المملكة المغربية
ROYAUME DU MAROC

Secrétariat d'Etat auprès du Ministre de l'Equipement, du Transport, de la Logistique et de l'Eau, Chargé de l'Eau

التعاون الألماني
DEUTSCHE ZUSAMMENARBEIT

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Direction du développement et de la coopération DDC
الوكالة السويسرية للتنمية والتعاون

SEI STOCKHOLM ENVIRONMENT INSTITUTE

agire Programme d'Appui à la Gestion Intégrée des Ressources en Eau
برنامج دعم التدبير المندمج للموارد المائية

NDC

The role of water in Morocco's NDC



Nour el Houda EL HAMOUM, Mohamed Boussaid – GIZ Morocco

Holger Hoff – Stockholm Environment Institute

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Agence de Bassin Hydraulique du Tensift

Agence de Bassin Hydraulique de l'Oum Er Rbia

Agence de Bassin Hydraulique du Souss-Massa et Drâa

Morocco's NDC

Royaume du Maroc

Nationally Determined Contribution
(NDC) of the Kingdom of Morocco
2016

Make its territory and civilization more resilient to climate change while ensuring a rapid transition to a low-carbon economy.

- water is integral part of both, mitigation & adaptation, but the NDCs largely keep these two areas separate
- we present here some of the tradeoffs, synergies and co-benefits between mitigation & adaptation from a water perspective, and some resulting opportunities for integrated NDC implementation in Morocco

Morocco's objectives for CC **adaptation** (NDCs)

- transferring 800 million m^3 / year from north to south

increasing energy demand (and GHG emissions) for pumping

- irrigating 15,000 hectares by desalinating water …, desalinization of sea water up to 400 million m^3/year

increasing energy demand (and GHG emissions) for desalination

- reduction of groundwater use by substituting up to 85 million m^3/year with surface water

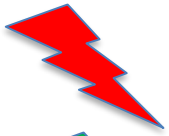
reduced energy demand for pumping groundwater

- wastewater treatment: 60%

opportunities for generating biogas

Morocco's objectives for CC mitigation (NDCs)

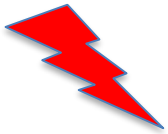
- provide 52% of the installed electrical power from renewable sources, of which 20% is from solar energy,12% is from hydropower,……(by 2030)



some renewables, including bioenergy, may require additional water

involvement of the water sector has reduced water demand for solar panel cooling by more than 50 %

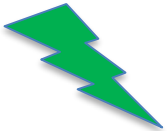
- afforesting 600,000 hectares



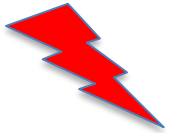
forests are more water intensive than other vegetation

Morocco's objectives for CC mitigation (NDCs)

- modernize the agricultural sector



reduced energy demand with increasing agricultural efficiency



potential additional energy demand
for additional machinery use and/or additional fertilizer input

note that we're only illustrating some water-related tradeoffs and synergies between adaptation and mitigation

there are many other effects, e.g. related to environmental pressures, employment, equity etc,
which policy-making needs to take into account

