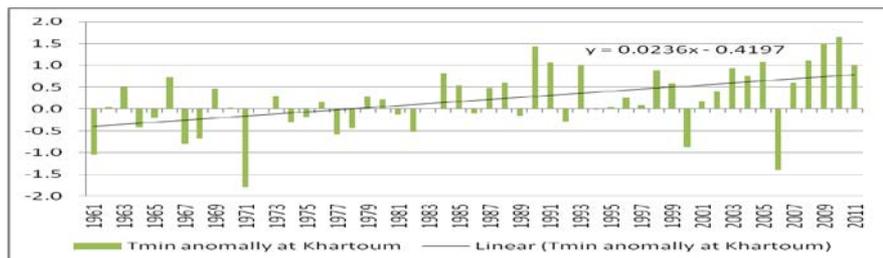
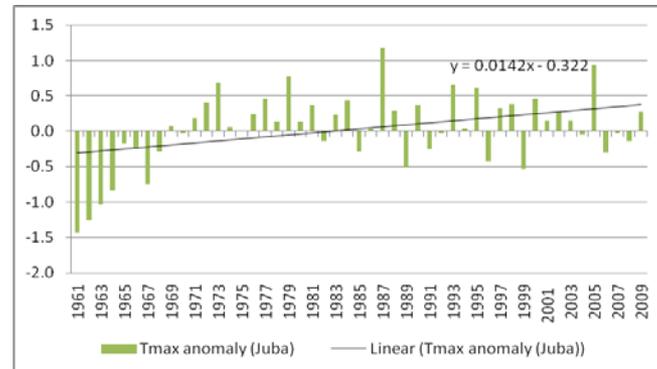
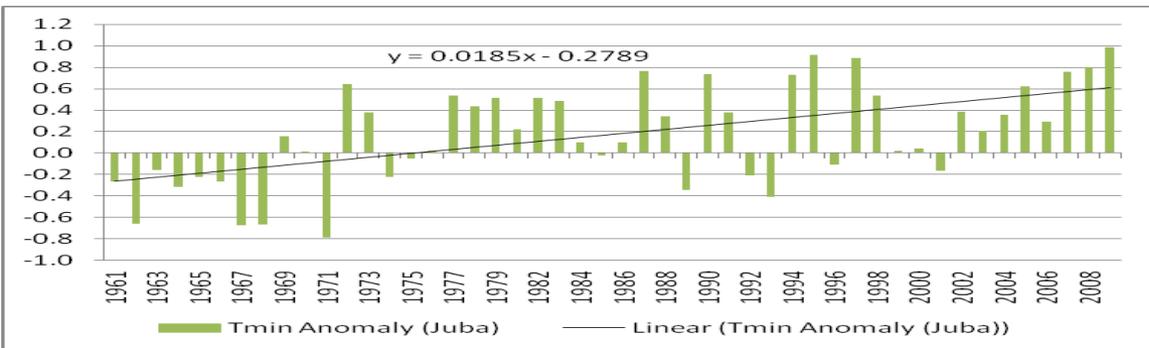
Annual temperature trends



Annual Rainfall Variability and trend of a) annual mean minimum temperature b) annual mean maximum temperature at Djibouti (Authors own analysis).

