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The Management of Water Conflicts

Zaragoza, Spain November 2018 "The wars of the next century will be about water."

Ismail Serageldin, former vice president of the World Bank, 199.

"The next war in the Middle East will be fought over water, not politics."

Boutros Boutros Ghali, former United Nations Secretary General, 1985

"Fierce competition for fresh water may well become a source of conflict and wars in the future."

U.N. Secretary-General Kofi Annan, 2001

1- Are we really facing a water crisis?

2- Will we have a water war?

3- How do we manage water conflicts?



1- Are we really facing a water crisis?

Investigation and status



Why do we use water



It takes

13 litres of water to get a tomato

25 litres of water for a potato

35 litres of water of a cup of tea

70 litres of water for an apple

75 litres of water for a glass of beer

120 litres of water for a glass of wine

140 litres of water for a cup of coffee

170 litres of water of a glass of orange juice

184 litres of water for a bag of potato crisps

200 litres of water for a glass of milk

2400 litres of water for a hamburger

15000 litres of water is needed to produce one

kilo of beef

17196 litres for 1kg of chocolate



147.971.75 litres of water are needed to make a car. It's unclear if that includes the more 7570 litres used to make its tires.

2495 litre for a cotton shirt of 250 grammes And around 6813 litre of water to grow enough cotton to produce just one pair jeans









For one Ton of . . . Steel we need 234.695 litres of water Cement we need 5148 litres of water

One Pound (0,45 Kg) of... Wool needs 382 litres of water Plastic needs 90 litres of water Synthetic Rubber needs 208 litres... to be produced You use 80 litres every time you run a bath 45 litres for a 5minute shower 50-100 litre for a fullload of a washing machine 12-20 litre everytime you use the dishwasher









