

Why Water has links with Poverty?

Blanca Jimenez-Cisneros

Director of the Division of Water Sciences and

Secretary of the International Hydrological Programme (**IHP**), UNESCO



We know now for sure that...



United Nations
Educational, Scientific and
Cultural Organization

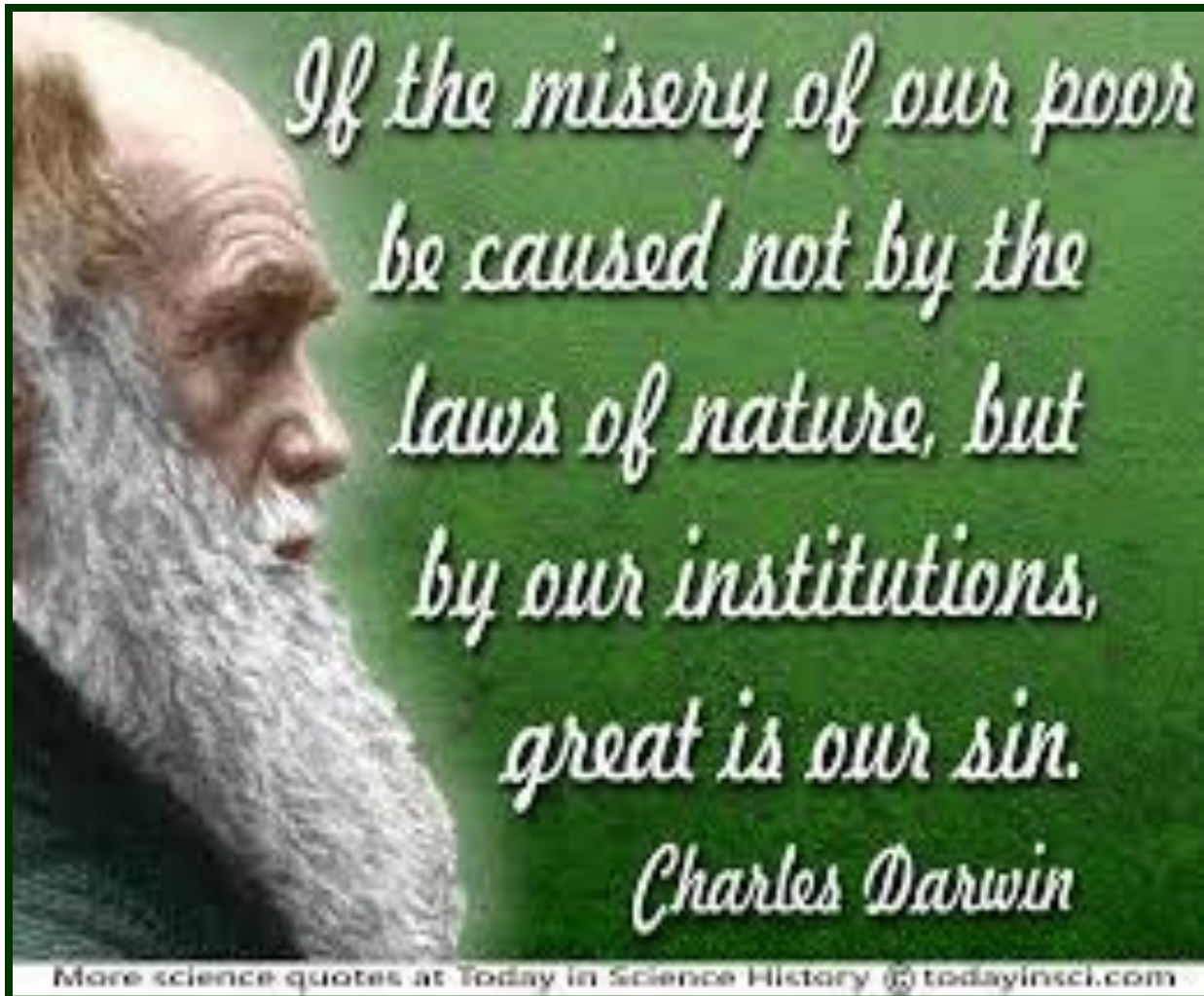


International
Hydrological
Programme

- There are more poor people than rich people
- The great majority of the world's poor are concentrated in rural and periurban areas.
- Among the many problems of the poor: they lack
 - access to enough water for all their needs
 - good water services
 - they frequently suffer from flood and drought risks



Is there a role to play for science?



WATER IMPACTS ON POVERTY?

MOST COMMON REPLY:
YES, because lack of Water...
Meaning.....



Water Services (Lack of)

Health

- 1.3 billion people lack access to clean water and 40% of the world population lack safe sanitation
- Diarrhea kills over 1.5 million children each year, and 88 percent of these deaths are attributed to inadequate sanitation, hygiene and water supply.
- The lack of sanitation spreads many other diseases, pollutes both water and land and robs the poor of basic dignity.

Education

- In some cultures the lack of toilets in schools serving the poor is known to be a major factor in deterring girls from continuing their education, particularly after puberty.