2. Climate variability and trend in the GHA region

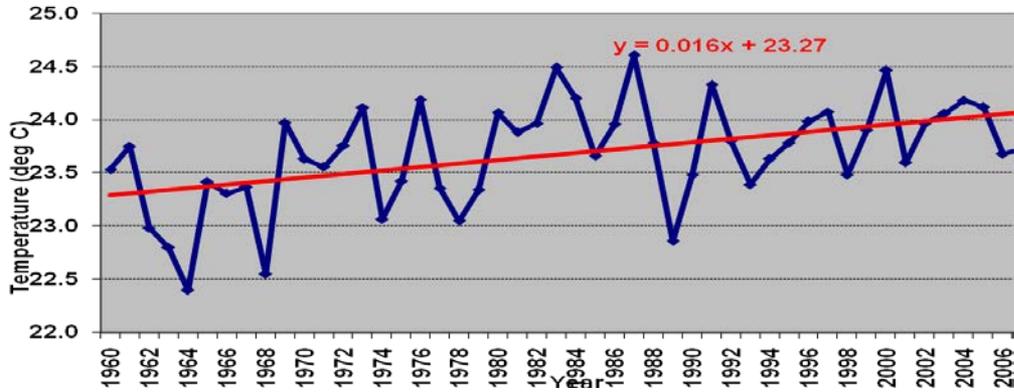
Annual temperature trends



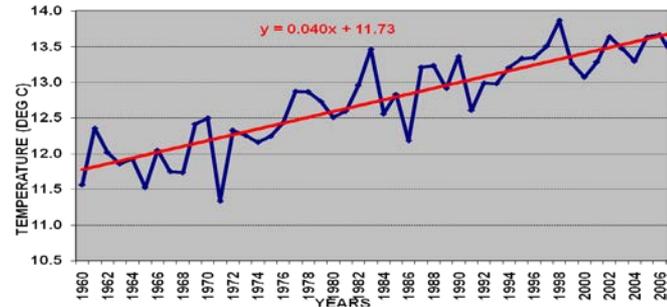
2. Climate variability and trend in the GHA region

Annual temperature trends

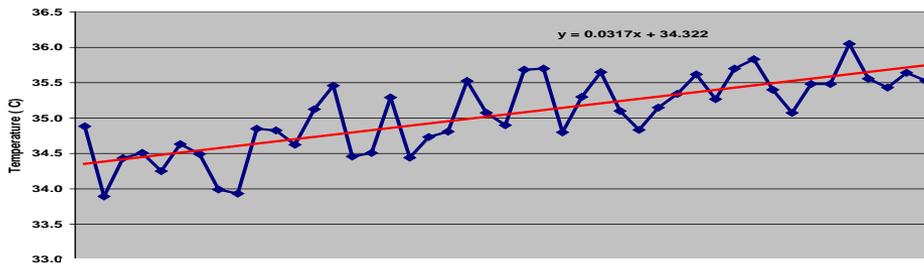
Annual Tmax for Dagoretti



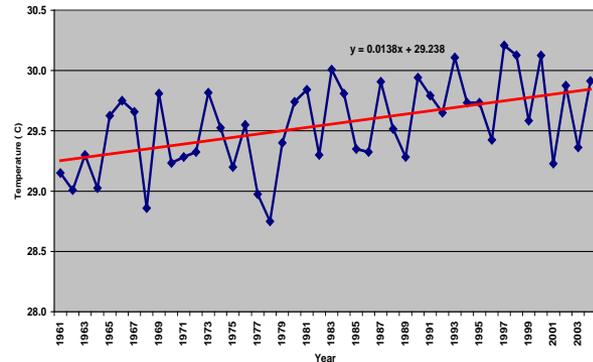
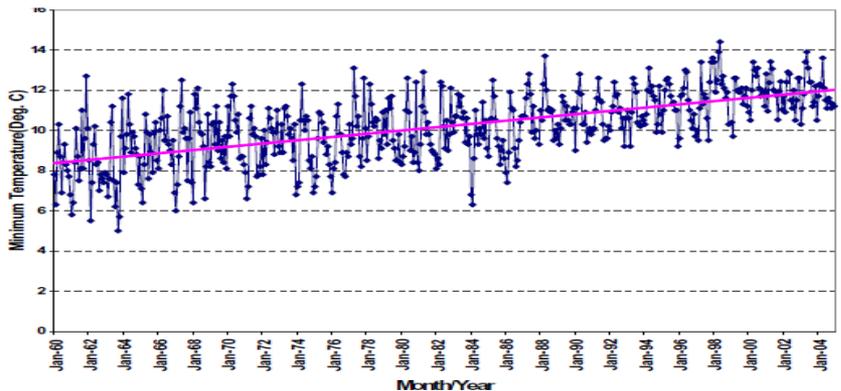
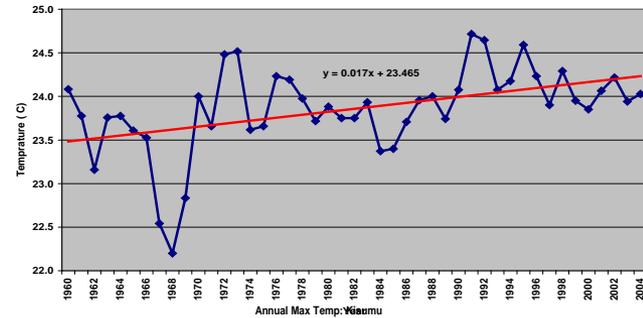
ANNUAL TMIN FOR DAGORETTI