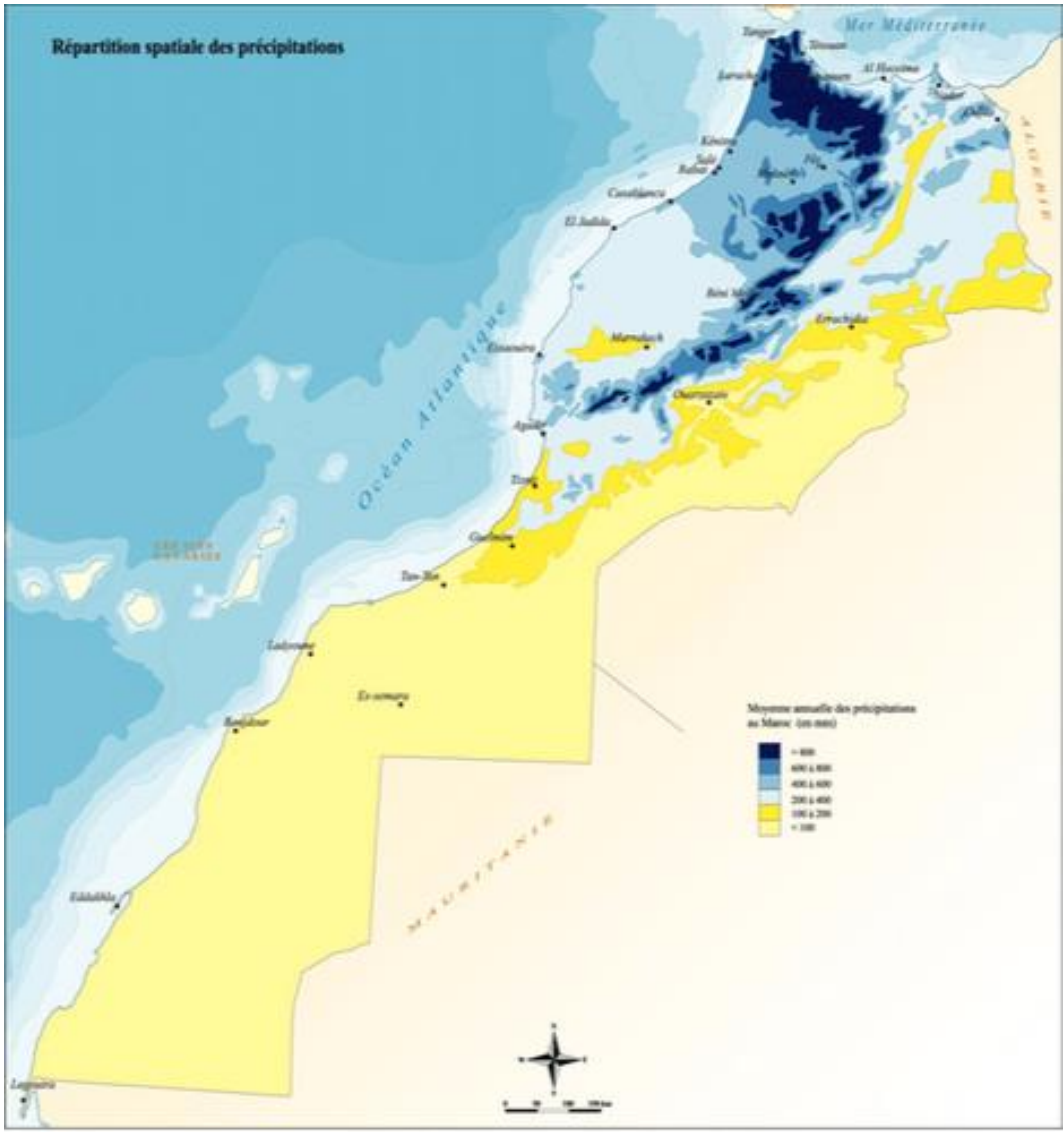
NDC implementation through a water lens

- integrated NDC implementation takes these tradeoffs and synergies between adaptation and mitigation measures into account
- implementation has to be specific to the national context, mainstreaming adaptation & mitigation into existing sector strategies & policies, e.g. Plan National de l'Eau, Plan Maroc Vert, ……
- water can provide a good focus for the required integration, with the Ministry of Water and ONEE as central actors, bridging to other sectors such as Energy, Agriculture, Health and Environment
- integrated implementation can be more cost-efficient compared to separate implementation of adaptation and mitigation, and it can also tap more international climate funding opportunities