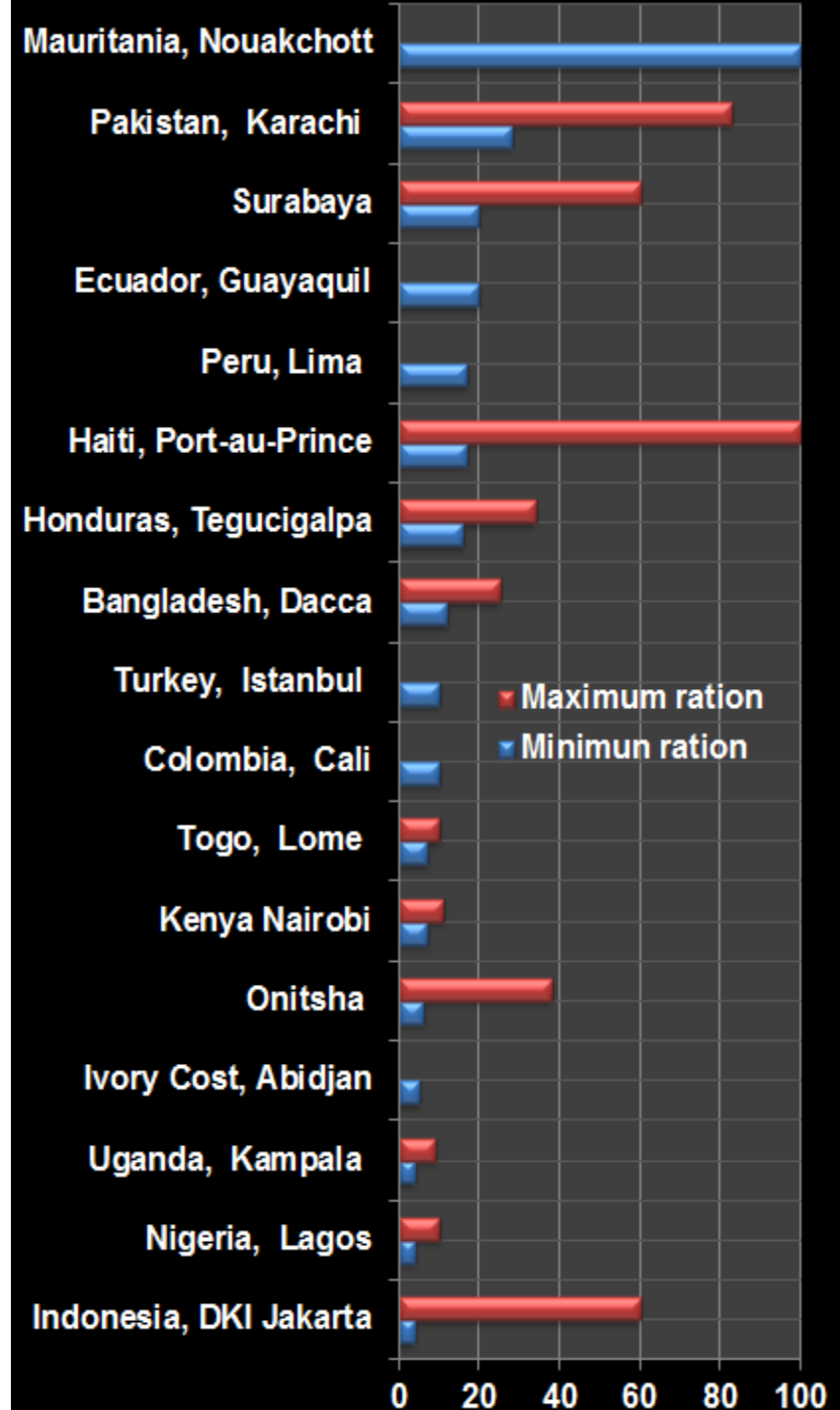


Gender and social inclusion

- Groups such as female-headed households, the elderly, and ethnic minorities are disproportionately poor and tend to be most adversely hit by a lack of water and sanitation services.
- Geographically dispersed poor groups (often ethnic minorities) are excluded in the process of setting water and sanitation services.

Lack of water services also means **HIGHER EXPENSES**

- The rural and urban poor often face higher costs for water
 - They typically buy water from vendors at higher per liter prices (up to 100 times);
 - Wait in long lines to have access for water or walk long distances (using time that it is not spent on a productive or educative activity);
 - Experience additional costs for storing and boiling water.

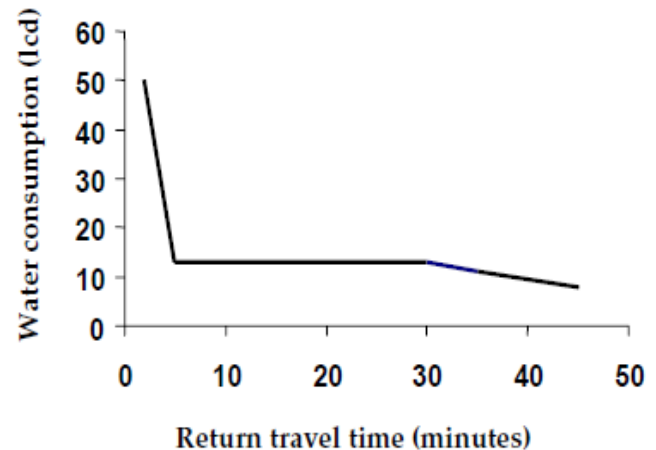


.... and, lower incomes means

- Lack of hygiene impacting health and labor productivity
 - When water is expensive (in cash terms or in time and energy) the poor often cut total consumption to 15 L/d or less (reduced cleansing practices)

The same amount of water is collected by
1 person that walks 10 meters to a standpost + wait 1 hour = 1 person walking 200 m to a standpost without waiting