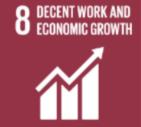


















RESPONSIBLE CONSUMPTION AND PRODUCTION

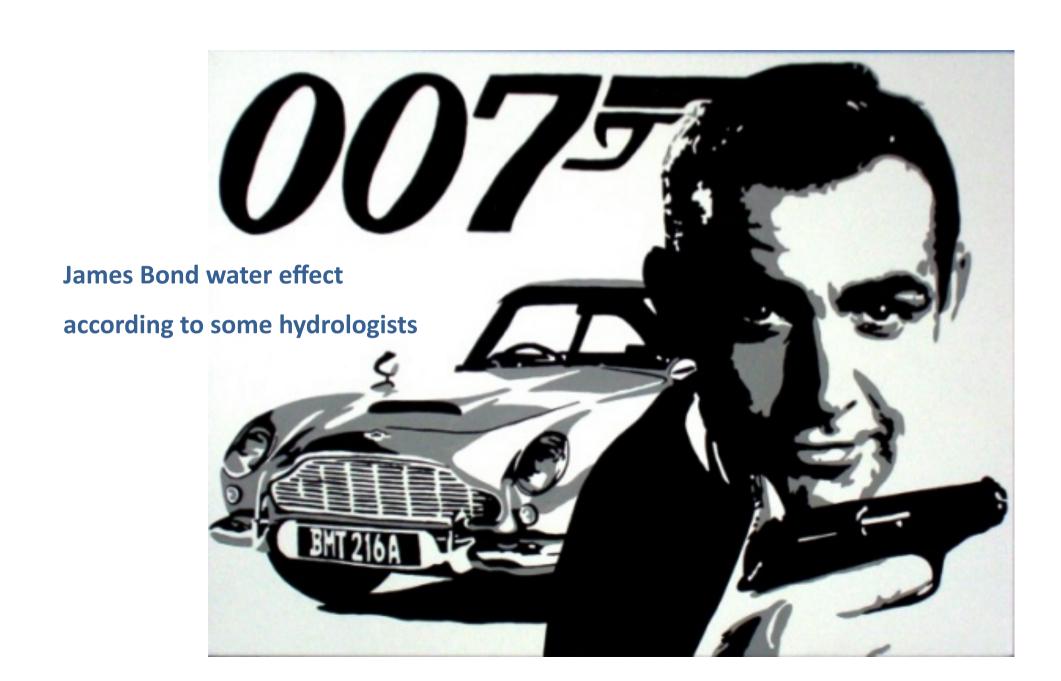


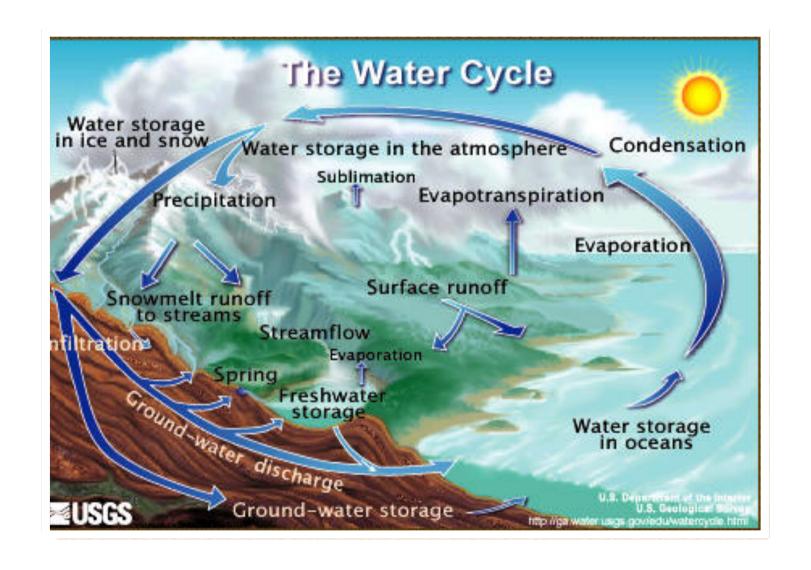












Climate change is our wild card

 The IPCC forecasts that arid areas will become even drier in the era of climate change

