

A long term global vision



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JPI WATER GB Chair

A constat: Water will be the first mineral ressource which will be lacking on the blue planet



2030 Sustainable Development Goals

1 NO POVERTY



2 ZERO HUNGER



3 GOOD HEALTH AND WELL-BEING



4 QUALITY EDUCATION



5 GENDER EQUALITY



6 CLEAN WATER AND SANITATION



7 AFFORDABLE AND CLEAN ENERGY



8 DECENT WORK AND ECONOMIC GROWTH



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



10 REDUCED INEQUALITIES



11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



14 LIFE BELOW WATER



15 LIFE ON LAND



16 PEACE, JUSTICE AND STRONG INSTITUTIONS

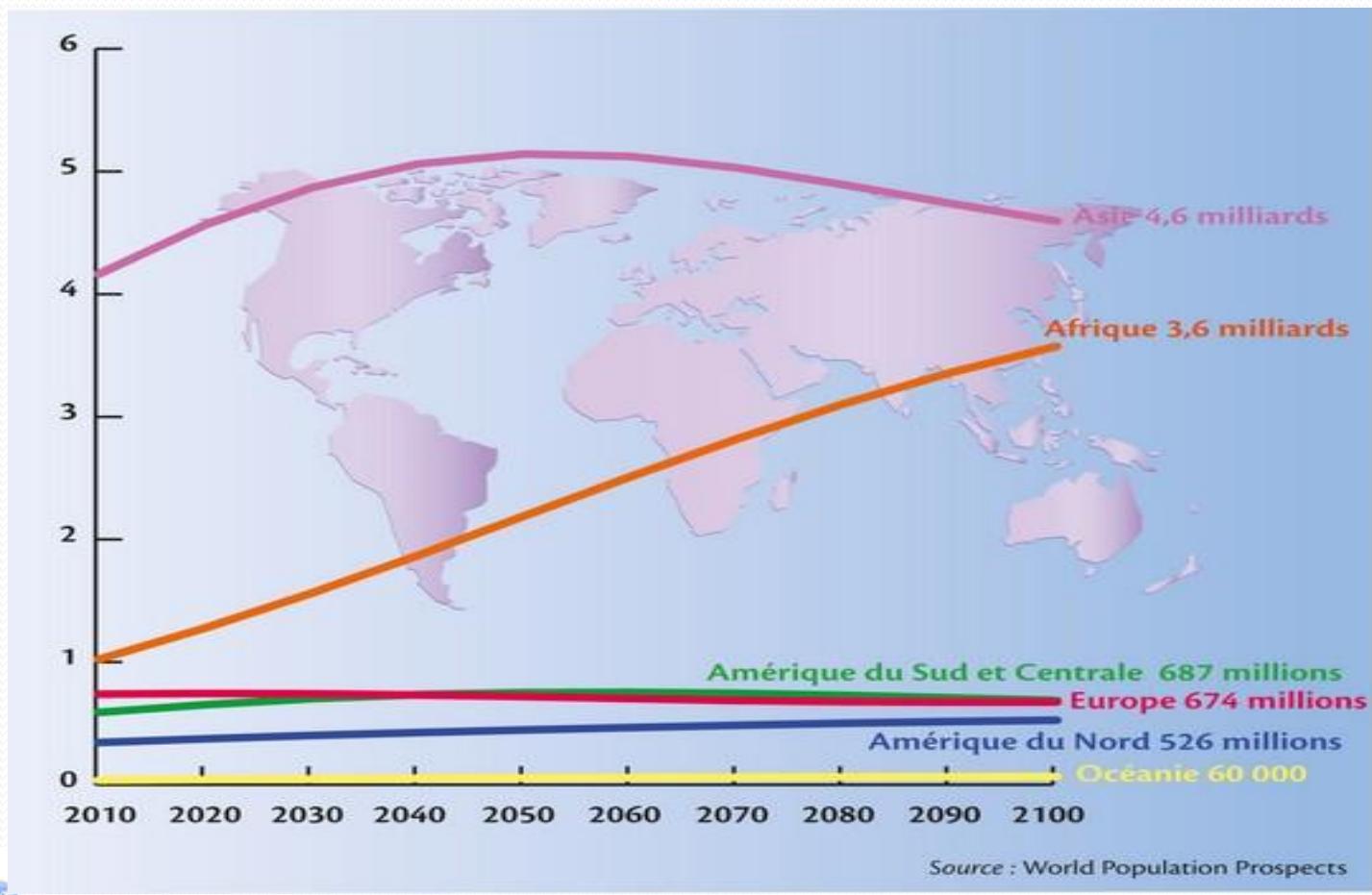


17 PARTNERSHIPS FOR THE GOALS



SUSTAINABLE
DEVELOPMENT
GOALS

The demographic context





WATER SCARCITY



WATER USE HAS BEEN GROWING AT MORE THAN TWICE THE RATE OF POPULATION INCREASE IN THE LAST CENTURY