Figure 23.6. Water Consumption versus Travel Time



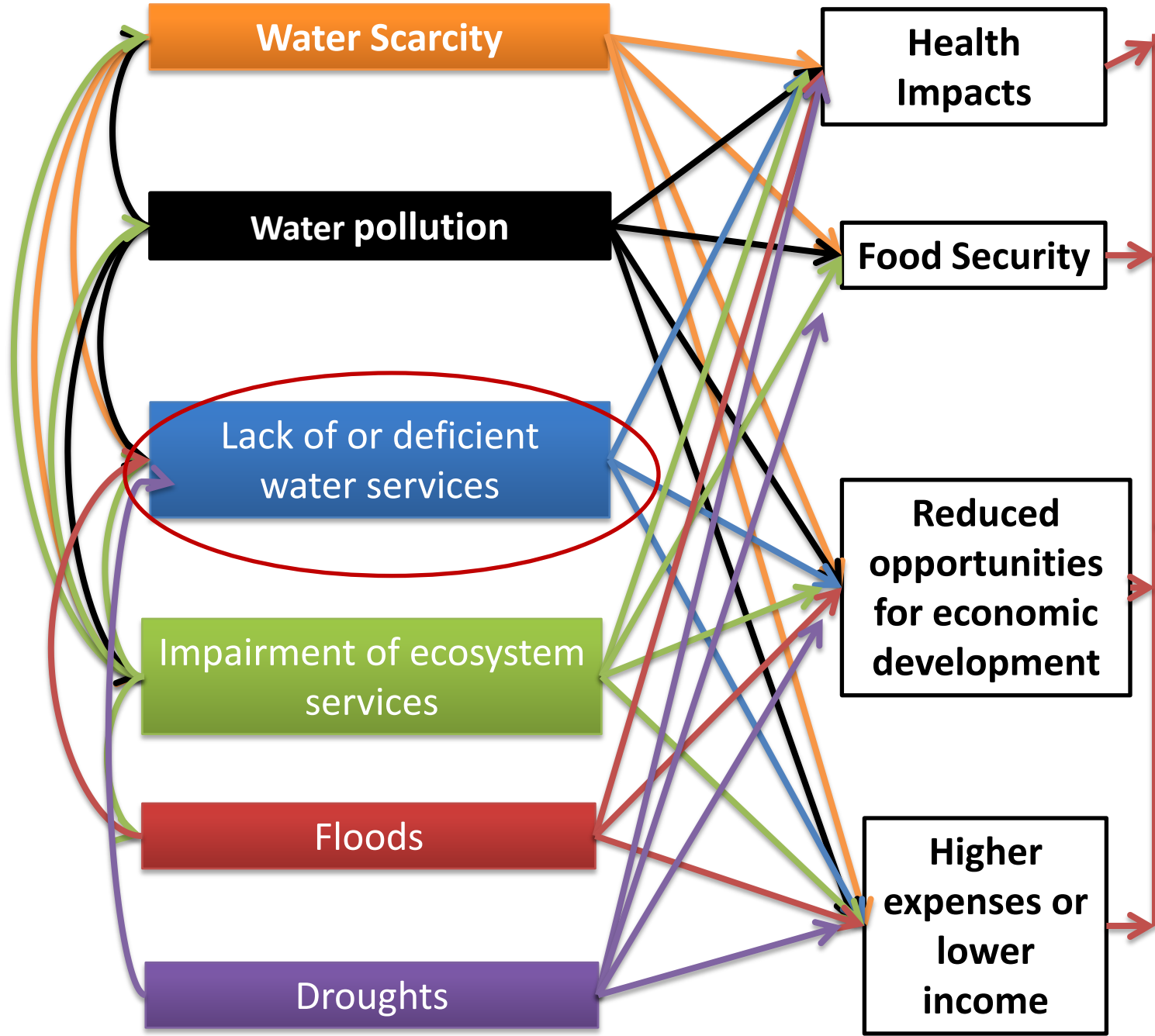
Source: DFID (1998).

Water Services Situation in Rural Areas

- Typically low population density renders water networks unaffordable
- Central management is difficult
- Services are not sustainable (systems are put in place but not maintained)



