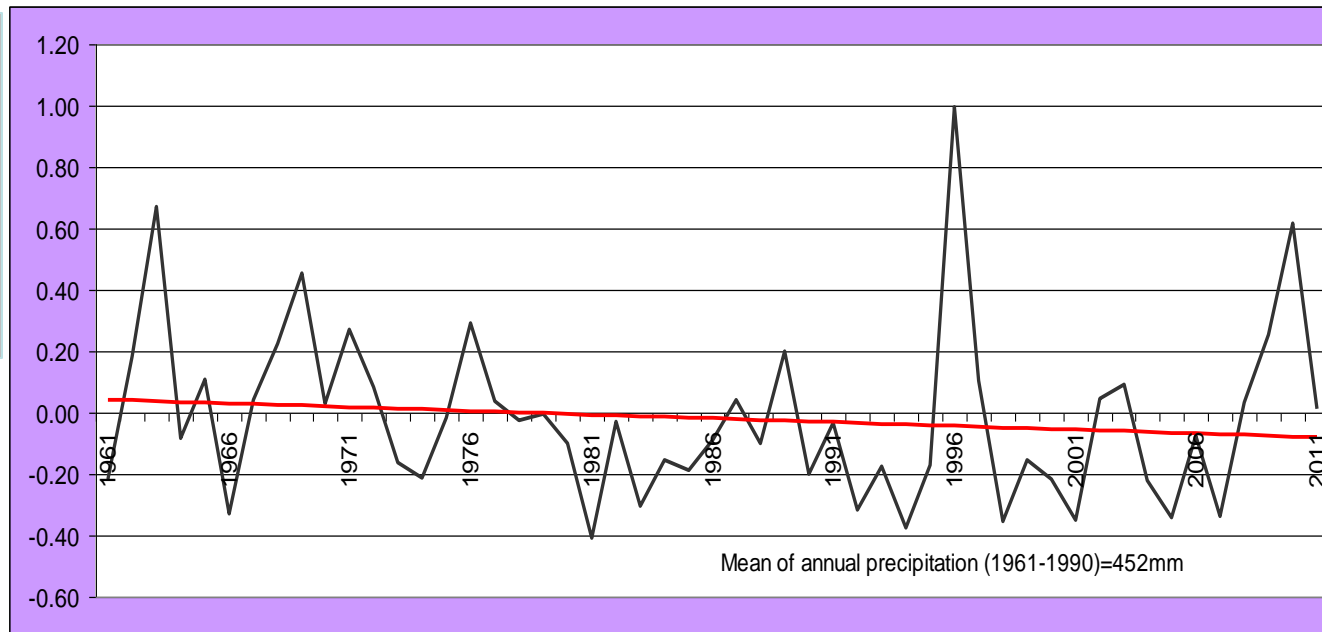


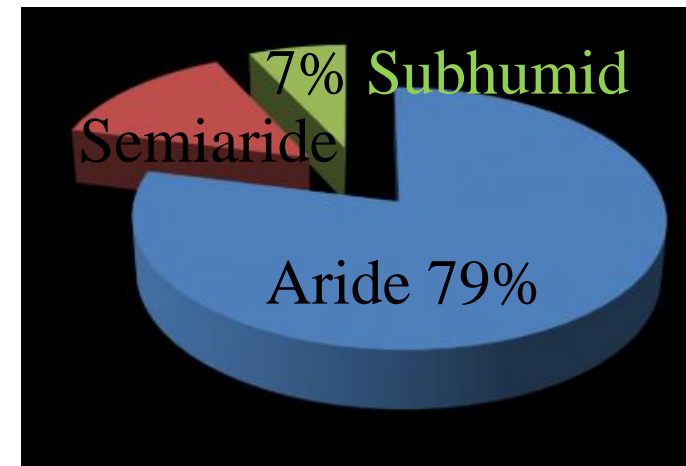
## Drought Status Said EL KHATRI

## Remarks on Moroccan rainfall and aridity:

- Drought frequencies have risen from one event every 10 years at the beginning of the 20th century to 5 or 6 events every 10 years at the end of 20th century and the beginning of the 21st century



- Many regions in Morocco became more arid between 1961 and recent years



## Drought Impacts in Morocco:

- The impacts of drought are **non-structural, complex** and **difficult to quantify** in Morocco
- Morocco's **economy** is vulnerable to water scarcity : **reduction in GDP**  
(its economy expanded only **2.4%** in 2012, dragged down by drought-weakened agriculture sector, which was much lower than the government promised **7%** growth)
- **Crop production losses,**
- **Loss to livelihood,** (mainly for poor farmers)
- **Country's demographic component** (exodus of countryside to the cities)

## Emergency relief and drought response:

Morocco has longstanding experience in the development and implementation of programs to alleviate the impacts of drought. These programs are based on interventions aimed at:

- Securing safe **drinking water** for rural populations in particular
- Reserving **livestock** through **feed distribution**
- Implementing income and **job-creating activities** (maintenance of rural roads and irrigation infrastructures)
- Conserving forests and natural resources.

## Drought monitoring and early warning systems:

- **The seasonal forecasting system of DMN** (Direction de la Météorologie Nationale) since 1994
- **The Moroccan National System for crop monitoring and cereal yield prediction** ('CGMS-since 2011)
- **The SMAS project** (Système maghrébin d'alerte précoce à la sécheresse): Early warning system for drought in Maghreb Region

## Practices to alleviate drought impacts:

### Institutional practices:

- In 1995, Morocco established the water law, which emphasis on integrated water resources management through better water use efficiency, resource allocation practices, and protection of water quality.
- Morocco is adopting an insurance approach in cereal production.

### Preparation to drought and water scarcity situations:

- Maximizing storage of rainwater (more than **140 dams**)
- Use of marginal resources (**groundwater**)
- Aquifer **recharge**
- Improved efficiency of **water distribution networks**
- Water transfers (in projection)
- Desalination**
- Waste **water reuse**
- Artificial **modification of Weather** (since 1984)

### Management measures:

- Water **metering**
- Water markets (**tariffs**) and full cost recovery
- Water saving **campaigns** for voluntary actions
- Increase in **the regulation** capacity for **irrigation** purposes
- Increase in **the regulation** capacity for **urban supply**

## The need for knowledge and skills on drought management:

In Morocco, as in many developing countries, there are gaps in the management of drought and water scarcity. Certainly, many organizations are involved in drought management including:

### Main advisory authorities:

- Economic and Social Council (Committee on Environmental Affairs and Regional Development)
- Superior Council for Water and Climate
- Council for Agricultural Development
- Permanent Inter-Ministerial Council for Rural Development
- National Drought Observatory

### Executive administration authorities

- Ministry of Water (National Meteorological Office; Directorate General of Hydraulics, Water Basin Agencies, National Office of Water Drinking and Electricity)
- Ministry of Agriculture and sea fishing (Regional Offices for Agricultural Development)
- High Commissariat of Water, Forest and Fight against Desertification
- Ministry of Interior (Directorate General of Local Collectivities, Directorate of Utilities and Services Licensed); Ministry of Finance; Ministry of Health; Ministry of General Affairs

**A standard and complementary drought management approach is needed.** This begins by strengthening the sharing of information on drought and the establishment of a global early warning system

شكرا

- **Merci**

- **Thank you**