Annual Max Temp: Lodwar

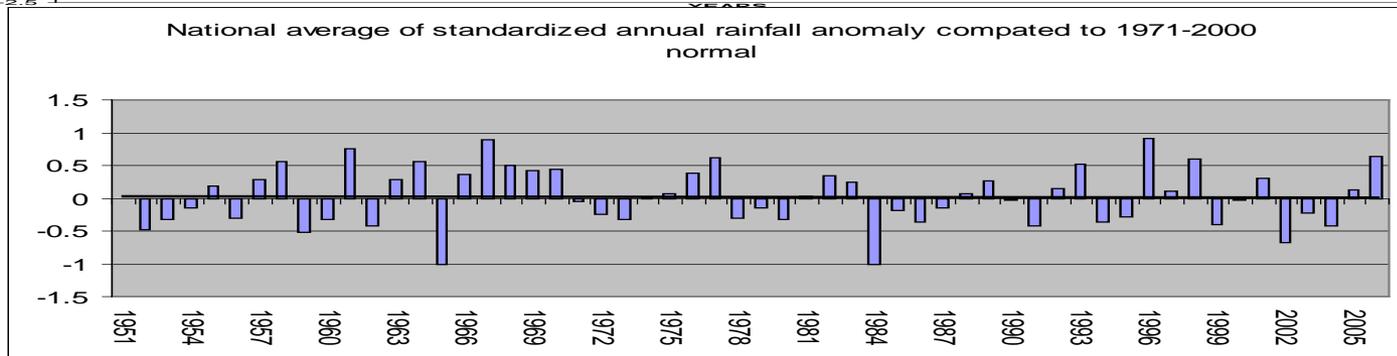
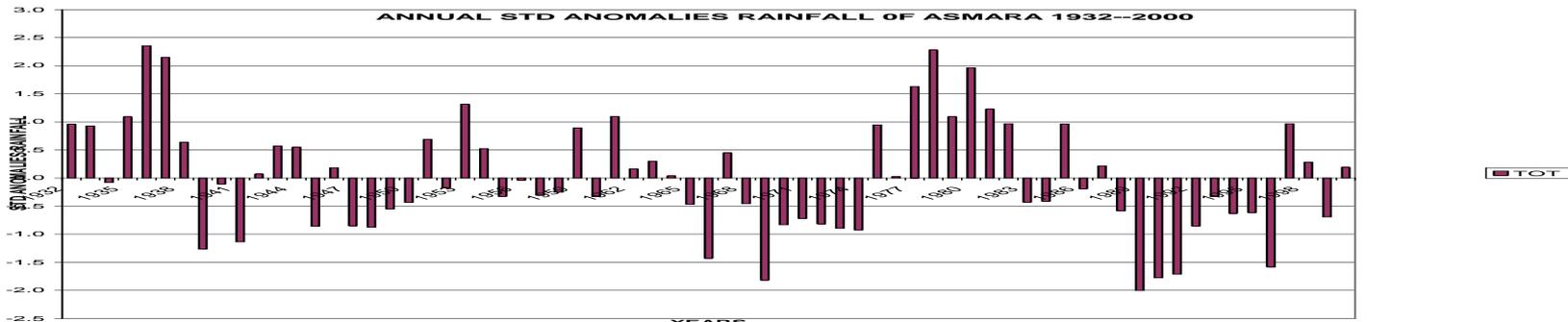
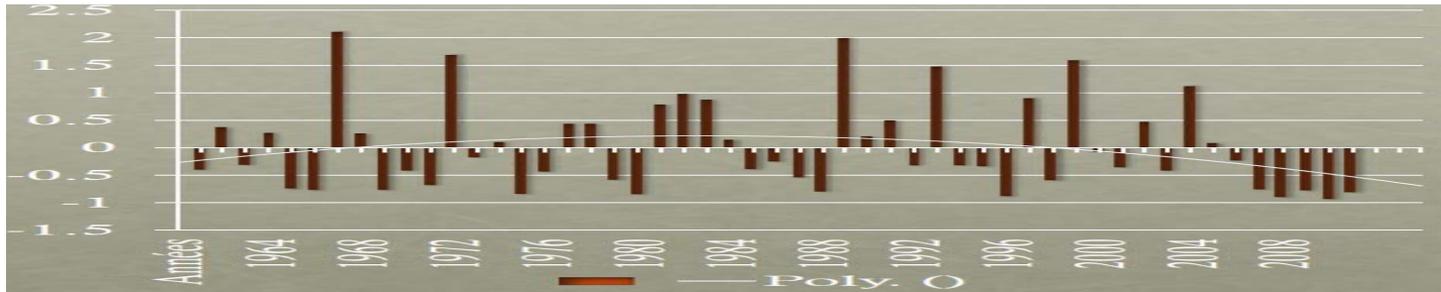