Water originated/related problems



Higher inequity and higher vulnerability of marginalized groups

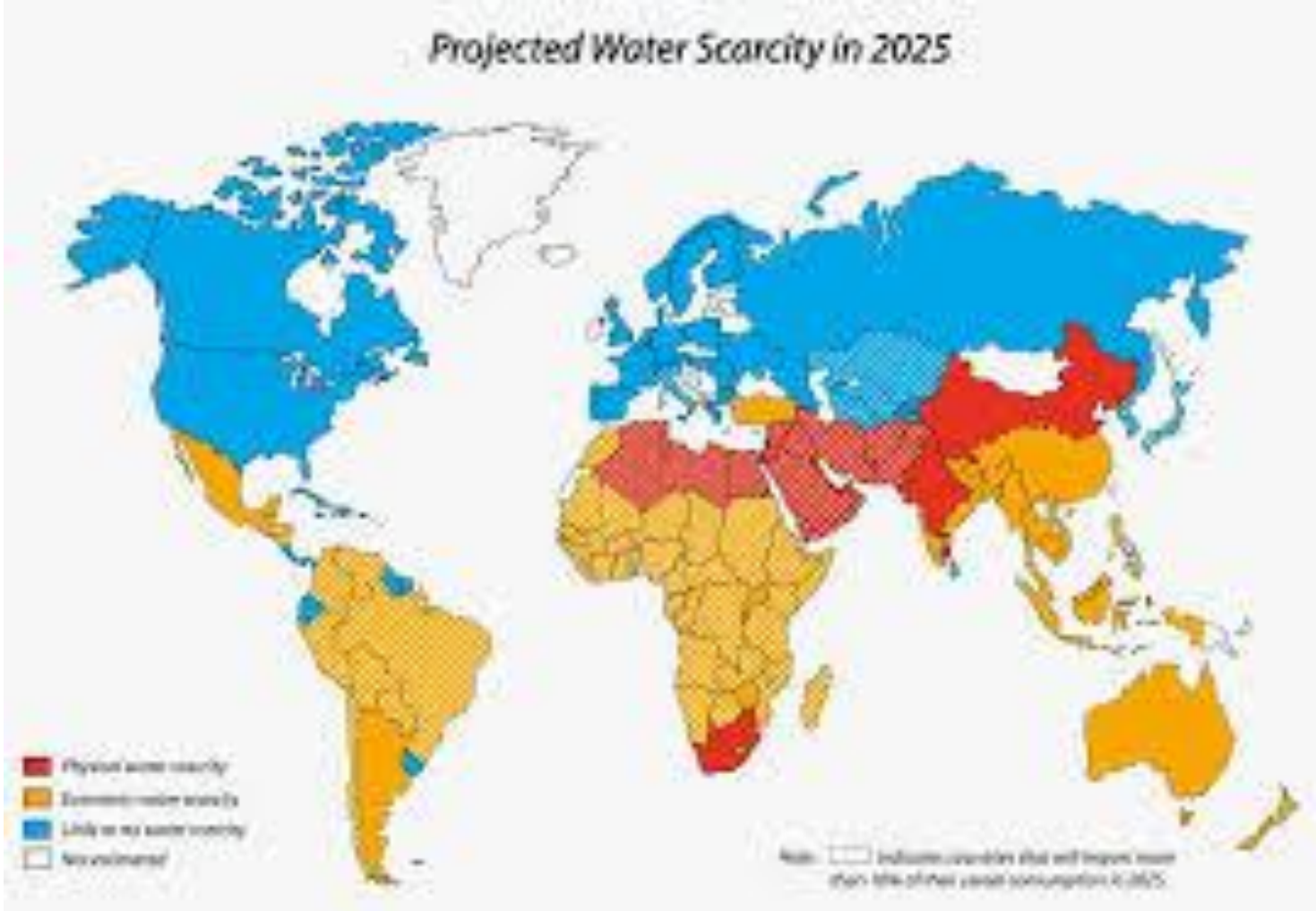
WATER IMPACTS ON POVERTY?

a) YES, because lack of Water...

b) Yes, because an inadequate (even unfair) management of water resources



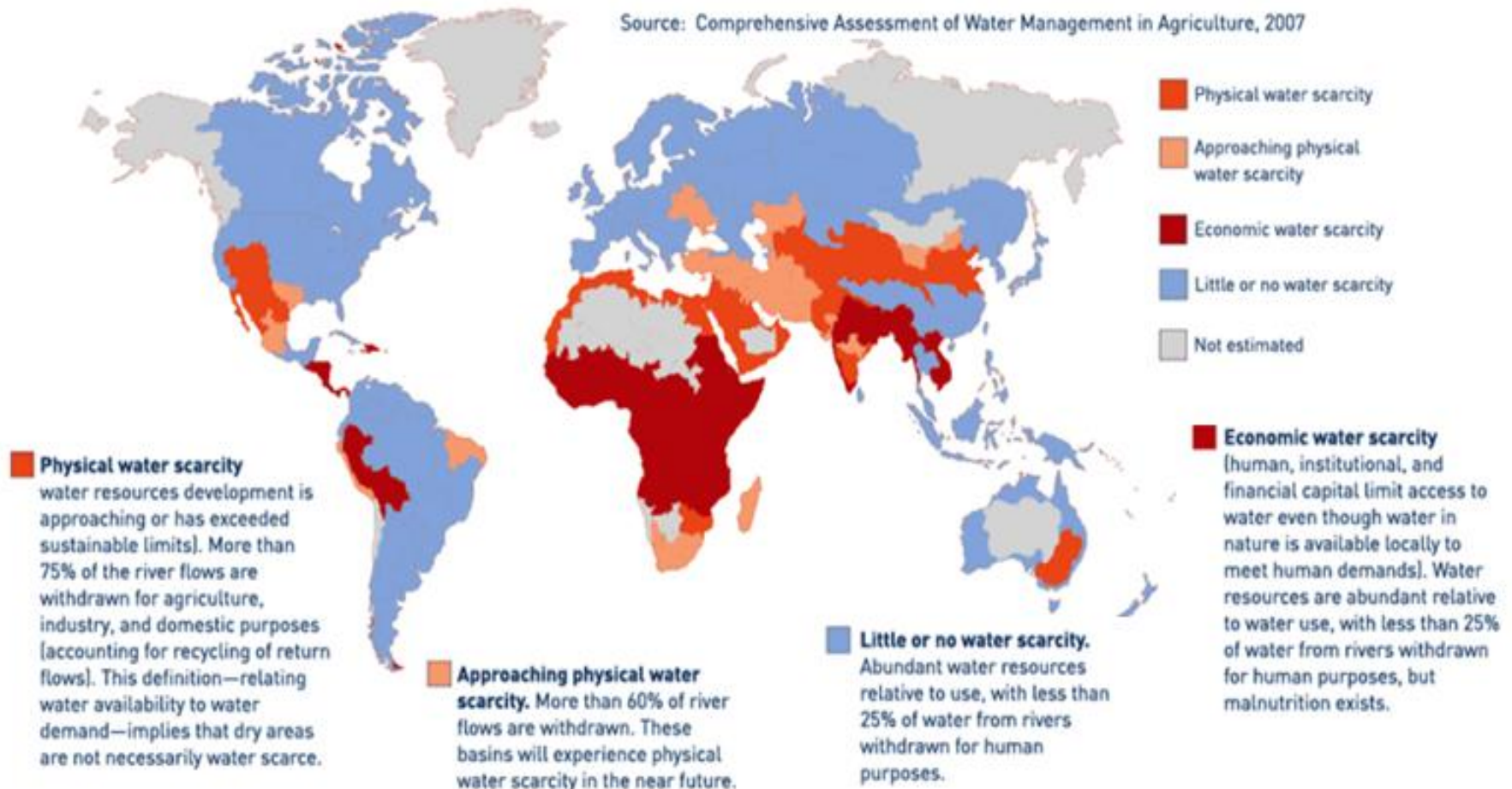
Poverty is linked to WATER, because... **There is Lack of water**



