

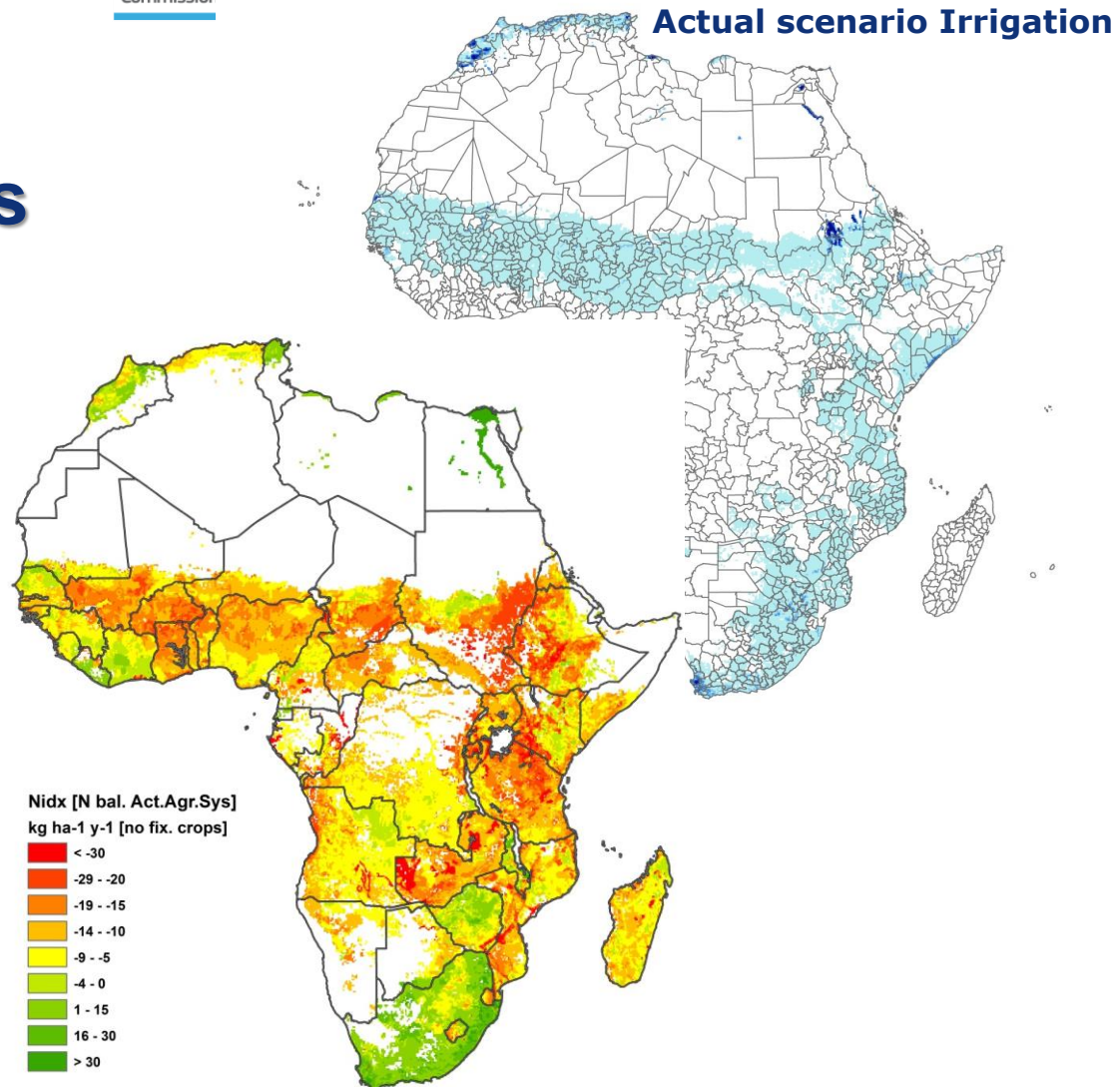
Scientific Activities

COMPONENT

Session 25 May 14.00-18.30

César Carmona Moreno

European Commission
Joint Research Centre (JRC)
Ispra, Italy



Scientific-Technical Activities

JRC

T1

Extending the Network

- Design-Launching the Call for Interest to Extend the Network (At least 2 Institutions: 1 East, 1 Central)
- Assessment – Evaluation

T2

Improve Data Management and Sharing (coll. UNESCO)

- Regional Database on Hydro-Climatology + Others
- Atlas on Water Conflicts and Cooperation
- Cooperation Initiatives : TIGER (ESA), SIDA (UNESCO-IHP), ...