INCREASE IN WATER WITHDRAWALS BY 2025

50%

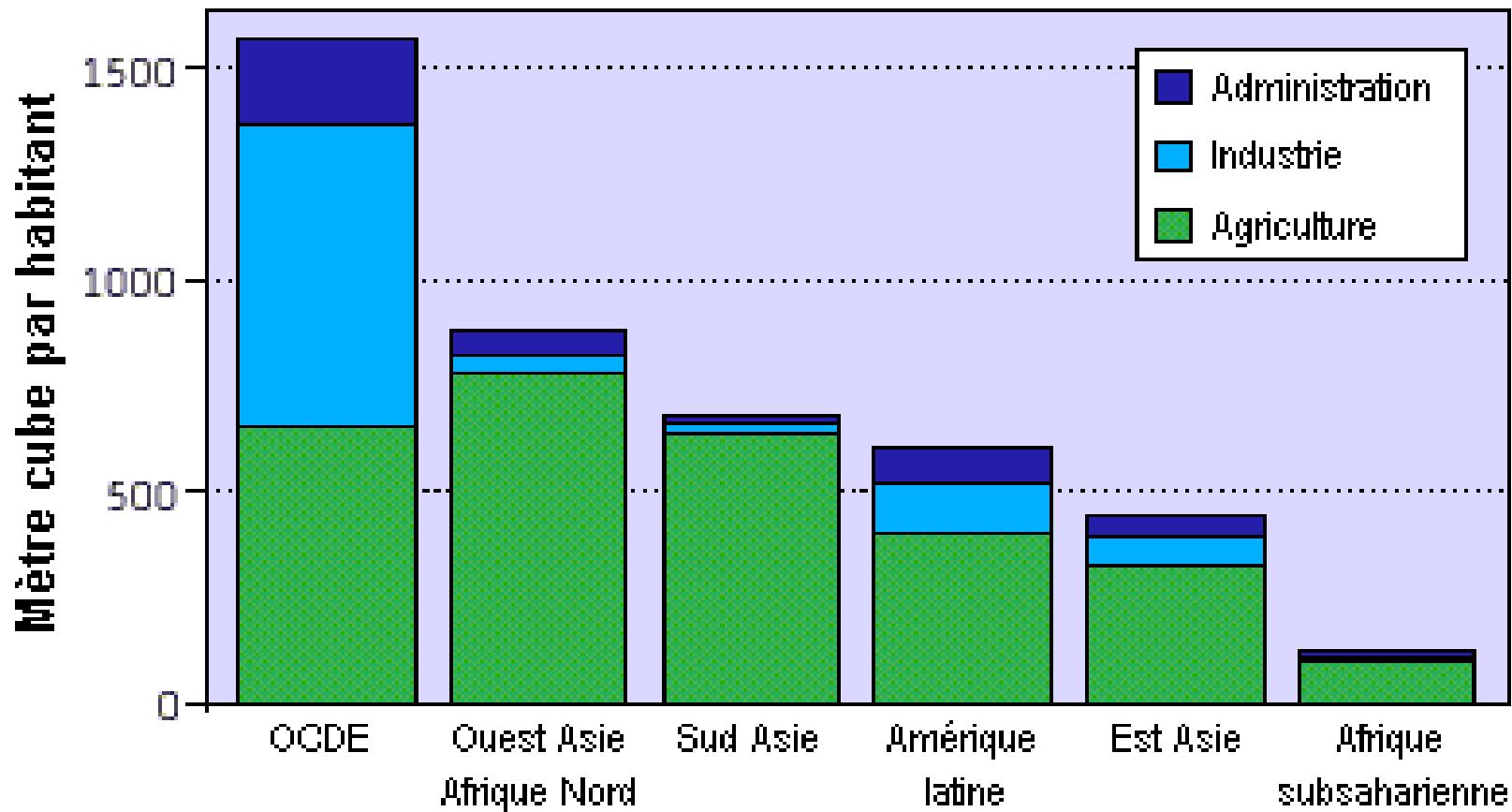
DEVELOPING COUNTRIES

18%

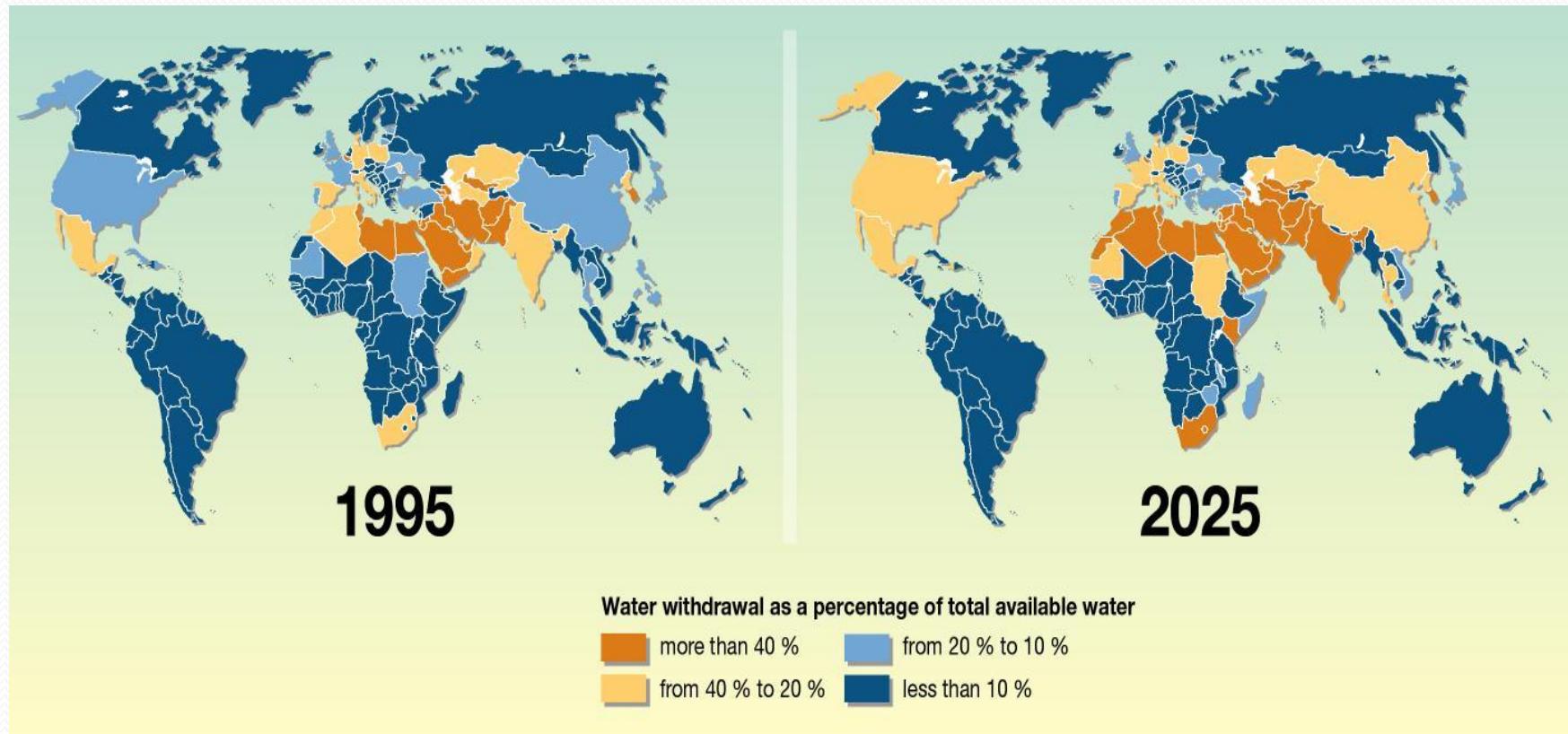
DEVELOPED COUNTRIES

**By 2025,
1800 million
people will be living
in countries or
regions with absolute
water scarcity,
and two-thirds
of the world population
could be under stress
conditions**

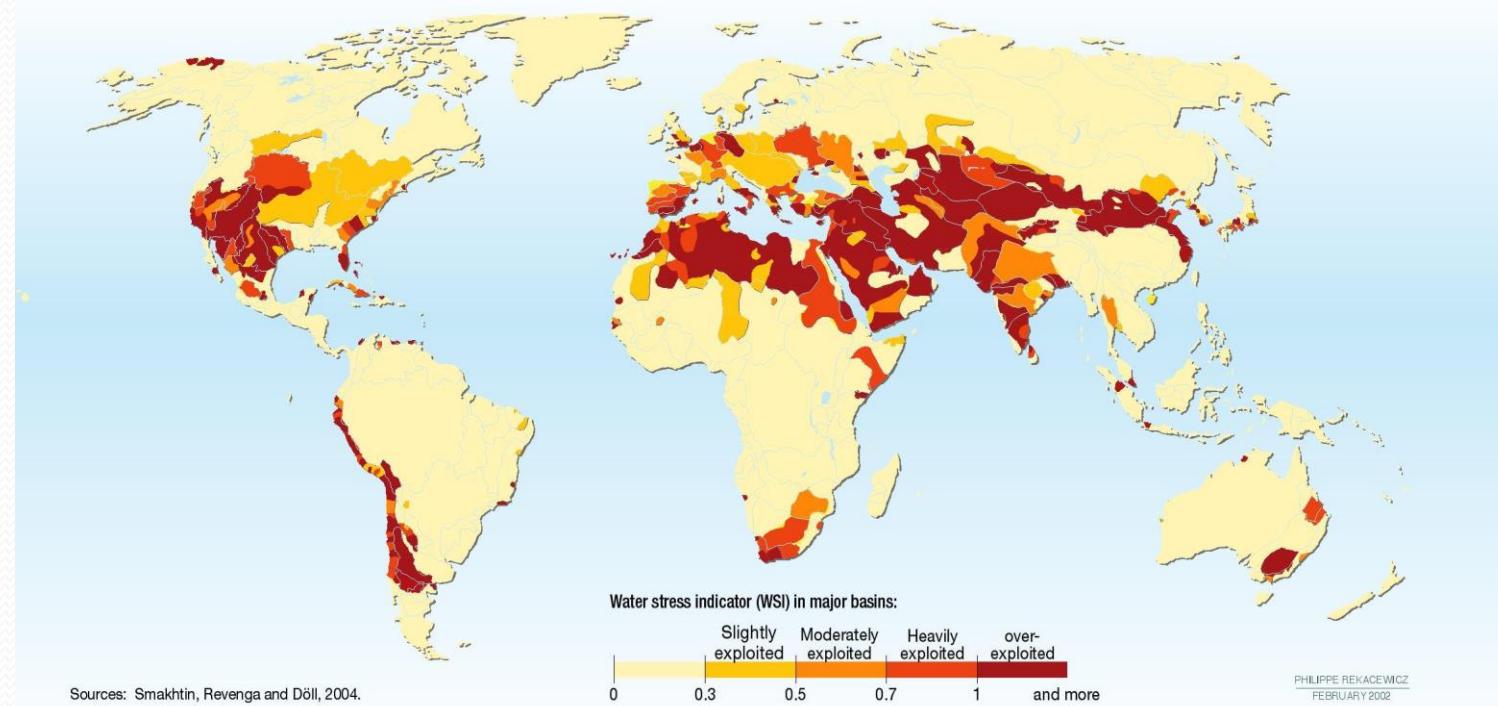
Water for what?