But in fact it is linked to physical **AND** **TO ECONOMIC Scarcity**

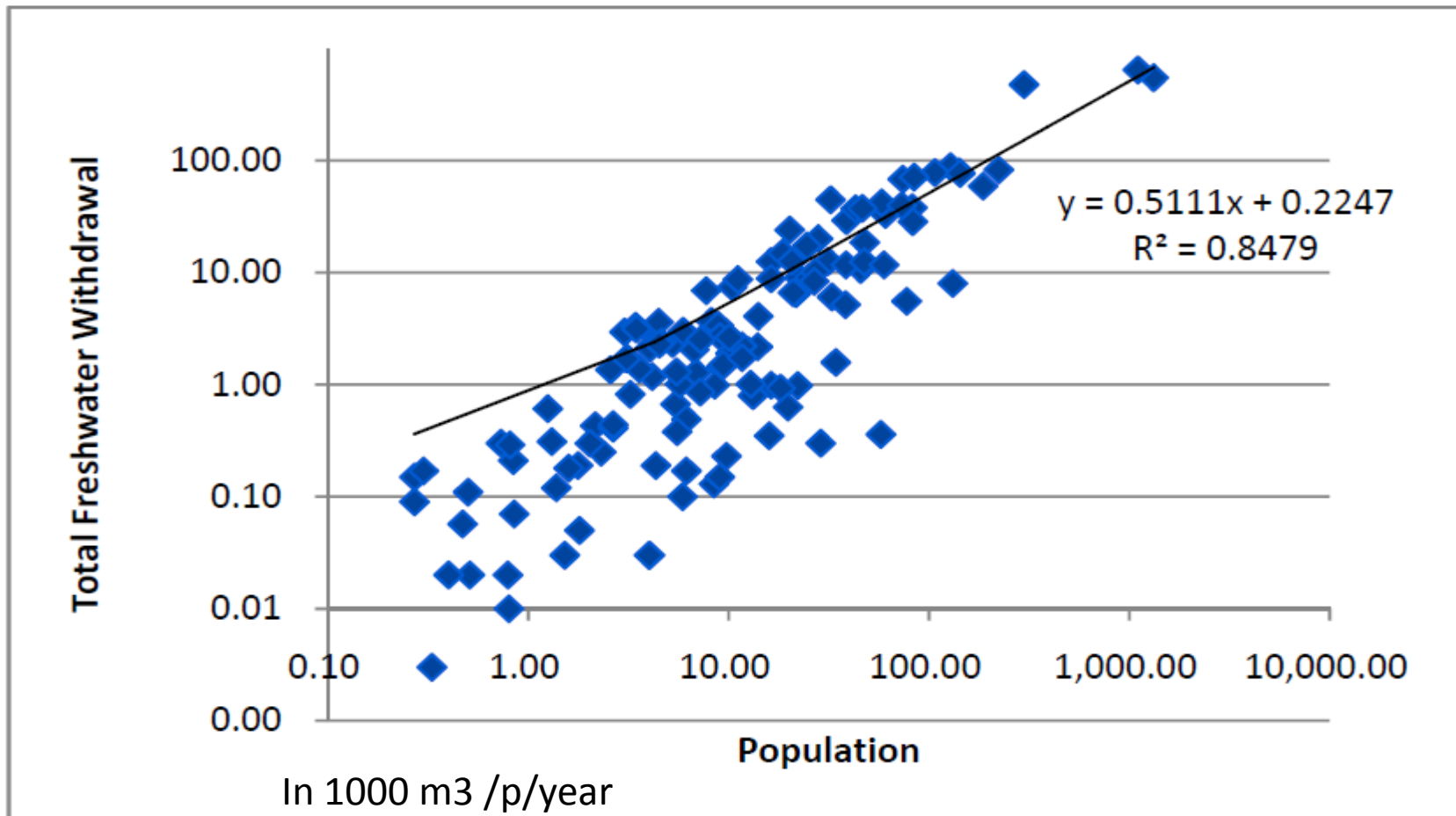
Physical and Economic Scarcity

Source: Comprehensive Assessment of Water Management in Agriculture, 2007



Moreover to the competition of water

Population (more people) and Development Growth (more use and style of use) which increase Total Freshwater withdrawals and the **COMPETITION** for water



Water impact on Food security

- Water is needed for irrigation
- Irrigation directly benefits higher productivity; longer, and more flexible cropping season and provides with the opportunity to sown higher profitable crops
- Irrigation indirectly increases employment opportunities, resilience against droughts and improve sanitation conditions
 - **20 L/d** is the minimal supply for cooking and personal care while **3,500 L/d** are needed to produce food



Barriers for the poor to access irrigation

- Have little or no land or their land is in remote areas far from water sources and/or primary irrigation networks;
- Often lack equitable water allocation and are excluded from the participation processes to allocate water;
- Have low political influence to promote projects;
- Have less access to complementary resources (credit, information, education, and minimum area to render a loan profitable) necessary to maximize the return on their irrigation investments.



