Investing in resilience for sustainable food security
Moroccan experience

IRRIGATION AND WATER MOBILIZATION EFFICIENCY UNCONVENTIONAL
PRESENTATION PLAN

01. Irrigated Agriculture in Morocco: A Priority
    Public Policies

02. Water Security in the Face of
    Climate Change

03. A Proactive Policy to Strengthen the
    Climate Resilience

04. From Strengthening Climate Resilience to
    Asserting Food Sovereignty
IRRIGATED AGRICULTURE IN MOROCCO: A PUBLIC POLICY PRIORITY
I. IRRIGATED AGRICULTURE IN MOROCCO: A PUBLIC POLICY PRIORITY

A PROACTIVE IRRIGATION POLICY

- **1960** Million HA policy
- **1980** Adjustment policy
- **2008** (PMV)
- **2020** (Green Generation)

**Major reforms:**
- Modernization of irrigated systems
- Mass conversion to drip irrigation
- Irrigation extension
- PPP to develop irrigation

**Investing in water and energy efficiency**

**Dam policy**
- (irrigate 1 million hectares)
- Creation of irrigation agencies: ORMVA
- Extension of irrigated areas

**Expansion of irrigated areas**

- **1960** 160,000 Ha Irrigated
- **2020** 1,600,000 Ha Irrigated

**70% State-developed**

**Private**
- 30%

**TDC**
- 23%

**Large Hydraulics**
- 47%

**Map of Morocco with major cities and regions**
Irrigated agriculture plays a fundamental role in food security, improving living standards and stabilizing the rural population.

- Resilience of Moroccan agriculture to external hazards.
  - The Cov-19 pandemic
  - Russia-Ukraine conflict.
  - Successive droughts
- Channel disturbance supply
- Increased production costs
- Rising food prices

- Securing strategic product levels food staples.
  - 100% of vegetable and fruit requirements
  - 98% of milk requirements
  - 44% of sugar requirements
  - Contributing to meat requirements, reds, oils, etc.
  - Contribution to the food trade balance

- Food Sovereignty

- Absorption of external impacts
- Social and economic development

IRRIGATED AGRICULTURE IN MOROCCO: A PUBLIC POLICY PRIORITY

- 45% of agricultural added value
- 75% of agricultural exports
- 50% of jobs in rural areas

STRATEGIC ROLES OF IRRIGATION
WATER SECURITY IN THE FACE OF CLIMATE CHANGE
Climate change has a significant impact on the potential of mobilizable water resources.

**Evolution of water inflows to dams (1945-2023) in billions of cubic metres (m³)**

- Average 1945 - 1978: 22 billion m³
- Average 1979 - 2023: 14 billion m³

Water inflows to dams down by more than 30% compared with forecasts in water planning documents.
Climate Variability: A Major Challenge for Cereal Production

The agricultural sector: most affected by the shortage given the priorities accorded to other sectors.

Volumes supplied to irrigation schemes vs. normal allocations (provided for in planning)

Evolution de la production céréalière et des précipitations sur la période 2000-2022

Source: HCP
A PROACTIVE POLICY TO STRENGTHEN CLIMATE RESILIENCE
II. A PROACTIVE POLICY TO STRENGTHEN CLIMATE RESILIENCE

ACCELERATING INVESTMENT IN THE WATER & IRRIGATION SECTOR

Generation Green
Agricultural strategy 2020-2030

National Drinking Water Supply and Irrigation Program
2020-2027

A. Improving the water efficiency and resilience of irrigated agriculture
B. Developing water supply

Water-Energy-Food Sovereignty Nexus
II. A PROACTIVE POLICY TO STRENGTHEN CLIMATE RESILIENCE

A. IMPROVING WATER EFFICIENCY AND RESILIENCE IN IRRIGATED AGRICULTURE
A. IMPROVING WATER EFFICIENCY

1. Modernization of irrigation systems
   - Modernization of transport networks and water distribution
   - Development of localized irrigation on 1 million ha (63% of irrigated UAA)

2. Water resource development mobilized by the roadblocks
   - Extension and safeguarding of 72,000 Ha of irrigated perimeters associated with the new dams (+ 5% of irrigated UAA)

3. Development of ppp in irrigation
   - Development of non-domestic water irrigation projects conventional and renewable energy + 120,000 Ha (+ 8% of irrigated UAA)

4. Development of small-scale irrigated farming
   - Rehabilitation of small irrigated perimeters on 200,000 Ha (50% of national small-scale farming)