This includes many areas containing shared freshwater resources





Some of us may still be skeptical

Water distribution in time



Water distribution in space



From: UNESCO - World Water Development Report 1

Water availability per person and per year in the last 40 years

Availability per m3/person/year

• CANADA : 87 000

• FRANCE : 2 900

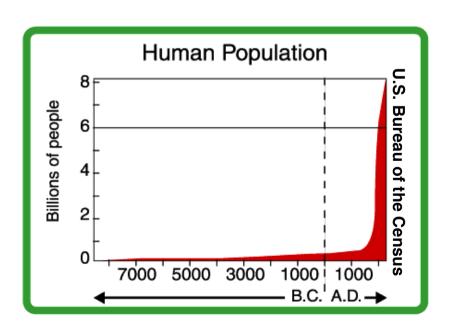
• CHINA : 2 100

• JORDAN : 120

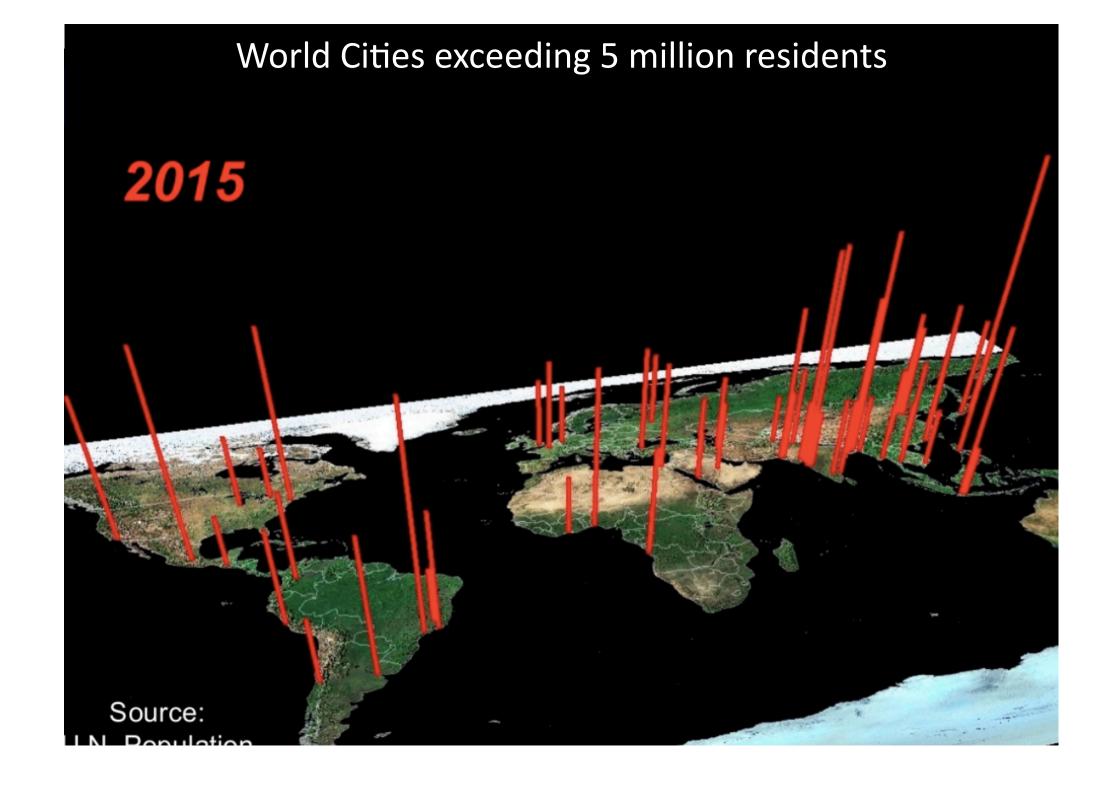


Global change drivers

- Population growth, movement and age structures
- Geo-political changes and realignments
- Trade and subsidies
- Technological changes
- Climate change
- Rapid urbanization



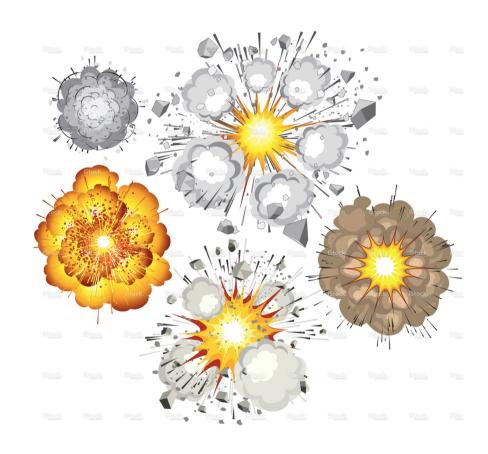
World Cities exceeding 5 million residents 1950 Source: U.N. Population Division



Why are cities growing?

- 1. Population growth and lack of resources in rural areas
- 2. Perception that life in cities is better
 - Industrialization
 - Employment opportunities
 - Social factors (better education, better social status, better standards of living)
 - Modernization
- 3. Decrease in death rates while birth rate remains high

2- Will we have water wars?



Intra-state conflicts

Kenya 2000-2005

Police were sent to the northwestern part of Kenya to control a major violent dispute between Kikuyu and Maasai groups over water. More than 20 people were killed in fighting. The tensions arose when Maasai herdsmen accused a local Kikuyu politician of diverting a river to irrigate his farm, depriving downstream livestock. Fighting displaced more than 2000 villagers and reflects tension between nomadic and settled communities

Water as a victim in a conflict

In 1993, to quell opposition to his government, Saddam Hussein reportedly poisons and drains the water supplies of southern Shiite Muslims, the Ma'dan. The European Parliament and UN Human Rights Commission deplore use of water as weapon in region.

Water as a tool in a conflict negotiation:

Turkey has threatened to reduce the flow of water to Syria in order to force the Syrians to stop the flow of the Kurdish rebels - a major national and security problem for Turkey.

Water as one element among others in a broader conflict:

In the case of the Israel-Arab relationship, Israel occupies the Gloan Heights with the aim (among others) to control the Banias tributary of the Jordan basin. Israel controls and manages the hydraulic infrastructure in the West Bank.