Water and opportunities for economic development

- Economic development is the only realistic mean to lift the poor out of extreme poverty.
- The building blocks of a pro-poor growth strategy begin with natural resources.
- Moreover, the vast majority of the poor depend on them for their fragile existence:
- That is why damaging the environment damage their opportunity for development and to obtain livelihoods.



Water and Lower access to ecosystems services

- Overexploitation of water resources and its pollution increase water scarcity and hence the competition for it (municipal, industrial, agricultural and environmental purposes).
- Environmental degradation reduces labor productivity by increasing the burden of diseases and by limiting income potentials (especially in aquaculture).
- Lack of water or its pollution increases the cost to have access to it.



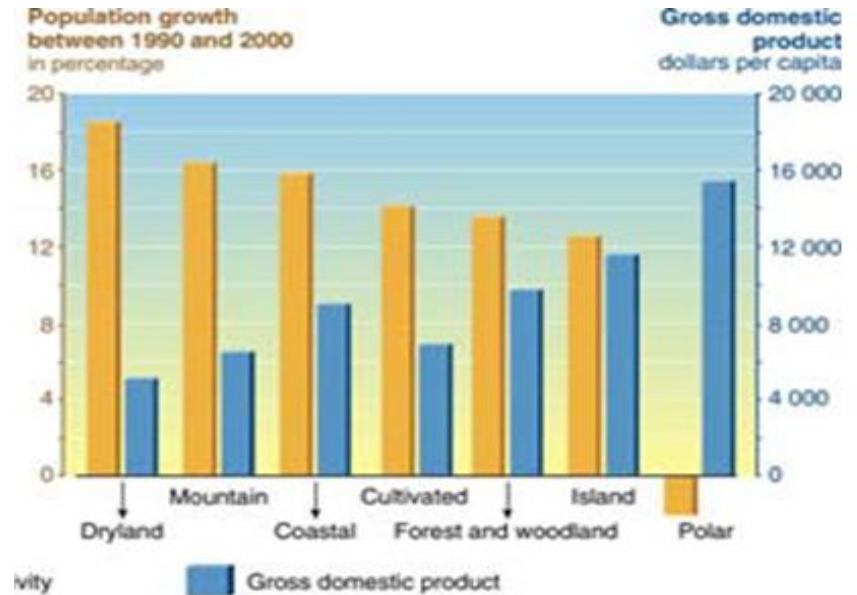
Too Much Water.... Floods

- The poor in urban and periurban areas are commonly placed on low-lying, flood-prone land or on steeply sloped hills; meaning:
 - difficult conditions to provide water services (supply or sanitation)
 - prone to floods and land slides disasters
 - In many occasions the poor **loss ever thing several times during their live even during a year**



And...Droughts

- Dryland systems experienced the highest population growth rate in the 1990s
- There is need to jointly manage water and land
- But Poor have no land





**Water problems increase inequity
and marginalized groups'
vulnerability**

Costs

- The cost of the lack of water services is high
 - 2 % of GDP from studies performed in Southeast Asian and LA countries
- But of 4% GDP when considering other water associated costs, for instance, in Peru must be included:
 - 1.06% for water related diseases
 - 0.36% for overfishing
 - 0.35% soil degradation, soil erosion and salinization
 - 0.26% deforestation
 - 0.05% solid wastes mismanagement

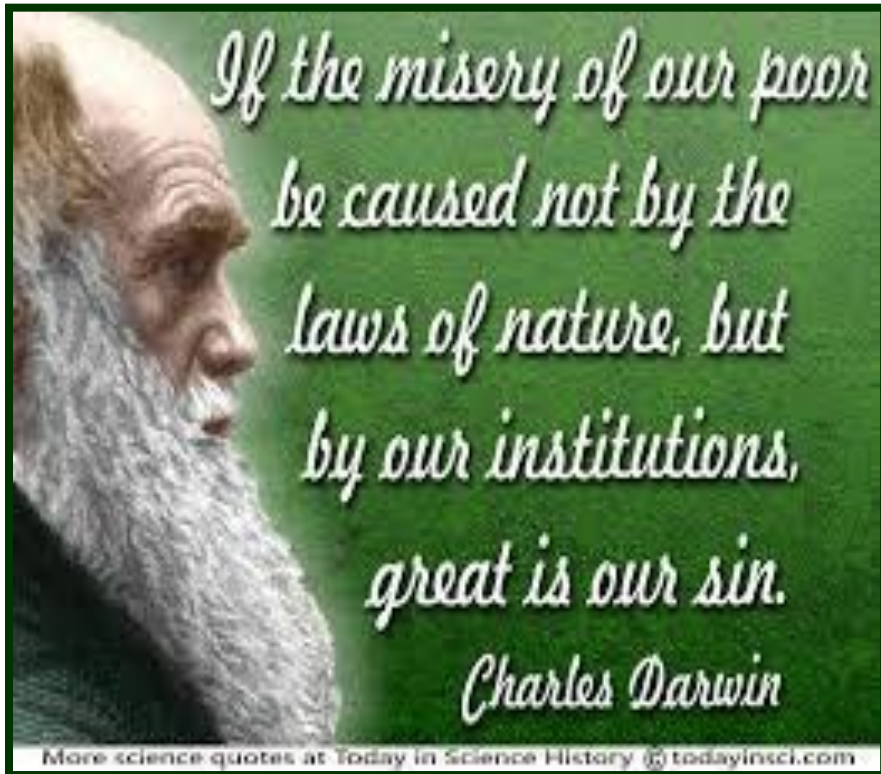


Governments' role

- Manage water resources to control the overexploitation of the resource and to protect the right to water for food security, economic development, water services and ecosystem services **for All**
- To ensure the affordability and reliability of water services for the poor
- To ensure the sustainable management of water (quantity and quality)
- Protect population from floods and droughts and enhance their resilience



Is there a role to play for science?