T3

Regional Capacity Development and Techn. Transfer

- Climate Variability Analysis
- African WEF Nexus Assessment / SDGs

T4

Institutional Networking and Cooperation

- Collaboration (MoU) with the RECs, ANBO, AMCOW, ...
- Collaboration with MENA and Pan-African Universities
- Participate to H2020 activities

TOPIC 2 - Data management and sharing

TASK A : Improved regional databases available -> Hydro-climatologic data for Western CoE network.

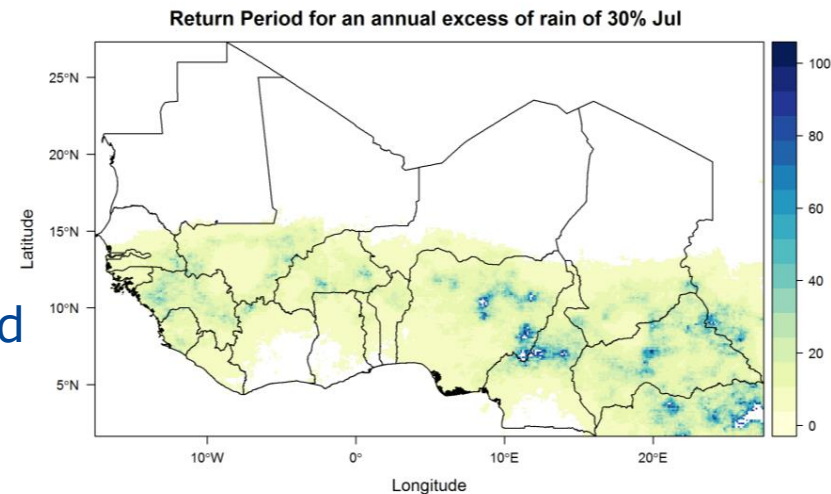
-> Water resources management/resilience data for Southern CoE network

TASK B: Cooperation with other Data Initiatives

-> Other data

TASK C: Atlas on water cooperation and conflicts

-> Simulation Scenarios : Climate Variability – Impacts on resources / socio-economy



TOPIC 3: Capacity Development and technology transfer



TASK A: Capacity development on managerial skills and training for trainers for the NEPAD CoE networks – Preparing Call for Proposals H2020+AU
=>Replication/extension of 1 week workshop of interest implemented in phase I



TASK B: Implementation of scientific products to support decision making regarding:

- Climate Variability Analysis -> Products to contribute to the Atlas on Water Cooperation & Conflicts
- African WEF Nexus Assessment / SDGs (?)

TOPIC 4: Networking and cooperation



TASK A + B: Implementation of existing agreements (MoU) with RECs. Extend collaboration with RECs for Central and Eastern African region.



TASK C: Reinforcing collaboration between CoE and AMCOW with a link with the Pan African Universities and MENA initiatives.



African Ministers' Council on Water



OUTLINE of this session

PART 1: TOPIC 2 - TASK A and C on data sharing
TOPIC 3 - TASK B: Scientific products

PRODUCTS TO BE DELIVERED:

- Regional databases with hydro-climatic data (P, T, EVP)
- Climate Variability Analysis / Atlas on Water Cooperation and Conflicts.
- African WEF Nexus Assessment / SDGs

WAY of WORKING:

1. Defining the Products / Proposals
2. Defining an Implementation Framework:
 - a. Listing inputs + Participation of CoEs per product
3. JRC and each CoE present what are their contribution(s) and interest toward these products
4. Identification of Main Issues and Priority Needs + Identifying Collaborations

Priority needs for Water Nexus study



The quality of the outputs of this model depends on the accuracy of the input data available.

