

KINGDOM OF MOROCCO



**SECRETARIAT OF STATE TO THE MINISTER OF EQUIPMENT,
TRANSPORT, LOGISTICS AND WATER, IN CHARGE OF WATER**

WATER-ENERGY NEXUS IN MOROCCO

ACHIEVEMENTS, CHALLENGES AND PERSPECTIVES

Beyrou, July 11 & 12th, 2017

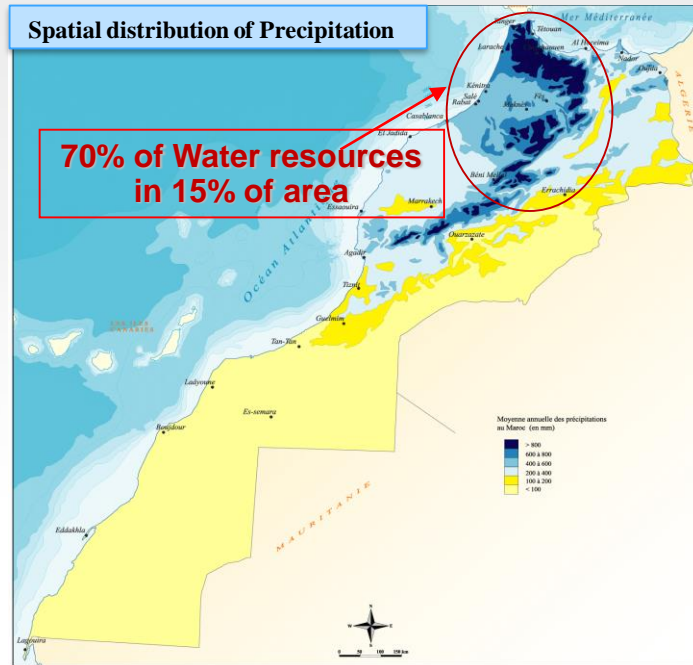
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INTRODUCTION

CLIMATE & WATER RESOURCES

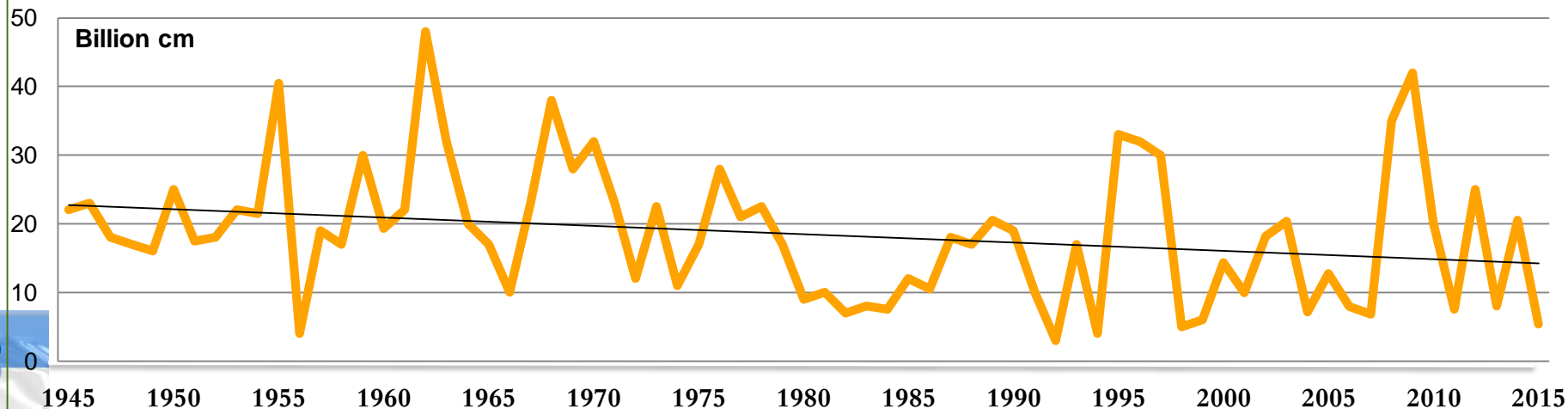


- Hydro- climatic context : very fragile
- National Water resources potential: highly irregular in time and space