Morocco and Climate Change : risks and impacts

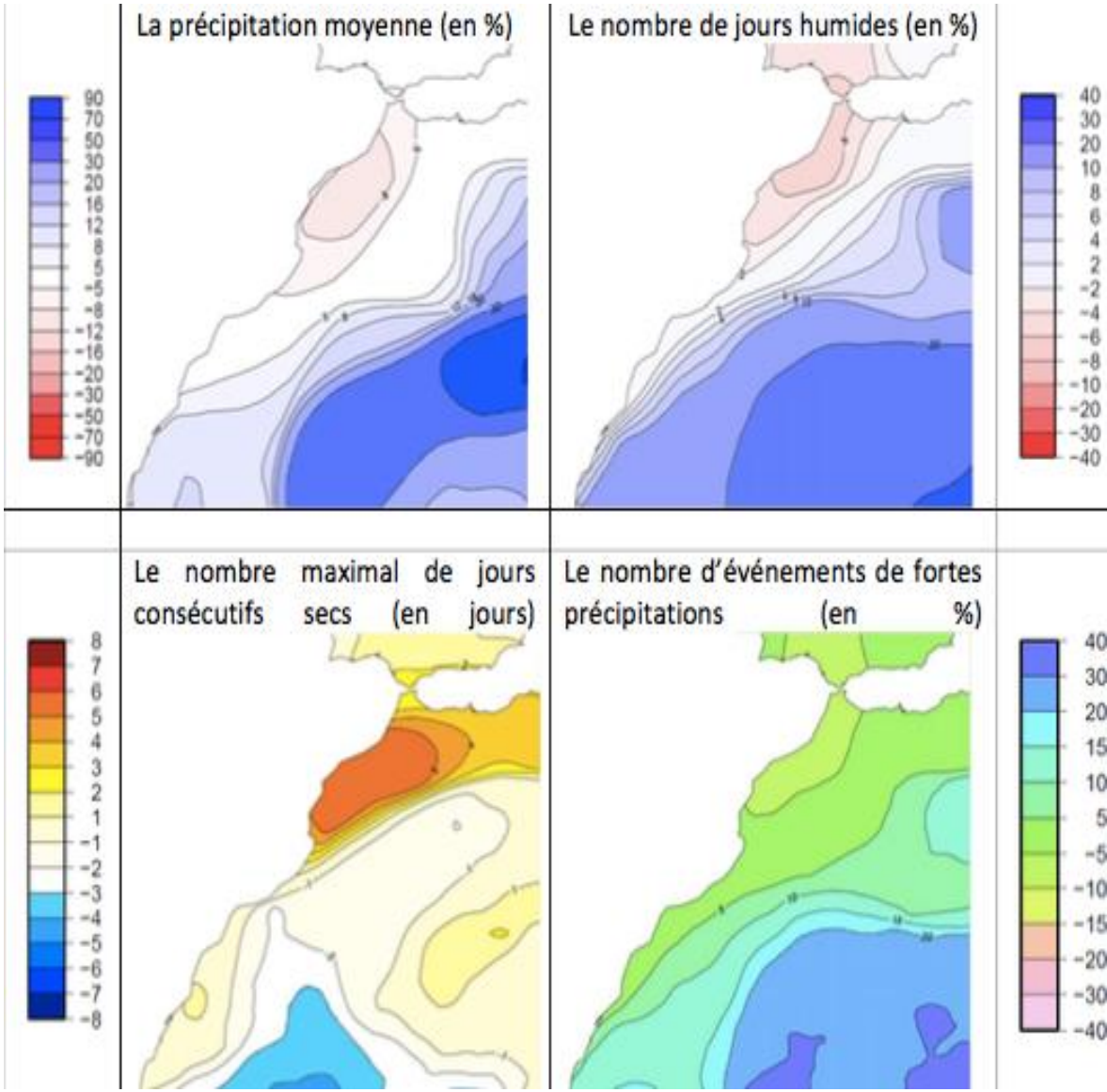
Impacts of CC in Morocco

- Morocco has always been vulnerable to Climate change:
  - Reduction of rainfall and snowfall
  - Rise of temperature
  - 20 years of drought during last 70 years
- Water resources are known to reach 22Mm3/year
  - 700 m3/cap/year
  - To drop to 500 m3/cap/yeay by 2030



Risks

- Studies have shown that
  - Rainfall will drop 25% by 2050 causing:
    - Rarefaction of water resources
    - Drop on agricultural production
    - Desertification
    - Floods
    - Rise of sea levels



National strategies and plans

Stratégies and plans

- To acheive these goals, the following strategies have been developped
  - National Water Strategy
  - National Water Plan
  - Drough Management Plan de
  - Directory Plans for Integrated Water Resources. Management
  - National Plan for Flood Management
  - National Plan for Sanitation

National priorities for CC adaptation – Water sector

- Water resources preservation, and securing water supply for economic sectors and domestic needs;
- Reinforcement of food secutrity through natural resources preservation, agricultural sustainable developement, poverty reduction especially in rural areas;
- Preservation of fragile ecosystems
- Protection of industial installations, habitations and urban infrastructures of sea level rise,
- Preservation of forests
- Reinforcement of advanced construction adapted to CC
- Reinforcement of sanitary security for populations, animals and food regarding deseases brought by CC
- Follow up on institutinnal and regulatory reforms for adaptation to climate change and harmonization of plans and strategies for developpment
- Capacity development on finantial built up execution and monitoring of adaptation to CC projects on different levels;
- Promoting research and developement, and know how transfert;
- Creating curriculas specialized on climate change with universities and institutes;

Engagements

Financial engagements

- From 2005 to 2010 9% of averall investment budgets were spent on Climate change adaptation
- By 2030 At least 15% of investments budgets will go to climate change adaptation
  - For example, by 2020:
    - National water plan will cost 22,5 Billion USD
    - National plan for Sanitation 4,3 Billion USD

Axe du Plan	Montant des investissements (en millions de dh)
Gestion de la demande et valorisation de l'eau	107 889
Gestion et développement de l'offre	98 096
Protection des ressources en eau et du milieu naturel et adaptation aux changements climatiques	55 813
Coût Global du plan d'actions (Mdhs)	261 798

Institutionnal engagements

- Reform of water sector
  - New water Law: 36-15 (of 2016) introduction Climate change adaptation for water sector
    - Desalinization
    - Waste water treatment and reuse
    - Artificial recharge of grounwater table
    - Rainwater management

Thank you for your attention
visit our website: www.agire-maroc.org