YES, by

- Assessing what is going on, understanding how it works and how to fix it
- Finding new pathways

Strategy (opportunities for science)

- Understanding physical phenomena
- Developing solutions (methodologies and technologies)
- Poverty mapping
- Identification of priority areas (spatially and thematically)
- Identification of capacity to cover costs
- Checking that policies are targeting the poor and the most vulnerable groups
- Verification that the targeted results are met
 - Standards may be linked to solutions implying costly technology and avoid the use of cheaper solutions
 - **Be flexible, operating at lower pressure may allow to faster increase the water supply services coverage. (LOCAL KNOWLEDGE)**



EXAMPLES

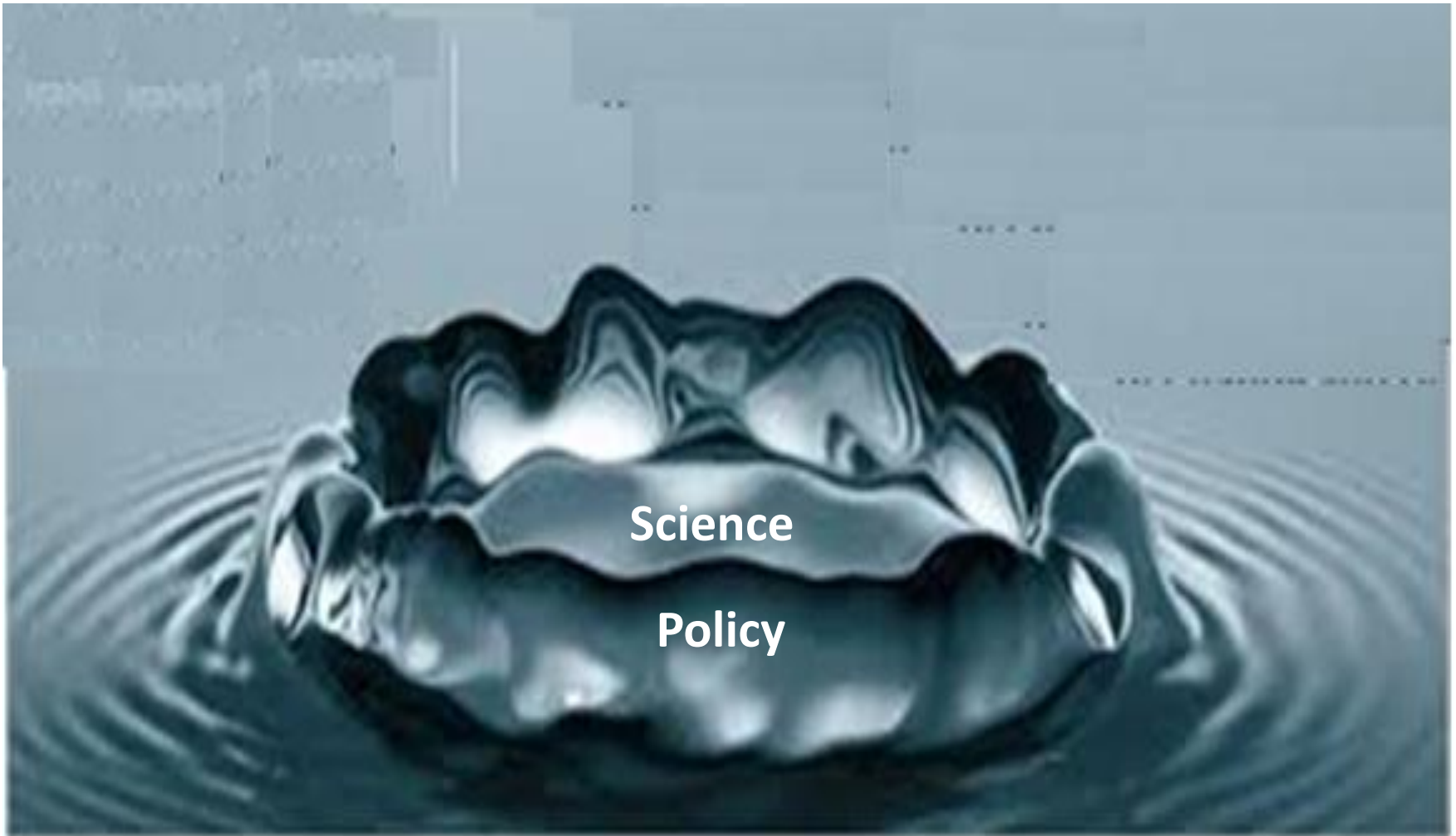
- To improve water quality, amounts of (often costly) chemicals must be increased.
 - To treat the increasingly polluted raw water entering the Pulogadung water treatment plant in Jakarta, chlorine was increased from an average of 2.6 mg/l in 1982 to about 7 mg/l in 1984. This increase raised treatment costs by Rp 610 million per year (1985 prices) and decreased plant efficiency by 18 percent (Rp 870 million per year). The “finished” drinking water frequently was off-color and exceeded limits for concentration of ammonium, organic matter, and fecal coliform.
- One metropolitan mayor in Turkey criticized the regulations preventing service provision to gecekondus (informal settlements) and explained his own approach: “Obviously I bring water and sewerage to gecekondus. We have to bring services to places where people are living. Legally it is a crime, but I use my own initiative. If there will be an epidemic in one of the gecekondu areas, it will affect not only the whole city, but the whole region. Then it will be my problem again, and it will be a huge problem.”