UNEP

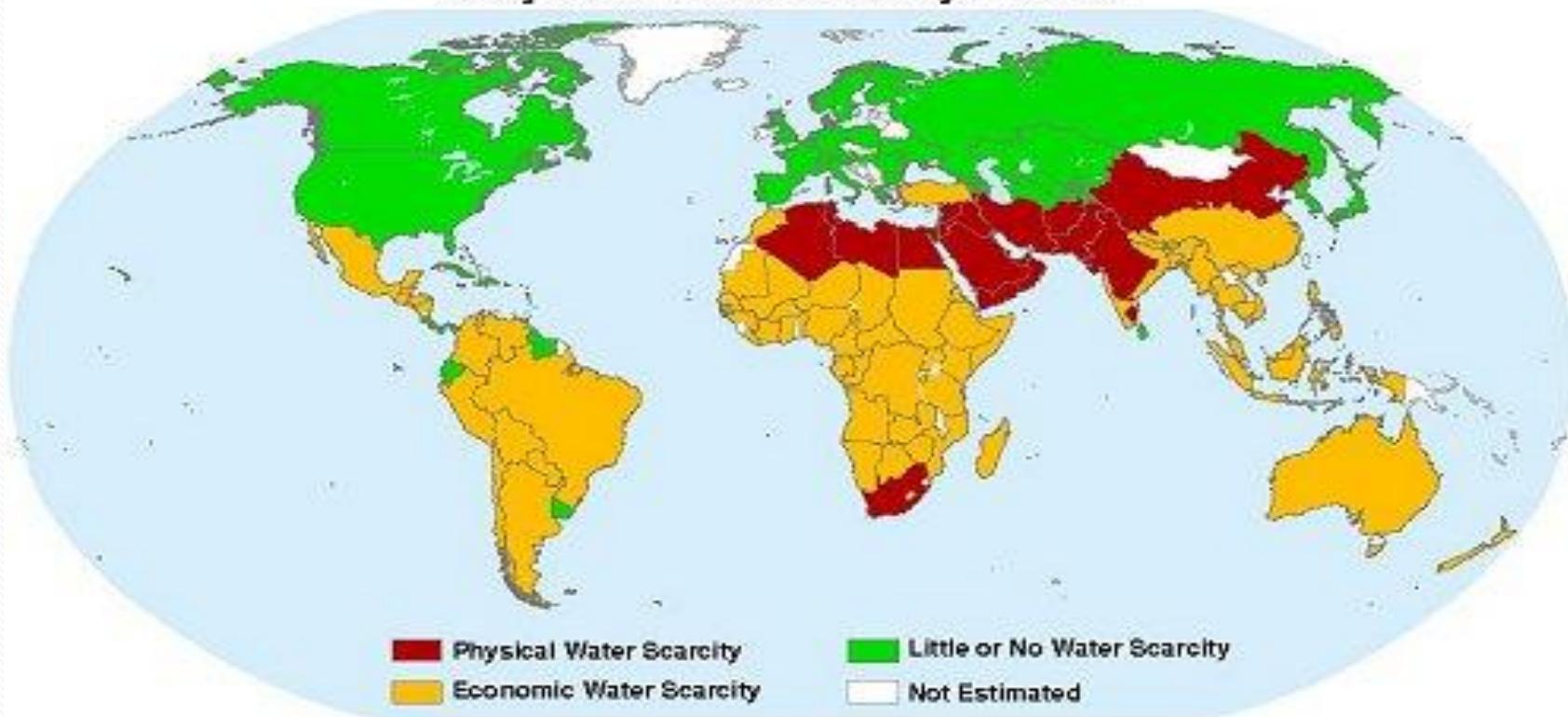


WATER STRESS INDICATOR



WATER SCARCITY

Projected Water Scarcity in 2025



Physical water scarcity: More than 75% of river flows are allocated to agriculture, industries, or domestic purposes. This definition of scarcity — relating water availability to water demand — implies that dry areas are not necessarily water-scarce.

Approaching physical water scarcity: More than 60% of river flows are allocated. These basins will experience physical water scarcity in the near future.

Economic water scarcity: Water resources are abundant relative to water use, with less than 25% of water from rivers withdrawn for human purposes, but malnutrition exists.

Little or no water scarcity: Abundant water resources relative to use. Less than 25% of water from rivers is withdrawn for human purposes.

Not estimated

Source: International Water Management Institute.

Unsustainable Growth

Around 700 million people in 43 countries suffer today from water scarcity.

By 2025, 1.8 billion people will be living in countries or regions with absolute water scarcity, and two-thirds of the world's population could be living under water stressed conditions.

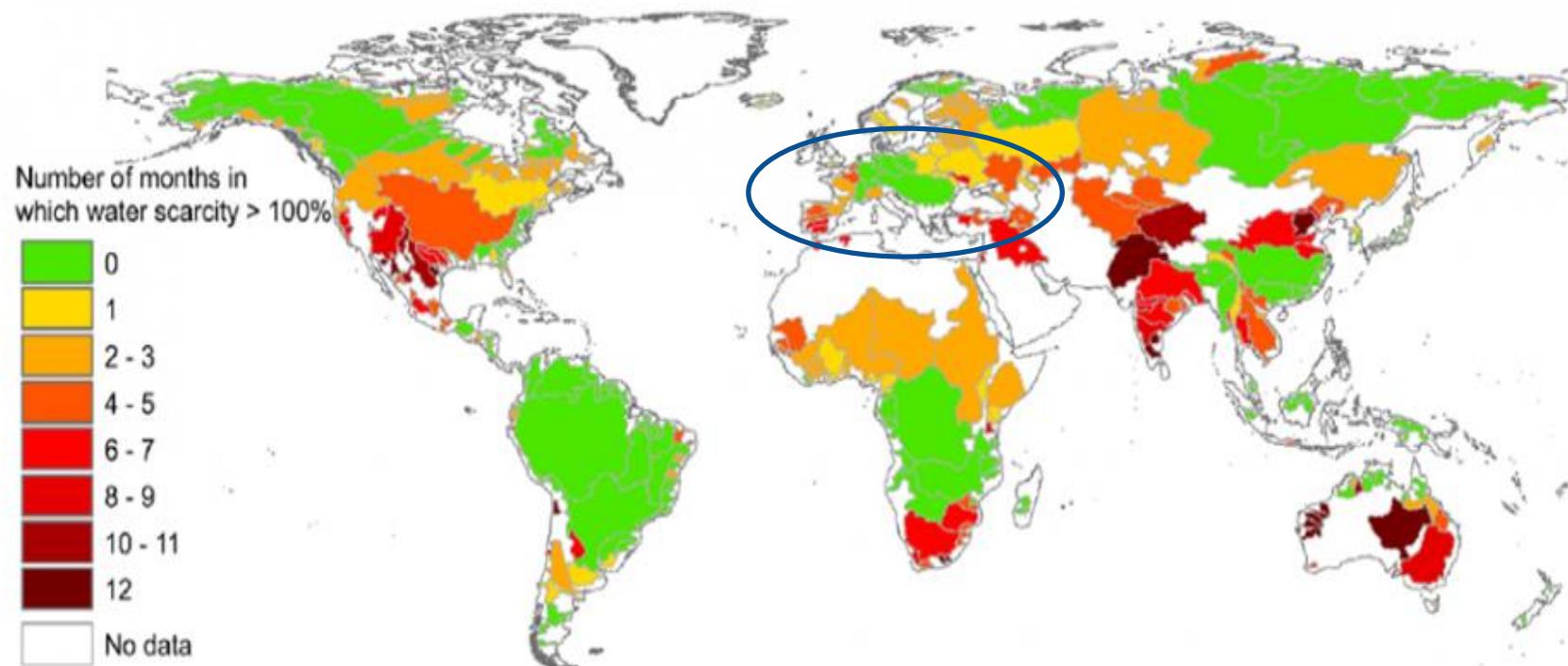
With the existing climate change scenario, almost half the world's population will be living in areas of high water stress by 2030, including between 75 million and 250 million people in Africa. In addition, water scarcity in some arid and semi-arid places will displace between 24 million and 700 million people.