Annual Minimum Temp: Lodwar



2. Climate variability and trend in the GHA region

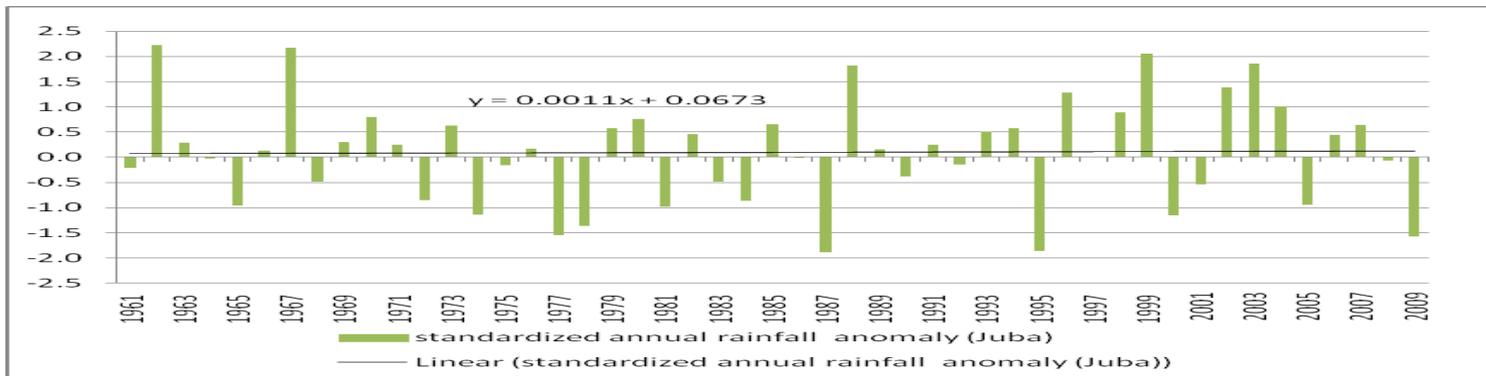
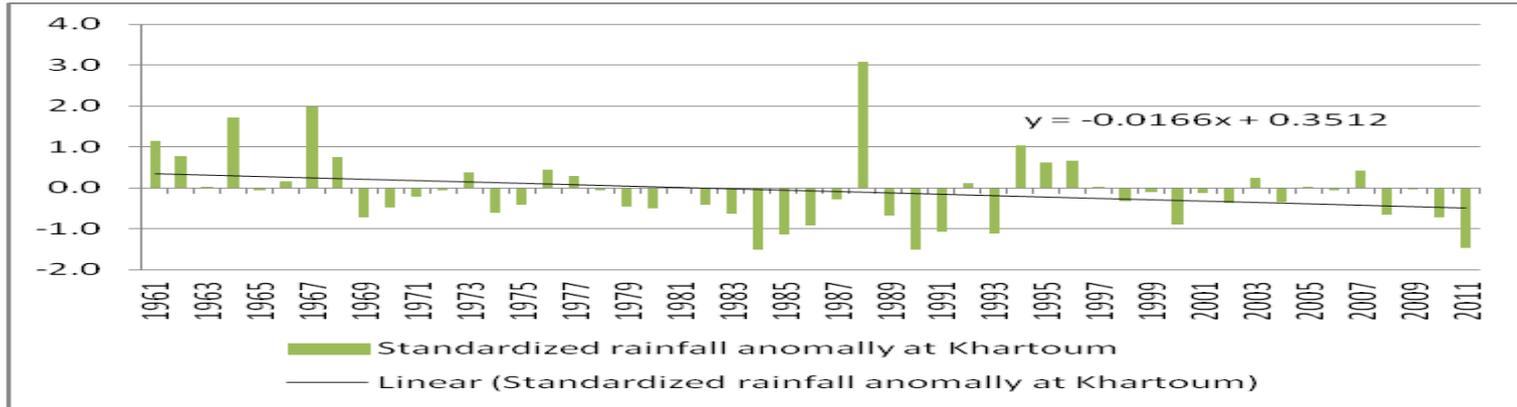
Annual rainfall trends