ONE war over water:

Umma and Lagash

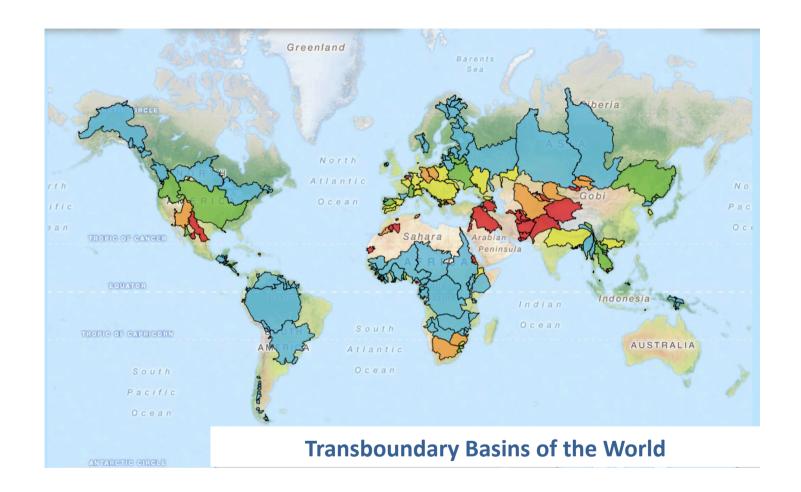
4500 years ago

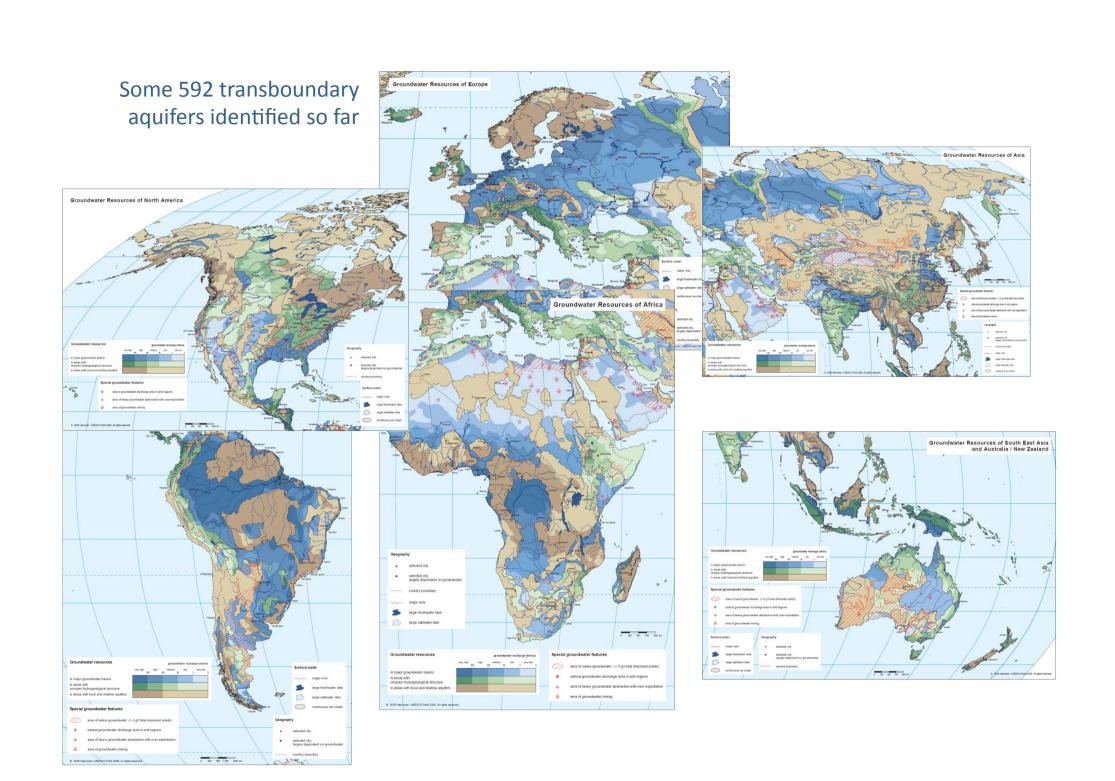
Dispute over the "Gu'edena" (edge of paradise) region begins.