Sub-Saharan Africa has the largest number of water-stressed countries of any region.

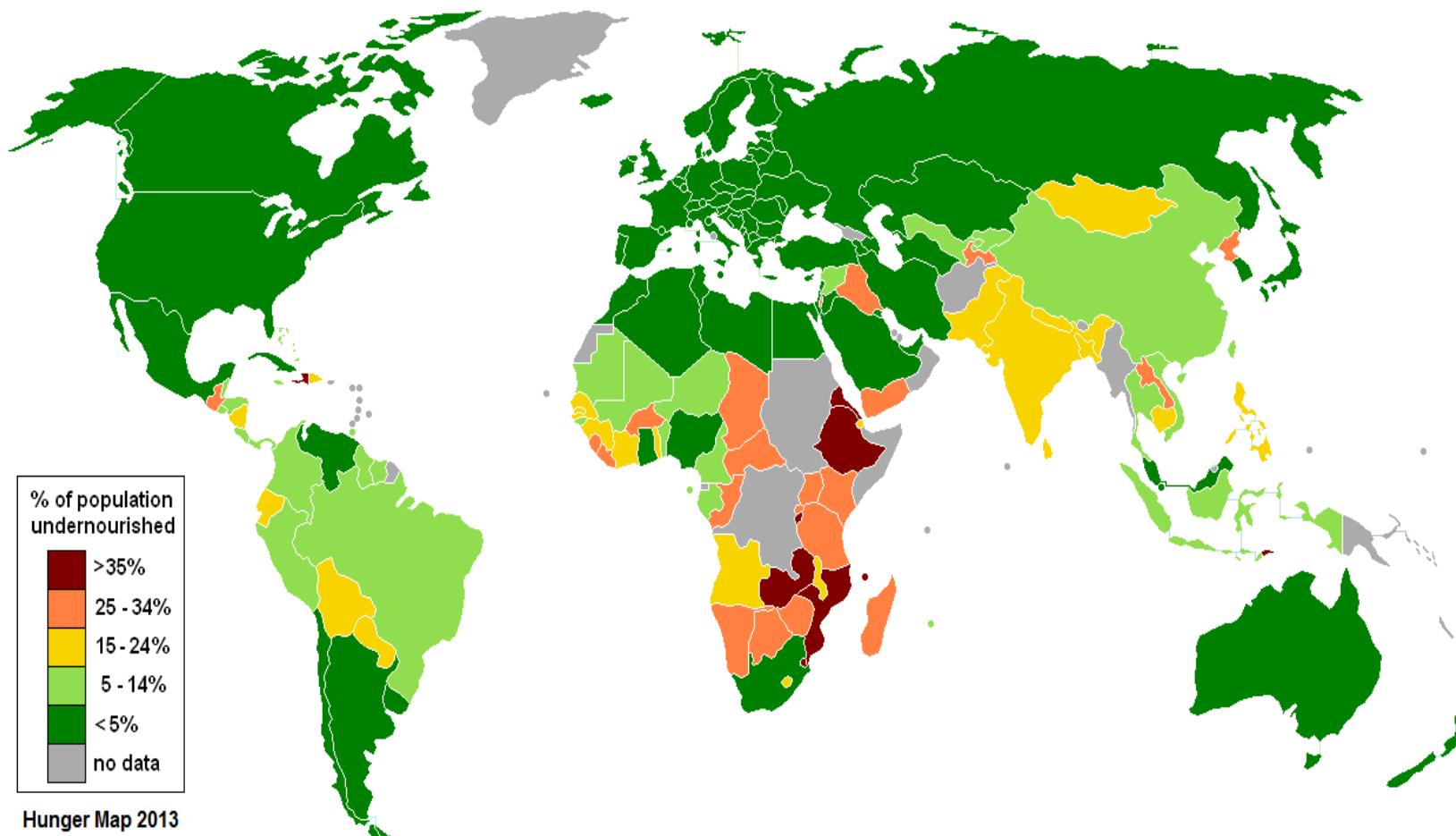
Source: UN, Water for Life

62% of the world population under water scarcity in 2030

Drough in warmer periods

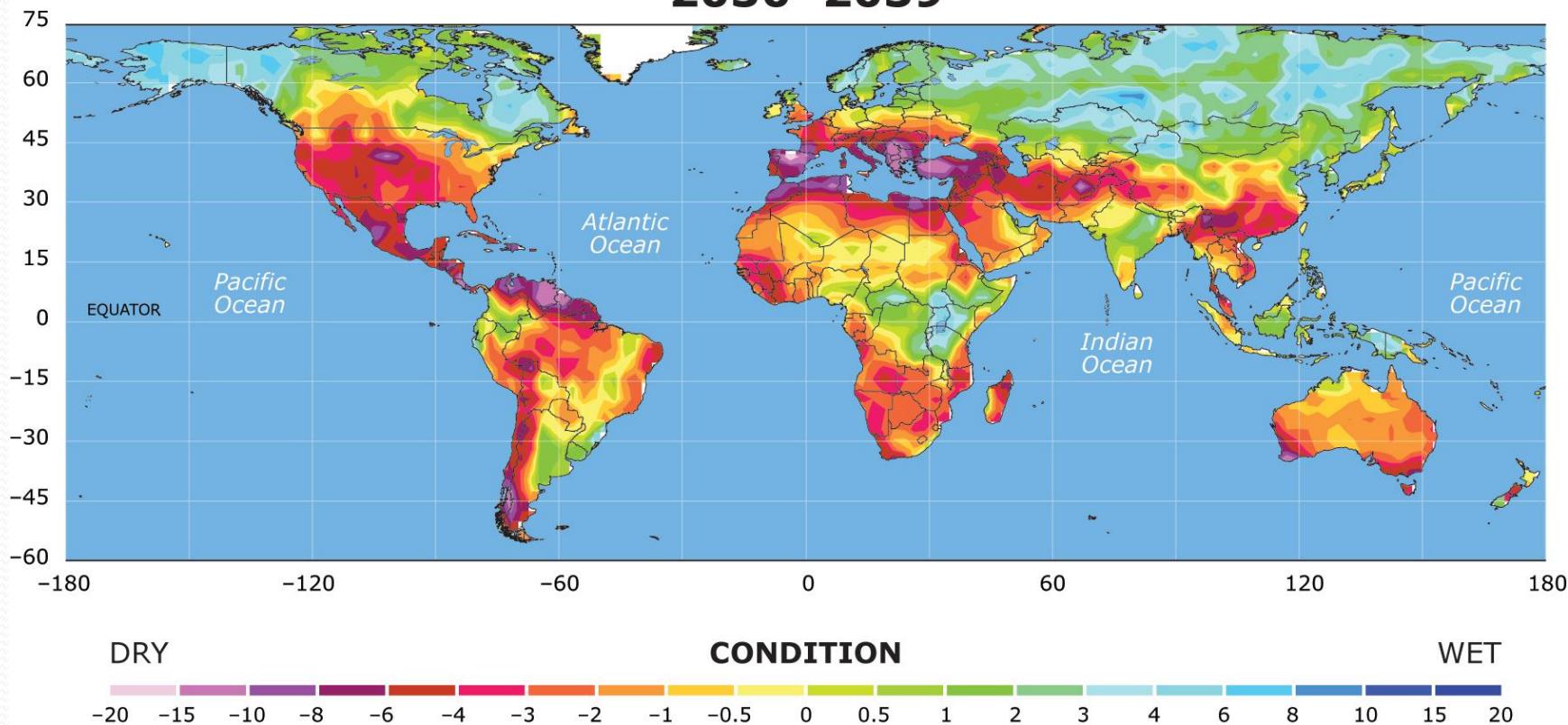


HUNGER MAP

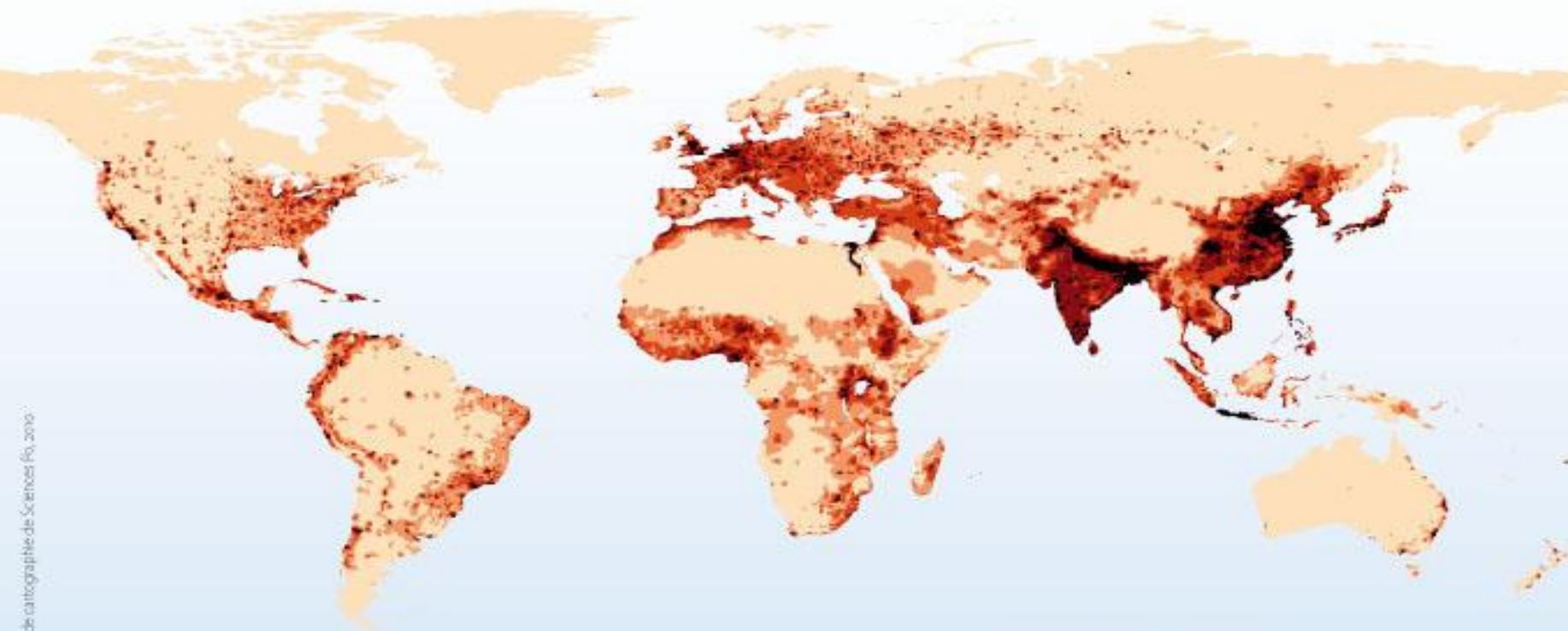


Climate change evolution Ipcc

2030–2039



DENSITÉ de population, 2010



Atelier de cartographie de Sciences Po, 2010

Source : Socio-economic Data and Applications Center (Sedac), NASA et Columbia University,
Gridded Population of the World and the Global Rural-Urban Mapping Project, <http://sedac.ciesin.columbia.edu/gpw>