Annual Rainfall Variability and trend at Djibouti 1964-2011 (Source: ICPACs)

2. Climate variability and trends in the GHA region

Annual rainfall trends

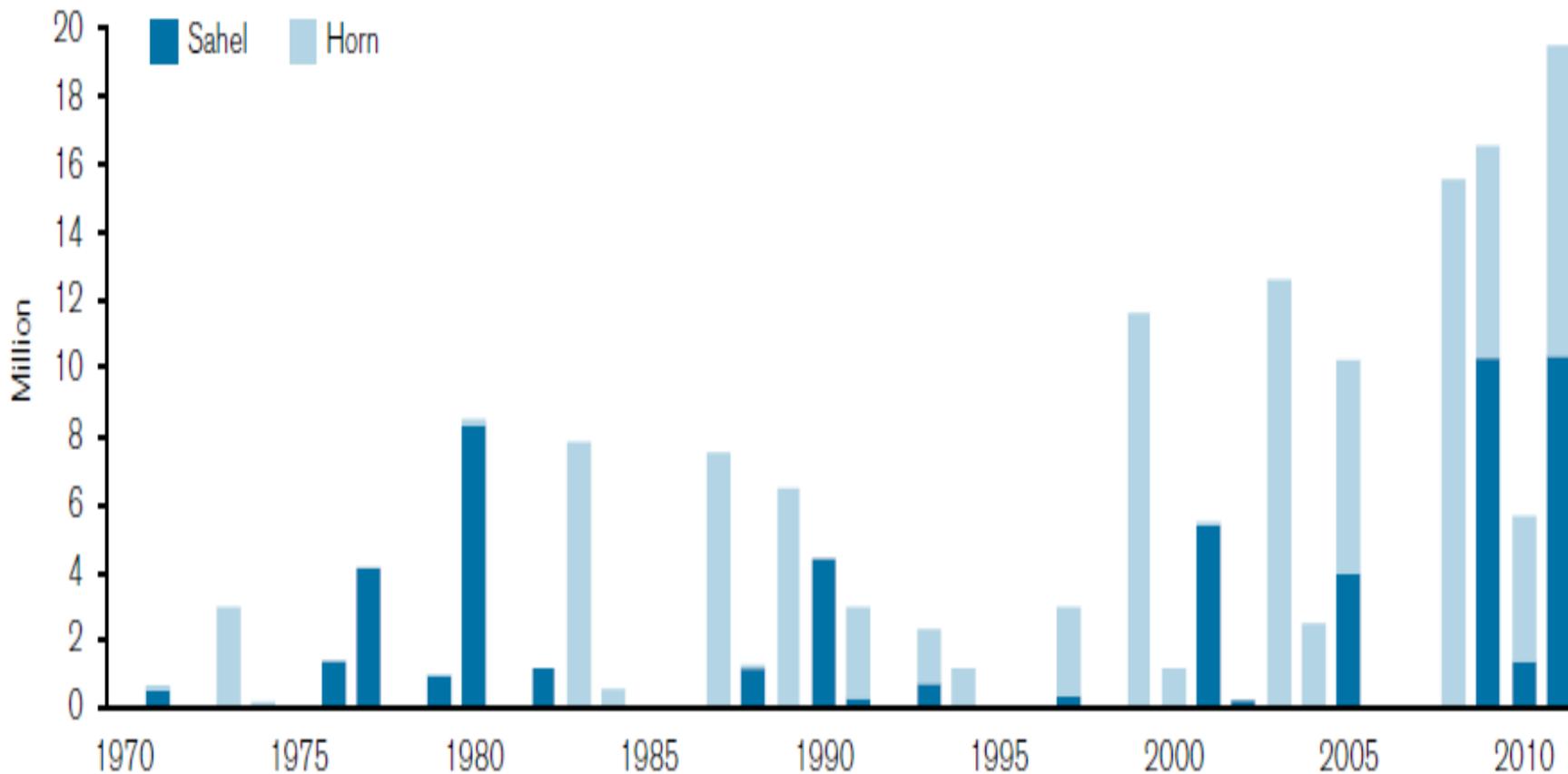


3. Drought Occurrences and Impacts

Drought years with wide spread impact

| Sudan | Ethiopia | Djibouti | Somalia | Kenya | Uganda |
|-----------|-----------|----------|---------|------------|---------|
| 1967-1973 | 1953 | 1980 | 1969 | 1960-1961 | 1973 |
| 1980-1984 | 1957-1958 | 1984 | 1976 | 1974-1976 | 1979 |
| 1987 | 1964-1966 | 1988 | 1984 | 1979 | 1981 |
| 1989 | 1973-1974 | 1996 | 1987 | 1981 | 1984 |
| 1990 | 1978-79 | 1999 | 1999 | 1983 | 1985 |
| 1991 | 1982 | 2000 | 2001 | 1984 | 1986 |
| 1993 | 1983-1984 | 2005 | 2004 | 1991/92 | 1987 |
| 2011 | 1987-1988 | 2007 | 2006 | 1995/96 | 1992 |
| | 1990-1992 | 2008 | 2010/11 | 1999- 2000 | 1993 |
| | 1993-94 | 2010/11 | | 2004 | 1999 |
| | 2000 | | | 2011 | 2004/05 |
| | 2002/2003 | | | | |
| | 2008 | | | | |
| | 2011 | | | | |