Input data needs:

- More precise data on reservoirs (operational parameters)
- More precise data on irrigated areas
- Updates on industrial and domestic water demand
- More precise data on groundwater usage

Validation data

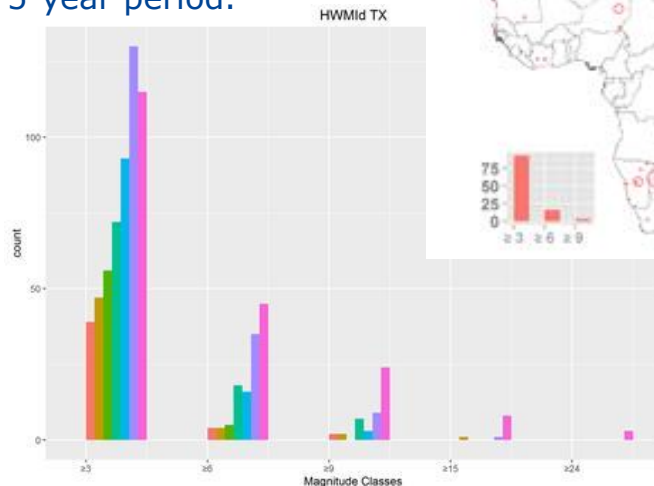
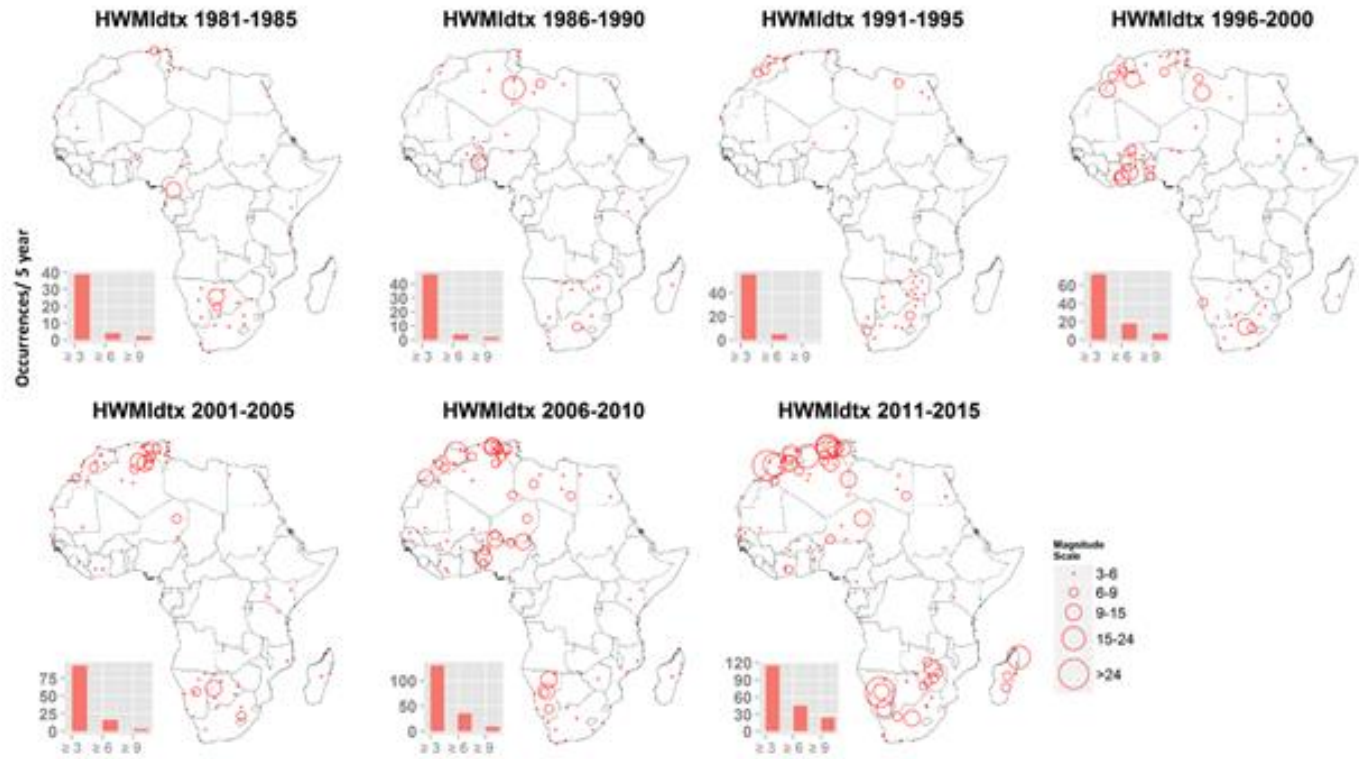
- Measured river discharge data (beyond GRDC dataset)
- Observed groundwater levels