0 10 45 200 500

densité moyenne mondiale :
45 habitants/km²



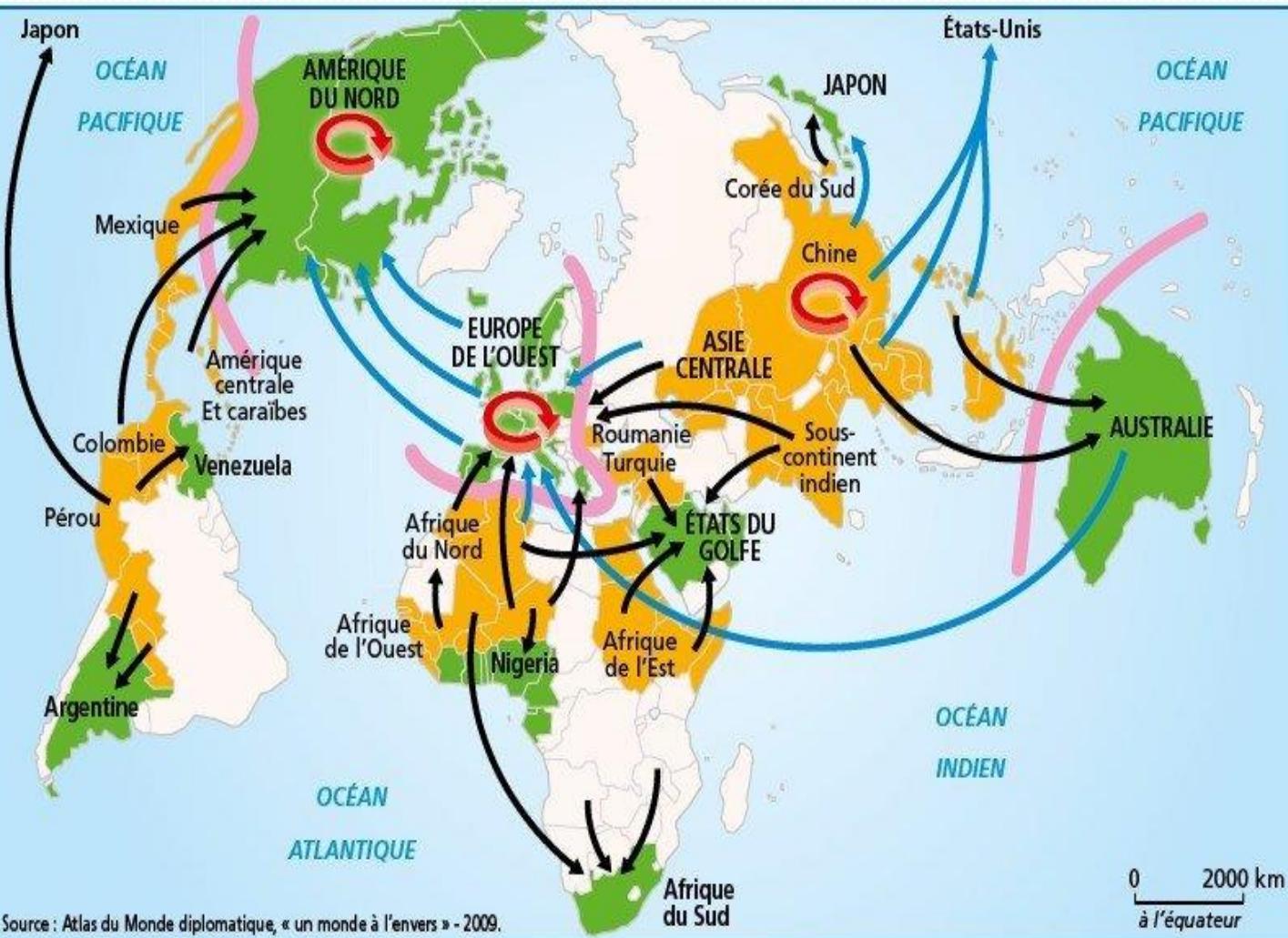
d'après Marie-Françoise DURAND, Philippe COPINSCHI
Benoit MARTIN, Patrice MITRANO, Delphine PLACIDI-FROT,
Atlas de la mondialisation, dossier spécial Russie,
Paris, Presses de Sciences Po, 2010

Atelier de cartographie de Sciences Po, 2010,
www.sciences-po.fr/cartographie



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Human migration



Espaces et flux migratoires dans le monde.

Les espaces migratoires

- Principales zones de départ
- Principales zones d'arrivée
- Limites entre espaces très inégalement développés

Les flux migratoires

- Migrants peu ou pas qualifiés
- Migrants qualifiés : « fuite des cerveaux »
- Migrations économiques internes

Refugees' Trajectories

14.37 million refugees registered by UNHCR in 2014 with place of origin and asylum.

Thickness of the edges is proportional to the number of displaced persons between two points (black if more than 100K).

2/3 of the migrations are caused by absence of food security

What research can bring?

- Identification of the ressources surface and underground and their sustainable levels of exploitation
- Expected evolution of the ressources for medium term
- Solutions to better manage the water ressources , reservoirs, distribution , leakages
- Developing safe water systems by improoving sanitation technics
- Prevention and treatment of water human deseases
- Creation of new ressources: recycling, wastes treatments, desalinisation, morning dew, condensation collectors...
- Climate enginiering: clouds, shadow, role of forest and rain, green barier to stop desertification,
- Improve agriculture less water consuming: plants adapted to drough, adapted new periodic irrigation system, ICT agri
- Soil changes with increase of organic matter(4%) for water retention and carbon sequestration
- Contribute to limit climate change by promoting use of renewable energy in all the water chain
- Water prices, social acceptance and governance issues
- Developp international cooperation to go faster and promoting world innovation

On the way: International Cooperation

- RDI activities and participation of their research funding organisations in the ERA-NETs COFUND with FACCE