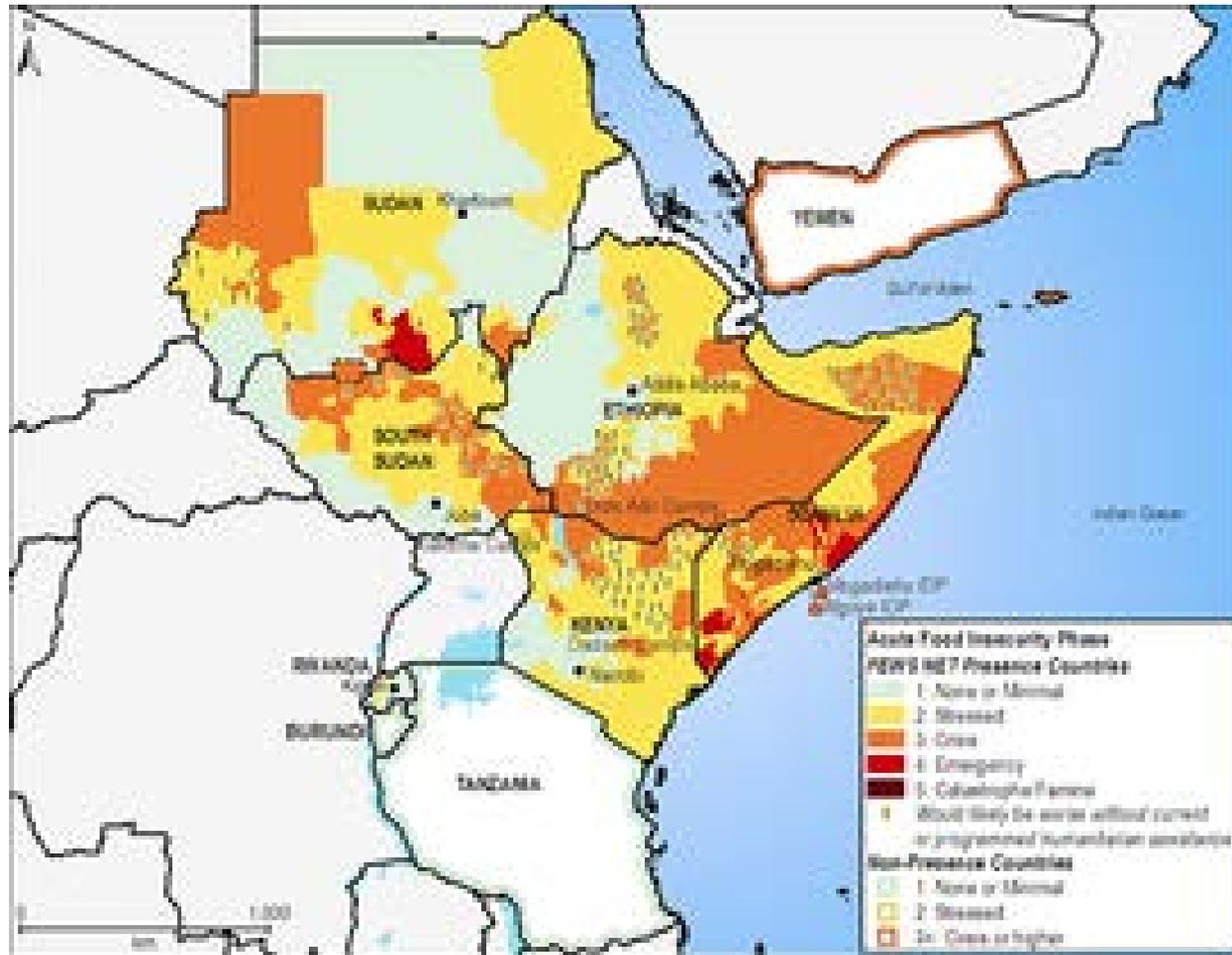
3. Drought Occurrences and Impacts



Millions of people affected by drought in the Horn and Sahel

Source: CRED. Sahel taken to include the western countries of Cameroon, Chad, the Gabon, Mali, Mauritania, Niger and Senegal. The Horn taken to include Djibouti, Ethiopia, Kenya and Somalia.

3. Drought Occurrences and Impacts



3. Drought Occurrences and Impacts

Causes of drought in the Horn of Arica

Several researchers have documented that rainfall variability in the Eastern Africa region are strongly related to sea surface temperature variations (SST) in the Indian, Atlantic and Pacific Oceans. El Niño and La Nina events have serious impacts on the socio-economic activities of countries in the region.

4. National and regional Drought policies, strategies and action plans

At national level

- Countries of the GHA region are at varying stages in the formulation and adoption of national Disaster Risk Management (DRM) policies/strategies/programs
- Many of those DRM policies/strategies/programs have made reference to
 - Hyogo Framework for Action (HFA)
 - Africa Regional Strategy for DRR
 - Support risk reduction in all development sectors
 - Climate change adaptation

4. National and regional Drought policies, strategies and action plans

The case of Kenya

- Kenya established the National Drought Management Authority (NDMA) by Legal Notice No. 171 of 24th November 2011, under the State Corporations Act (Cap 446) of the Laws of Kenya
- It is mandated to establish mechanisms to ensure that drought does not become famine

4. National and regional Drought policies, strategies and action plans

The case of Kenya

The activities of the Authority are

- establish, institutionalize and co-ordinate structures for drought management;