CoE Contribution

CoE	Regional DB	Climate Variability	Atlas Water Coop.	Atlas Nexus

Heat Waves in Africa

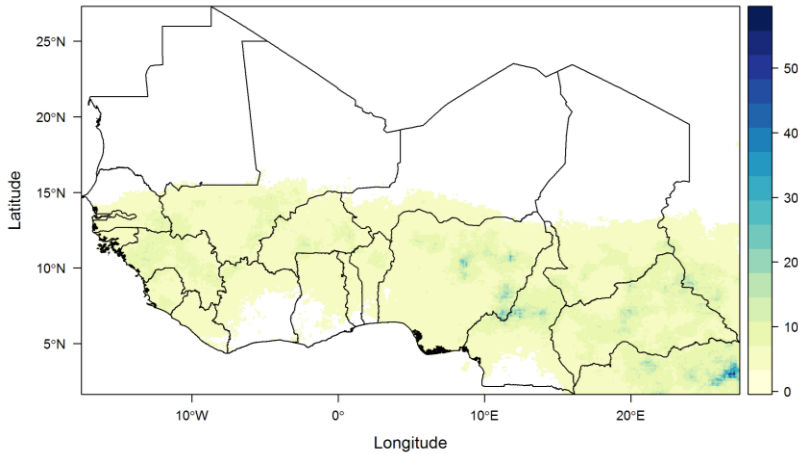
Magnitude of Heat Wave Index of maximum temperature (HWMId_{TX}) for 5-year periods of Global Summary of the Day (GSOD) records from 1981 to 2015. Histograms in the bottom-right corners show the occurrence of the magnitude index classes for each 5-year period.



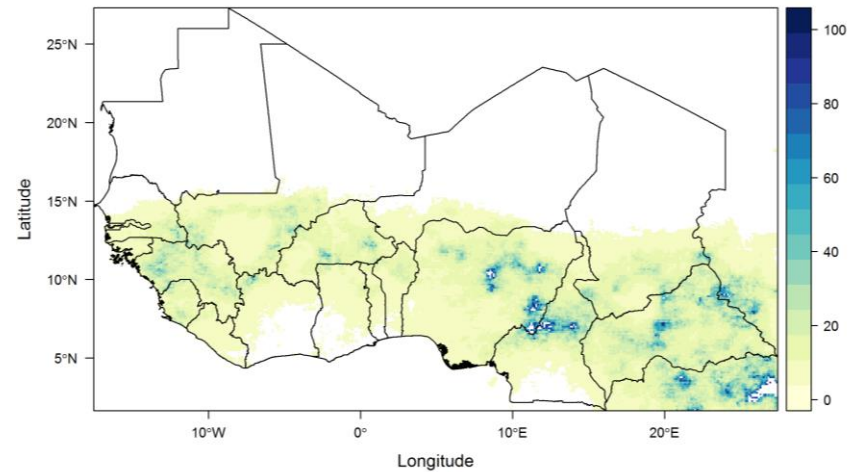
Histogram of heat wave of maximum (TX) temperature for 5-year period of GSOD records during 1981-2015.