An effort investment US$5 billion for resilient, eco-efficient agriculture

Objective

- Double the added value per m³
- 20% of UAA irrigated with renewable energy
II. A PROACTIVE POLICY TO STRENGTHEN CLIMATE RESILIENCE

A. IMPROVING WATER EFFICIENCY

A SYSTEMIC DEVELOPMENT MODEL THAT ACTS ON ALL LEVELS:

1. Development of direct agricultural intakes at dams
   (Avoid water losses, make the most of the natural load for water transport)

2. Generalization of pressurized water pipes for water supply and distribution
   (more efficient networks and better water service for users)

3. Modern technologies for water pumping
   (improved energy efficiency)

4. Widespread use of collective water filtration stations

5. Widespread use of individual water outlets and meters
   - Efficient irrigation
   - Using smart technologies
   - Capacity building
   - Improved governance

REDUCE WATER LOSS
INCREASE PRODUCTIVITY
II. A PROACTIVE POLICY TO STRENGTHEN CLIMATE RESILIENCE

A. IMPROVING WATER EFFICIENCY

Towards the Million Ha mark for localized irrigation

824,000 Ha under localized irrigation 52% of irrigated area
II. A PROACTIVE POLICY TO STRENGTHEN CLIMATE RESILIENCE

A. IMPROVING HYDRAULIC EFFICIENCY (Impacts)
II. A PROACTIVE POLICY TO STRENGTHEN CLIMATE RESILIENCE

B. DEVELOPING THE WATER SUPPLY
II. A PROACTIVE POLICY TO STRENGTHEN CLIMATE RESILIENCE

B. DEVELOPMENT OF WATER SUPPLY

Objective:

- Strengthening the resilience of water supply systems
- Reduce competition for water resources between sectors
- Mobilizing a strategic water stock for food sovereignty
II. A PROACTIVE POLICY TO STRENGTHEN CLIMATE RESILIENCE

B. DEVELOPMENT OF WATER SUPPLY

i. DEVELOPING NEW DAMS
(Exploiting the untapped water potential of the Loukkos, Sebou and Bouregreg basins)

+ 6 billion m³ capacity

Large Dams:
153 existing (20 billion m³)
18 under construction (+6 billion m³)
7 roadblocks scheduled

Petits Barrages:
141 Existing dams
150 scheduled roadblocks
II. A PROACTIVE POLICY TO STRENGTHEN CLIMATE RESILIENCE

B. DEVELOPMENT OF WATER SUPPLY

ii. Interconnection of basins & reservoirs (Sebou-Bouregreg-Oum Rbia-Tensift, Loukkos-Tangérois, etc.).

+ 1 Billion m$^3$ of water to mobilize
II. A PROACTIVE POLICY TO STRENGTHEN CLIMATE RESILIENCE

B. DEVELOPMENT OF WATER SUPPLY

iii. SEAWATER DESALINATION

to secure and boost agricultural production

+ 1.5 billion m$^3$ of water to mobilize

- Supply coastal towns with water to free up conventional water resources for irrigation
- Developing a water-desalination offer for agriculture
FROM STRENGTHENING CLIMATE RESILIENCE TO ASSERTING FOOD SOVEREIGNTY
III. STRENGTHENING WATER SECURITY FOR FOOD SOVEREIGNTY

MOROCCO IS COMMITTED TO MEETING THE PERMANENT CHALLENGE OF WATER FOR FOOD SOVEREIGNTY

Investments - strengthening Offer

- Building new dams + 6
- Interconnection of ponds +1
- Desalination seawater +1.5

Investments - Water efficiency improvement

- Double the added value per m3

Strategic Water Stock for Food Sovereignty

3 Milliards m³
MOROCCO IS COMMITTED TO MEETING THE PERMANENT WATER CHALLENGE FOR FOOD SOVEREIGNTY

III. STRENGTHENING WATER SECURITY FOR FOOD SOVEREIGNTY

**Strategic Water Stock for Food Sovereignty:**

- Secure the water supplies needed for sustain irrigation in the perimeter existing irrigators
- Develop supplementary irrigation for cereals
- Develop an offer water - desalination for agriculture (fruit & vegetables)

- Coverage of requirements for basic foodstuffs
- Securing a strategic level of cereal production
- Improved food trade balance.
INSTITUTIONAL FILM

Chantiers de l'eau: a turning point for water security and sustainable food sovereignty in Morocco