- operate an efficient drought early warning system;
- support drought-related policy formulation;
- coordinate the preparation of risk reduction plans;
- undertake risk reduction awareness and education;
- coordinate the implementation of risk reduction activities;
- coordinate the preparation of contingency action plan;
- develop clear evidence based criteria for both the Contingency Fund and other financial sources appropriated to deal with drought;
- generate, consolidate and disseminate drought management information;
- coordinate the implementation of drought mitigation and relief activities;
- and

4. National and regional drought policies, strategies and action plans

At regional level

- DRM is key to achievement of IGAD's vision, mission and strategic objectives, particularly as they relate to food security, natural resource management, conflict and environmental sustainability.
- IGAD develop a regional disaster management program in 2004
- EAC DRM Strategy

4. National and regional Drought policies, strategies and action plans

The case of IGAD

The main strategic areas or issues outlined in the 2004 IGAD DRM Programme document were:

- Elaboration of supporting policies, legislation and agreements for disaster management;
- Development of disaster preparedness strategies and the contingency planning process;
- Improvement of regional collaboration for preparedness and response;
- Strengthening of early warning and information systems and vulnerability analysis;
- Development of education and training for disaster mitigation;
- Improving preparedness for impact and needs assessment and resource mobilization; and
- Improving preparedness for targeting, implementation and monitoring and evaluation of relief and rehabilitation assistance.