Return time of % excess of Rainfall (*monthly reference period .ie. July*)

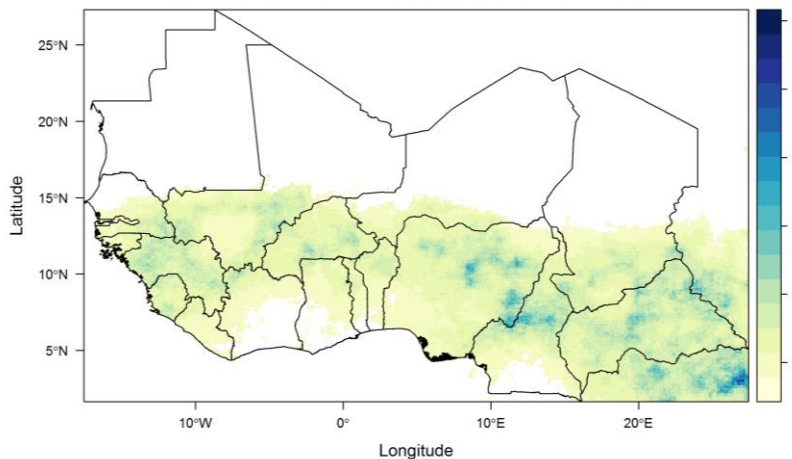
Return Period for an annual excess of rain of 20% Jul



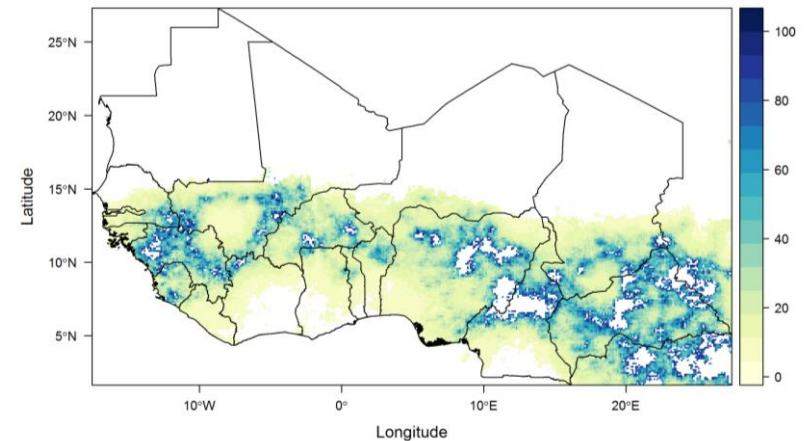
Return Period for an annual excess of rain of 30% Jul



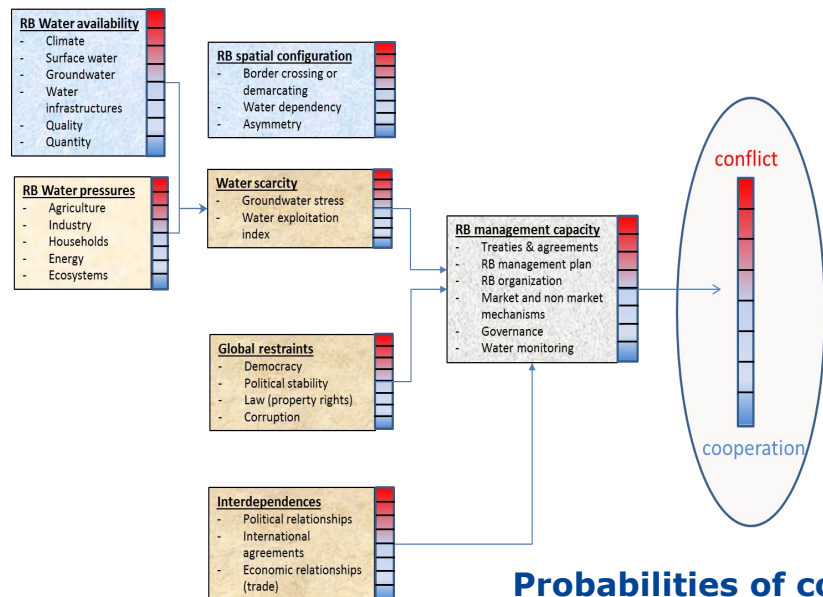
Return Period for an annual excess of rain of 10% Jul