Potential of natural water Resources
22 Billion CM/Year

18 Billion CM/Year
Surface water

4 Billion CM/Year
Groundwater

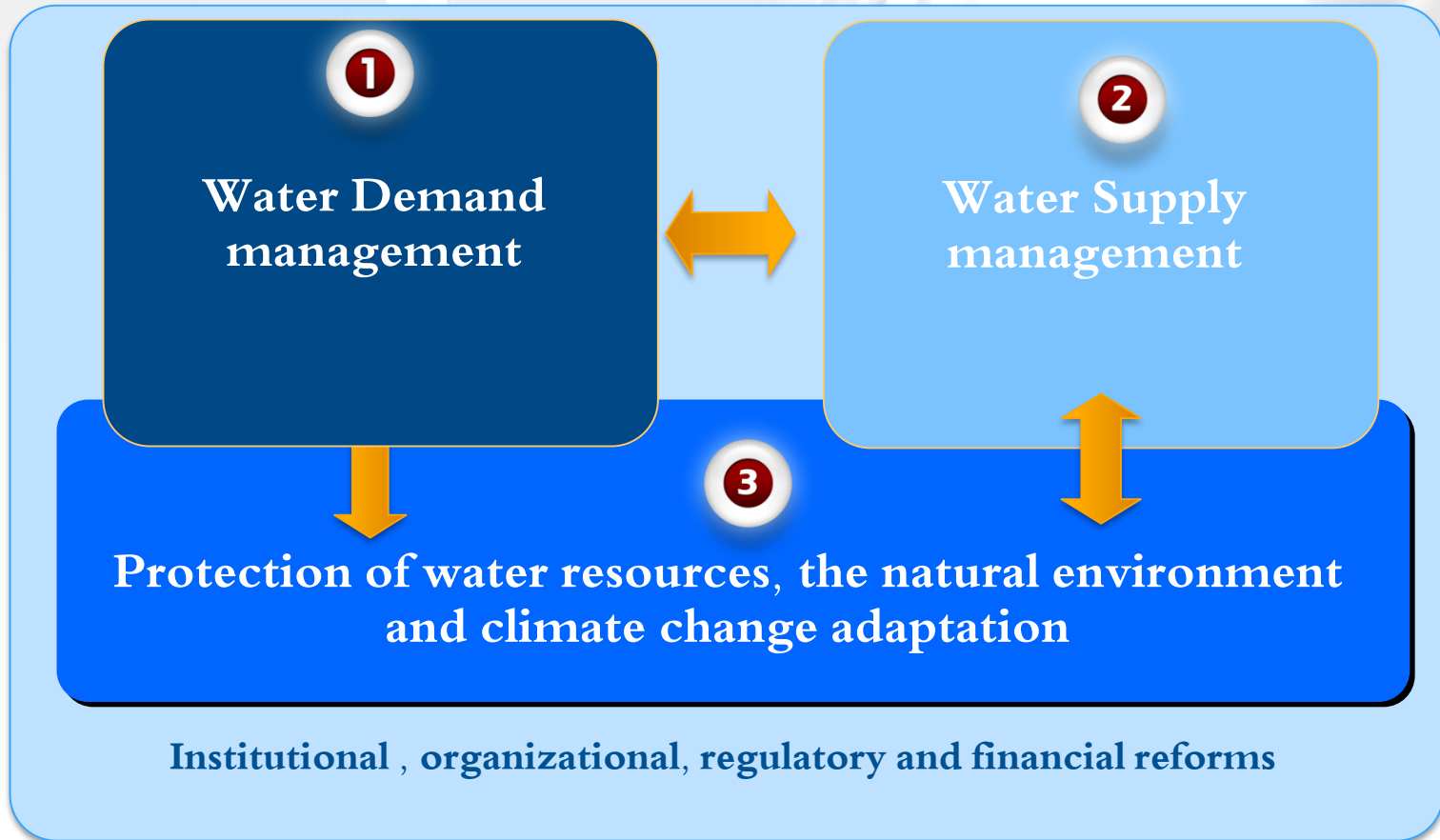


NEXUS WATER - ENERGY CHALLENGES

- ✘ Demographic growth / Urbanization / Litoralization / Economic and social development: growing demand for water and energy
- ✘ Climate change
- ✘ Energy Efficiency Requirement
- ✘ Water resources mobilization to satisfy the uses but also their valorization by the hydroelectric production (as a clean and renewable energy)
- ✘ Achieving Sustainable Development Goals (SDOs)

NATIONAL WATER PLAN

The National Water Plan is based on three pillars:



- **Before 2002:** Sectoral approach
- **2002-2007:** Ministry of Land planning, Water and Environment
- **2007:** Water and energy sectors have been consolidated into one Ministry: Ministry of Energy, Mines, Water and Environment
- **2012:** The consolidation of two public operators in charge of the execution of public policy in the field of Water (ONEP) and Electricity (ONE) into a unique single entity: (ONEE)
- **2016:**
 - MASEN, all current and future renewable energy, with the exception of STEP;
 - STEP will be developed and managed by the ONEE;
 - Strengthening organic links between ONEE and MASEN;
 - Water Law 36-15: Implementation of coordination bodies in order to enhance the **coordination between sectors**

NEXUS WATER - ENERGY

REGULATION : WATER AND ENERGY SECTORS

Law 13-09:
Opening
the
electricity
market
(renewable
energies)
12 MW

**Law n° 40-09
for ONEE:**
Consolidation
of ONEP and
ONE

**Law n°86-12 on
PPP contracts**

**Amendement of
the 13-09 Law:
Increase of the
threshold from
12 to 30MW**

Water Law 36-15

**New
reconfiguration
and repositioning
MASEN and ONEE
(synergy)**



2010



2011



2015



2016

NEXUS WATER – ENERGY

ACHIEVEMENTS

WATER

MOBILIZATION OF CONVENTIONAL WATER RESOURCES

- 140 large dam reservoirs with a capacity of 17.6 billion CM
- 14 large dams are under construction with a capacity of 3,5 billion CM

MOBILIZATION OF NON-CONVENTIONAL WATER RESOURCES

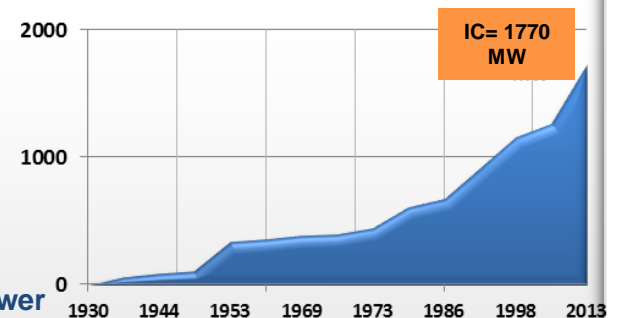
- Desalination capacity : 31 000 CM/Day
- Treated Wastewater reuse capacity : 38 MCM/Y

DRINKING WATER

- Urban : Access completely generalized with a 94% of individual connection to the network
- Rural : Access rate 14% in 1994 and more than 96% currently

ENERGY

- Hydropower installed capacity :1770 MW (25% of total installed capacity & 10% of national production from various sources (2016: Production of 1134 GWH)
- Important role in peaking production
- Ambitious National Renewable Energy and Energy Efficiency Plan
- Some concessions contracts signed with Private sector to produce hydropower
- The creation of IRESEN, Research institute on Renewable Energy



NEXUS WATER – ENERGY

PERSPECTIVES

WATER

MOBILIZATION OF CONVENTIONAL WATER RESOURCES

- Important water mobilization through the dams construction by 2030.

MOBILIZATION OF NON-CONVENTIONAL WATER RESOURCES

- Desalination capacity : (500 MCM/Y) for drinking water supply, irrigation and tourism
- Treated Wastewater reuse capacity : (325 MCM/Y)

ENERGY

- Achieving 10100 MW of additional capacity in renewable energy between 2016 and 2030 : (Solar : 4560 MW; wind : 4200 MW; Hydropower : 330 MW)
- The hydropower equipment for existent dams with high potential
- Possibility to provide green electricity by the private sector in a framework of Public Private Partnership
- Combining hydropower production with other renewable energy sources such as solar and wind.

NEXUS WATER – ENERGY

RECOMMENDATIONS/KEY MESSAGES

- **Need to act for the implementation of the synergy orientations of the two sectors (Water-Energy)**
- **Integrated strategic planning: Integrating the concept into planning documents**
- **Integrated water and energy governance to build the conditions for sustainable use of water and energy**
- **Saving energy in the water sector and vice versa: Optimizing the energy efficiency of the water sector and limiting water consumption in power plants**
- **Consideration of the concept in the institutional and regulatory framework;**
- **Mobilizing funding from the water and energy sectors for integrated projects (hydropower, desalination, REUSE...) and through the public-private partnerships**

A dynamic background featuring a large splash of clear water at the top, with a solid blue horizontal band across the middle. Below the band, there are faint, mirrored water splash patterns.

THANK YOU!

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