Urlama, King of Lagash from 2450 to 2400 BC, diverts water from this region to boundary canals, drying up boundary ditches to deprive Umma of water.

His son cuts off the water supply to Girsu, a city in Umma (present-day Iraq).

Hatami and Gleick, 1994.





Water Conflict and Cooperation indicators

"The likelihood of conflict rises as the rate of change within the basin exceeds the institutional capacity to absorb that change."

What are indicators?

- Uncoordinated development: a major project in the absence of a treaty or commission
- "Internationalized basins"
- General animosity





What is a conflict?

- A fight, battle, war an armed conflict
- A competitive or opposing action of incompatibles; an antagonistic state or action (as of divergent ideas, interests, or persons) a conflict of principles
- A mental struggle resulting from incompatible or opposing needs, drives, wishes, or external or internal demands
- The opposition of persons or forces that gives rise to the dramatic action in a drama or fiction The conflict in the play is between the king and the archbishop.



How do we anticipate, prevent and manage water conflicts in cities?



Two main conflict scenarios in cities

- -Governance crisis
- -Equitable access to water



Belgium

- -Recognition of basic right of access to water and sanitation.
- -Responsibility of different administrative bodies (i.e. municipal authorities)

In the Flemish region, residents pay a basic connection fee for a minimum amount of water supplied for free. Excess water used is priced depending on the amount consumed.

The Walloon region recognizes a right of access to enough water to cover "nutrition, food, domestic, and health needs." A certain amount of water is available to each household per year at a low price.

The Water Code established a Social Fund for Water which is funded by taxes and assists low income people with their water bills.

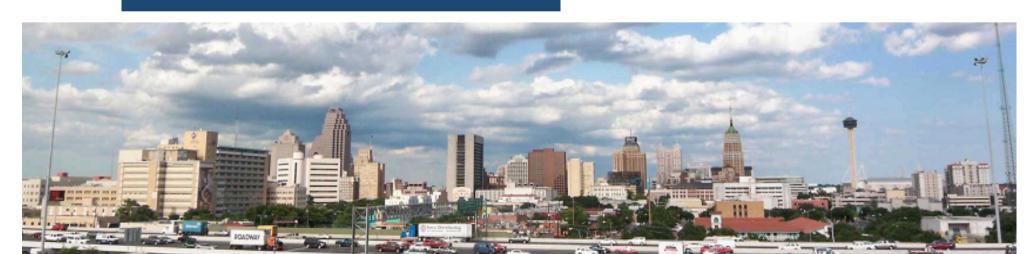
In the U.S.A.

Reservoir in San Antonio Texas

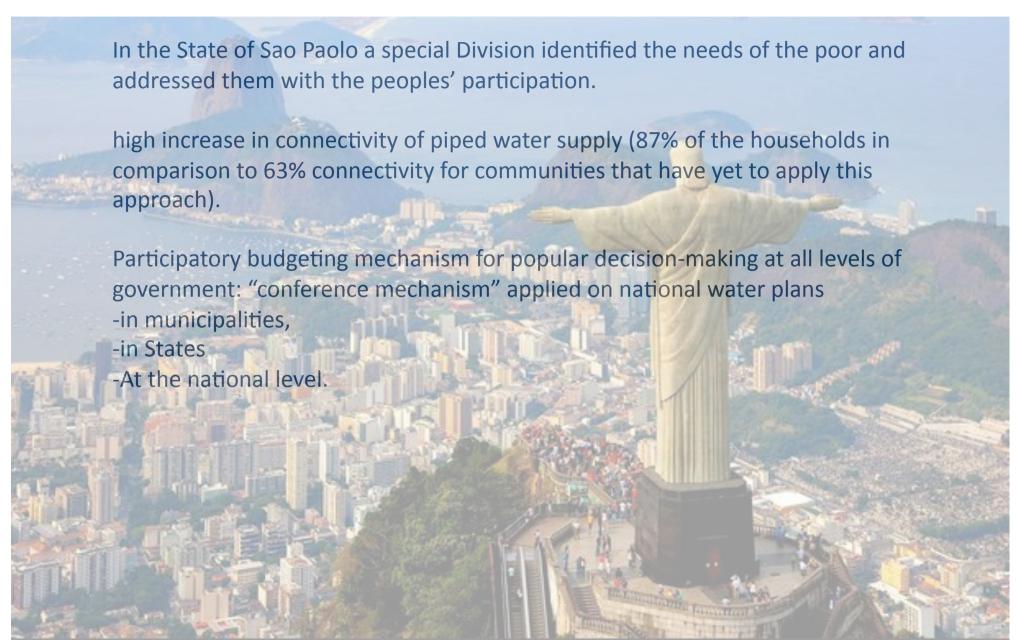
- 1st proposal was not implemented
- Objections of affected stakeholders
- When meetings were open to all stakeholders: it was decided that no reservoir was needed. Policy to manage the old one was established