Return Period for an annual excess of rain of 40% Jul



Conceptual model

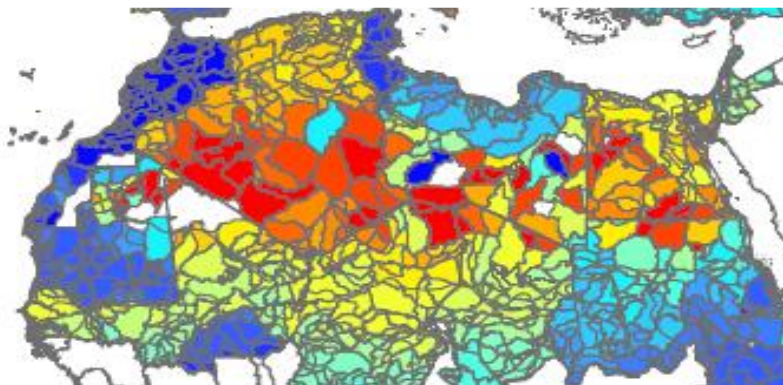


Calibrated model

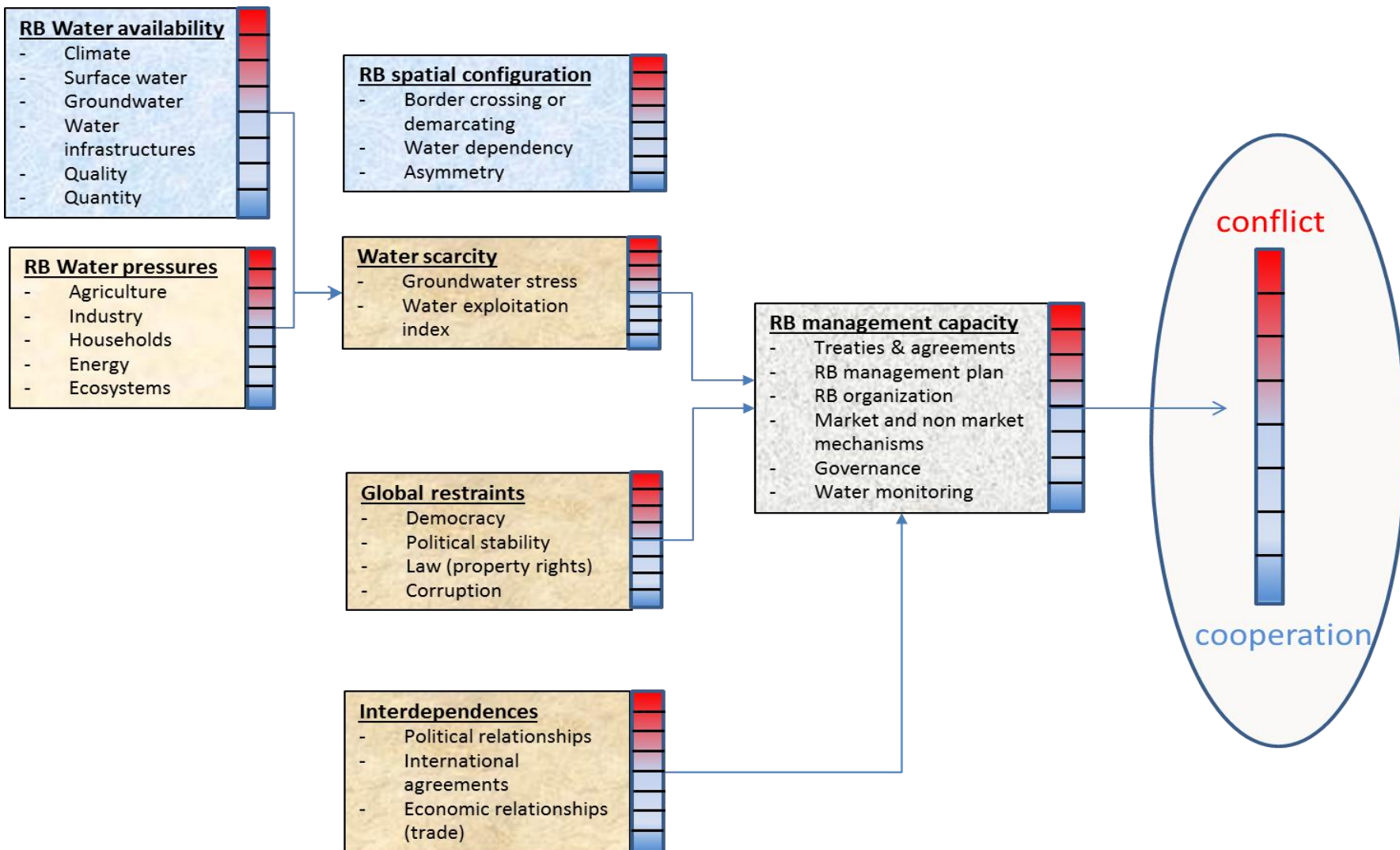
	Logit	Logit	Bivariate probit	
	1 = Conflict	1 = Cooperation	1 = Conflict	1 = Cooperation
Water stress	-0.002 (0.00)	-0.001** (0.00)	-0.002** (0.00)	-0.001*** (0.00)
Water variability	0.395*** (-0.15)	0.997*** (-0.25)	0.167 (-0.11)	0.561*** (0.14)
Drought index	0.006** (0.00)	-0.005* (0.00)	0.003*** (0.00)	-0.003 (0.00)
VoiceEst	0.81 (-0.54)	0.054 (-0.27)	0.407 (-0.25)	0.117 (0.13)
PolStabEst	-0.028 (-0.32)	-0.367** (-0.15)	-0.011 (-0.15)	-0.268*** (0.01)
GDPcap	-0.000** (0.00)	0.000 (0.00)	-0.000** (0.00)	0.000 (0.00)
Time fixed effect	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Constant	-1.530*** (-0.31)	-0.601*** (-0.20)	-0.926*** (-0.17)	-0.365*** (-0.12)
Observations	6976	6976	6976	6976

Standard errors have been clustered for repeated events in the WARICC database.

Probabilities of conflict or cooperation events in some sub-catchments of Northern Africa