4. National and regional Drought policies, strategies and action plans

The case of IGAD

The IDRISI Initiative

Vision

- A peaceful and prosperous IGAD Region free from drought disasters and emergencies

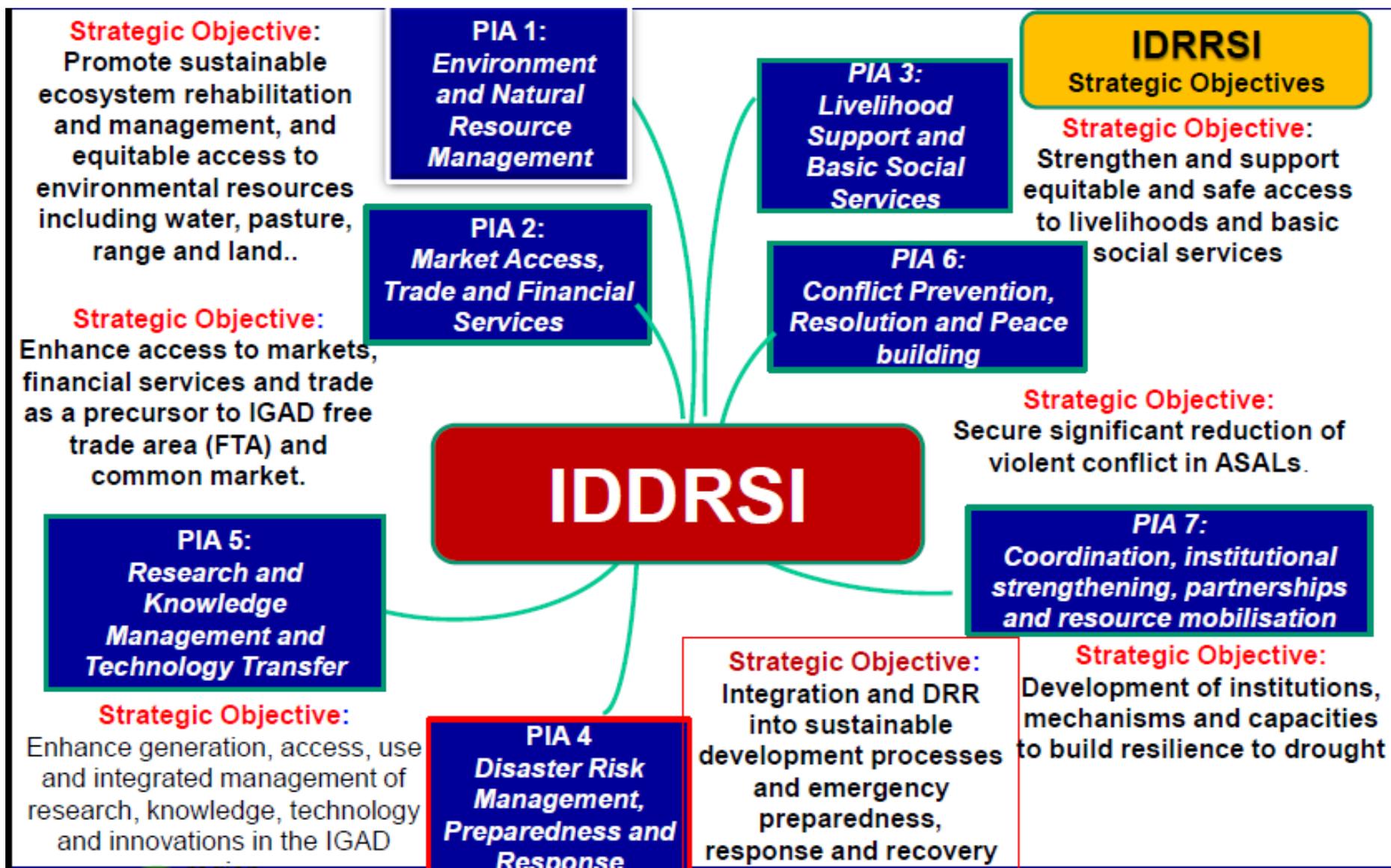
Mission

- To enhance drought disaster resilience and sustainability in the IGAD region

Overall Goal

- Drought disaster resilient communities, institutions and ecosystems in arid and semi-arid lands (ASALs) of the IGAD region achieved by 2027

4. National and regional Drought policies, strategies and action plans



5. Gaps, needs and issues for discussions

- **Data needs (climate , economic and life loss from drought)**
- **Tools for drought risk assessment and management**
- **Partnership and collaboration**
- **Capacity development**
- **Choice of drought indices**
- **Data base for drought mentoring and prediction**
- **Drought Research and Assessment to address Insufficient knowledge**
- **Need for consistent analysis on drought**
- **Communication, awareness and outreach**
- **Drought vulnerability maps**

Thank you!