Consensus building

- Brings together all stakeholders concerned
- Unanimous agreement
- Voluntarily basis
- Creative and efficient



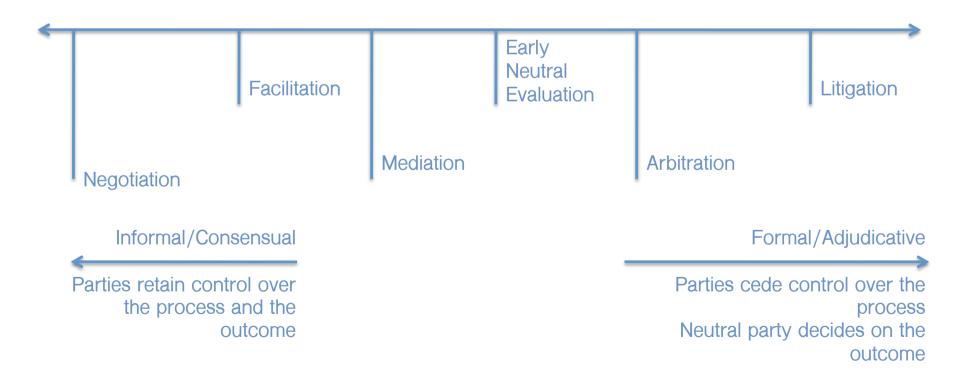
Brazil



The full spectrum of ADR go from Informal/Consensual processes where the parties retain control and decide the outcome to Formal/Adjudicative processes where the parties cede control and a third neutral party decides the outcome

Check techniques such as:

- Conciliation
- Settlement conferences
- Good offices
- Consensus building
- Fact finding



Why would it be rational to cooperate?

Towards "water rationality" *

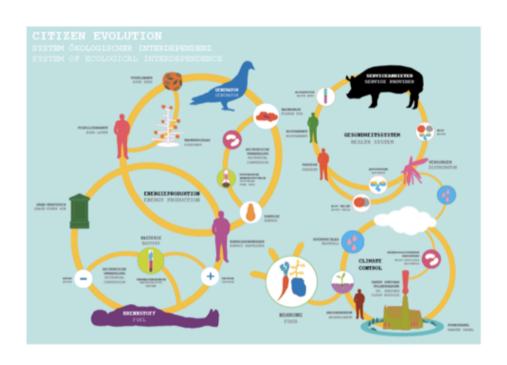
- Vital characteristics of water
 - Principles of ethics/ hydrosolidarity
 - Principles of UN Water Convention
 - o Principles of IWRM
 - Principle of holistic approach to basin management
- Employed altogether or separately



But why would water users voluntarily accept to forego benefits?

- o Imply that water users have to respect the needs of other users.
- o Imply that users have to (be willing to) forego some potential (and immediate) water benefits.
- Should shape negotiations around water

Independence is limiting, but interdependent relationships are mutually beneficial



Create interdependencies

- data sharing
- joint infrastructure development
- benefit sharing
- rewards for environmental services
- issue linking
- ..