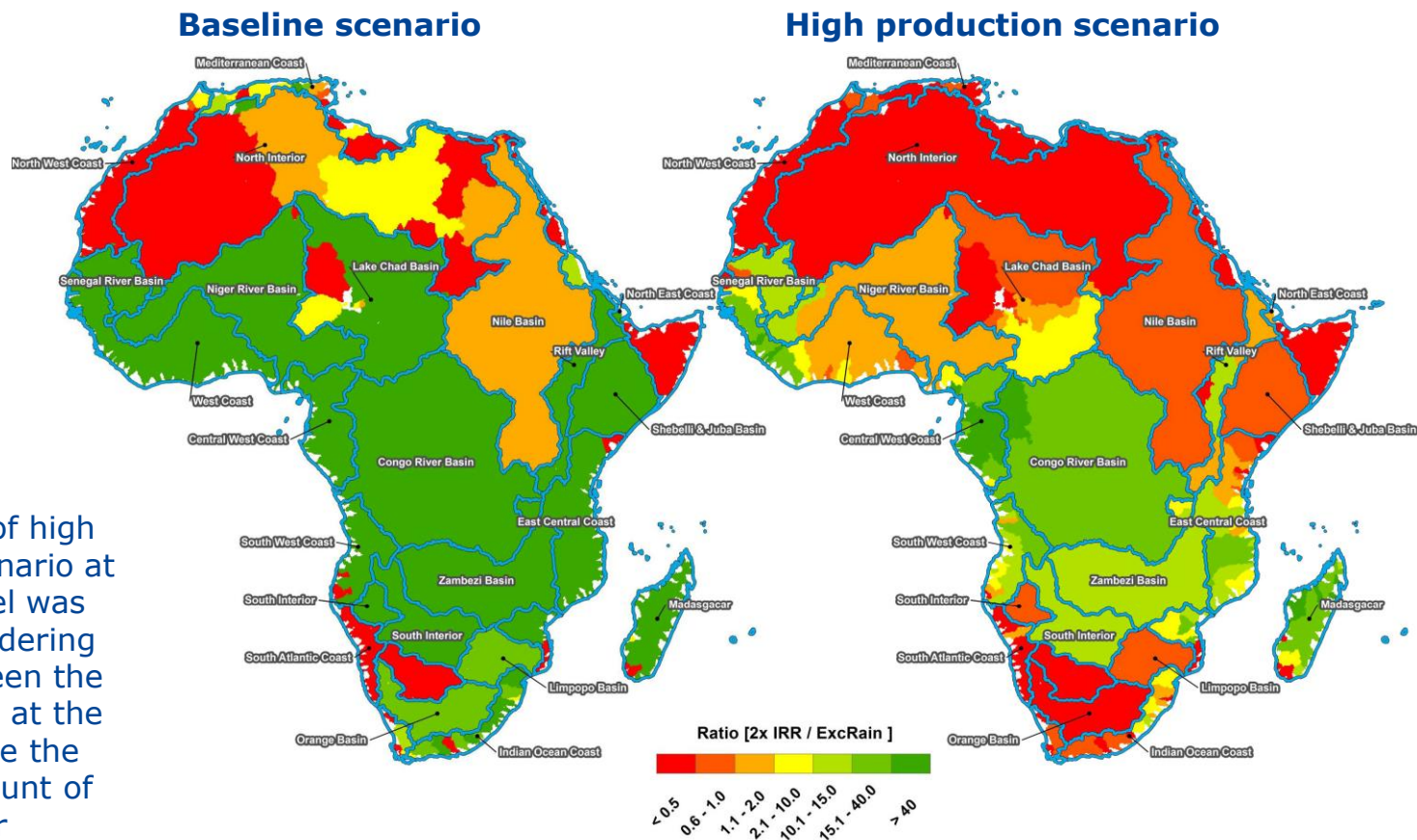


Atlas on Cooperation



Indicators for sustainable irrigation

Ratio between the river discharge and irrigation water at river basin level



Sustainability of high production scenario at river basin level was assessed considering the ratio between the river discharge at the outlet and twice the estimated amount of irrigation water

Structuring the Open discussion

- JRC Presentation introducing the Subject
- Short Presentation from the CoEs
- 1H - 2 Groups:
 1. Defining an Implementation Framework:
 - a. Listing inputs + Participation of CoEs per product
 2. Defining the Products / Proposals
- 1H – 2 Groups
 1. JRC and each CoE present what are their contribution(s) and interest toward these products
 2. Identification of Main Issues and Priority Needs + Identifying Collaborations on data, methodologies, models, projects
- 15' – Group Conclusions

PART 2 Making a point on:

TOPIC 3 - TASK A : Managerial skills – Capacity Development

=> Research Managerial Skills: Replication/extension of 1 week workshop implemented in phase I – Training of Trainers

=> Proposals H2020 / AU: Replication/extension of 1 week workshop implemented in phase I – Support to Proposal preparation

TOPIC 4 - TASK A + B: On the implementation of existing RECs agreements ... Defining-Including activities in the MoU

=> Extend collaboration with RECs for Central and Eastern African region.

=> Links with the Pan African Universities and MENA initiatives.

THANK YOU

Contacts:

DG JRC: Cesar.carmona-moreno@jrc.ec.europa.eu
celine.dondeynaz@jrc.ec.europa.eu