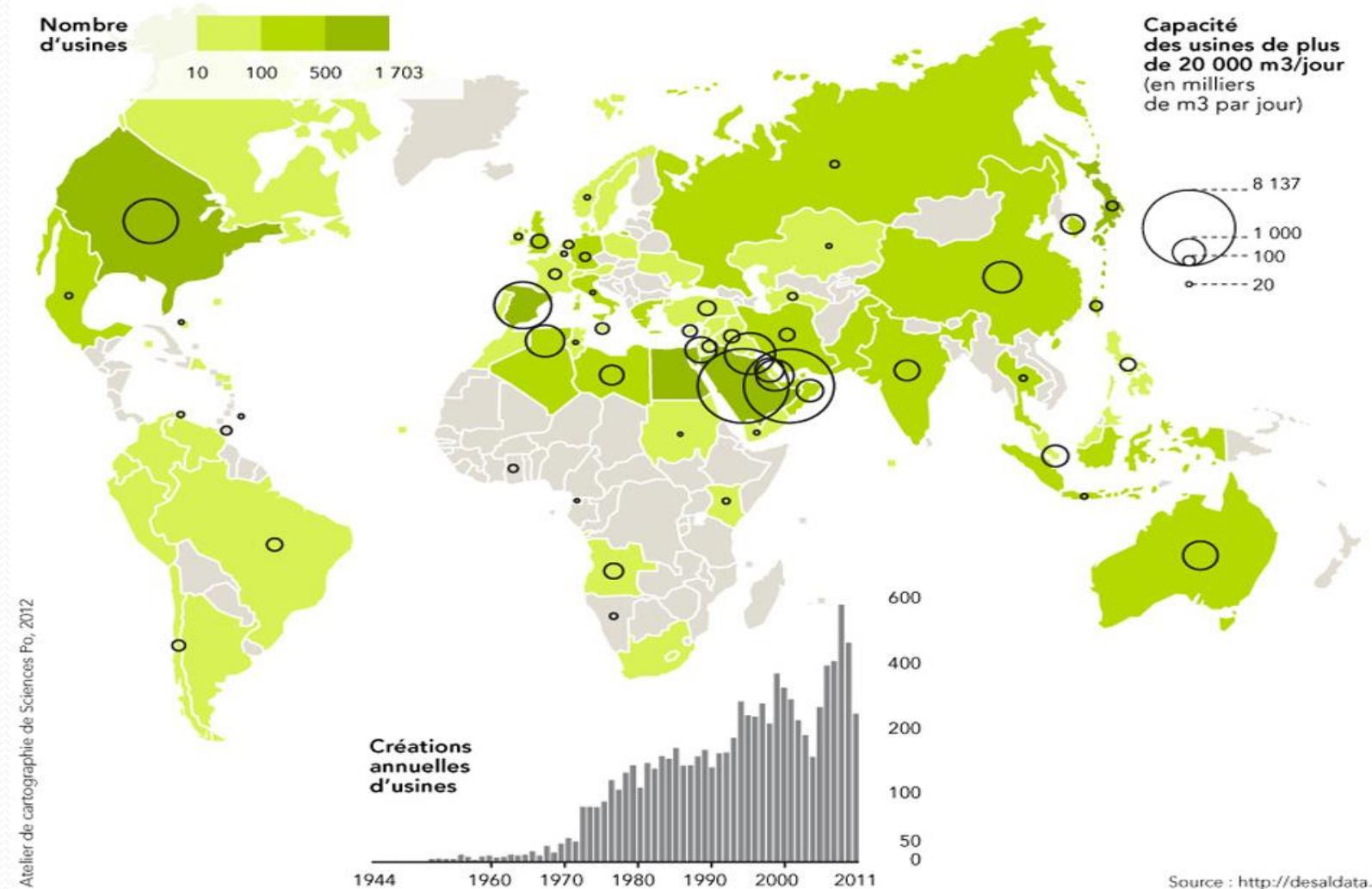
- ✓ Brazil
- ✓ Canada
- ✓ USA
- ✓ China
- ✓ Vietnam
- ✓ Taiwan
- ✓ India
- ✓ South Africa
- ✓ Tunisia
- ✓ Egypt



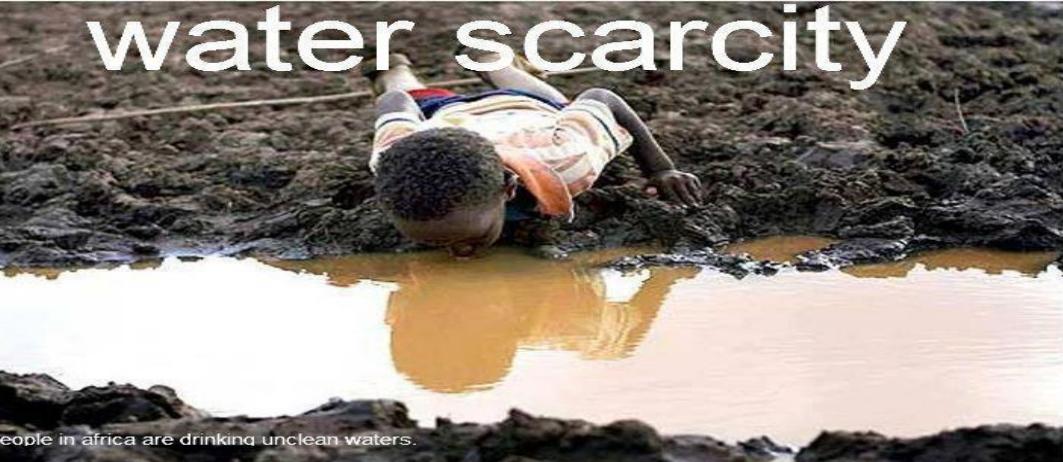
COOPERATION BETWEEN EU and MEDITERRANEAN,
AFRICAN and ASIATIC INITIATIVES
Targeted countries: India and China

Technology improvement

Désalinisation de l'eau, 2012



water scarcity





Thank you for your attention