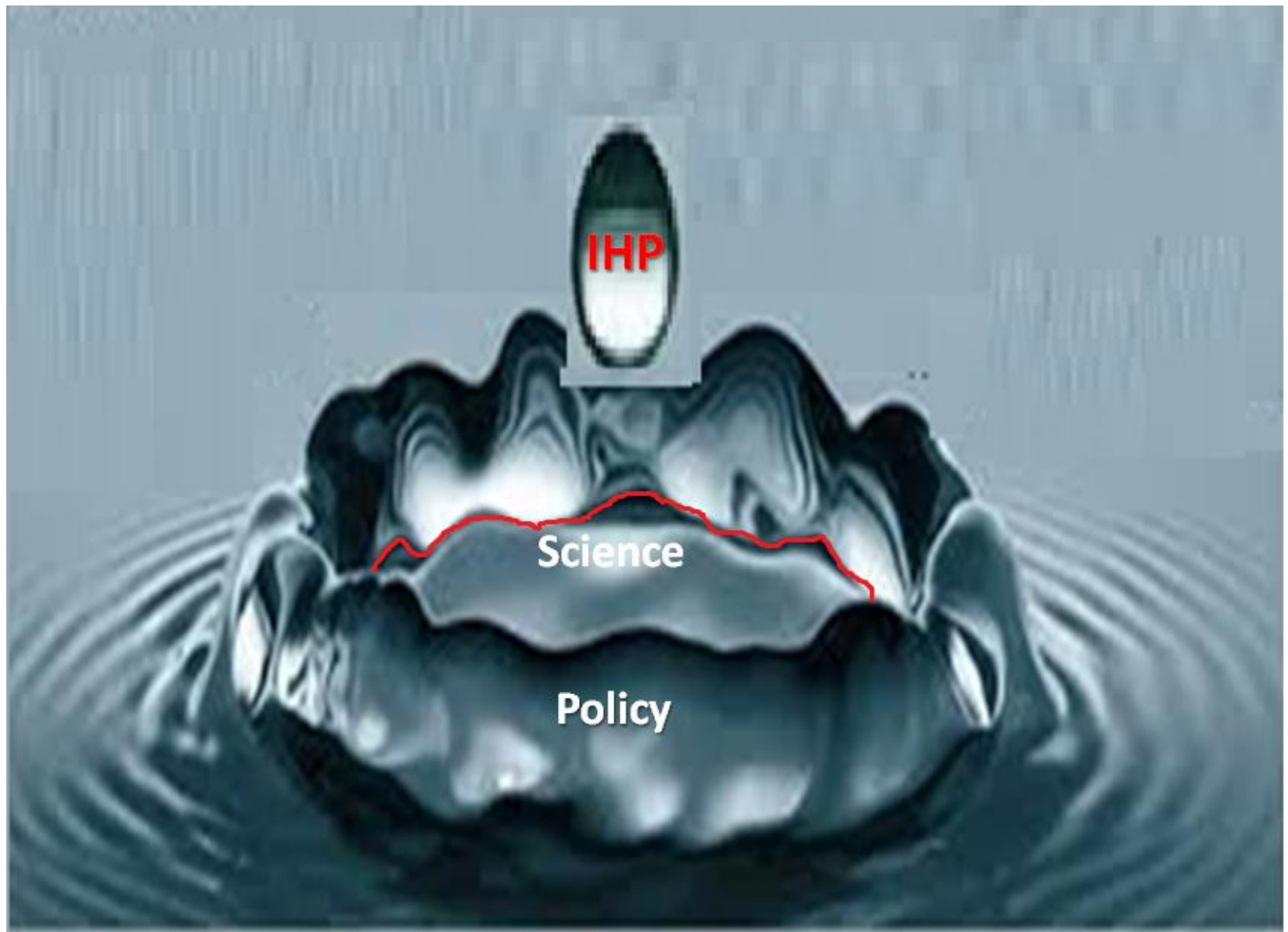
HOW IN PRACTICE?

- Develop proper laws, regulations, and institutions to enable and facilitate the process
- Develop sector strategies to integrally manage water
- Provide or enabling financing mechanisms
- Provide services for the poor
- Regulate water and sanitation suppliers.
- Set pro-poor financial policies



Science AND Policy vs Science for Policies





IHP-VIII ADDRESSING WATER SECURITY: LOCAL , REGIONAL AND INTERNATIONAL CHALLENGES (2014-2021)

AXIS 1

Mobilizing International cooperation to Improve knowledge and innovation to address water security challenges

WATER-RELATED DISASTERS AND HYDROLOGICAL CHANGE



GROUNDWATER IN A CHANGING ENVIRONMENT



ADDRESSING WATER SCARCITY AND WATER QUALITY



WATER AND HUMAN SETTLEMENTS OF THE FUTURE



ECOHYDROLOGY ENGINEERING HARMONY FOR A SUSTAINABLE WORLD



EDUCATION, KEY TO WATER SECURITY



WATER SECURITY, ADDRESSING LOCAL, REGIONAL AND GLOBAL CHALLENGES

AXIS 3

Developing institutional and human capacities for water security and sustainability

AXIS 2

Strengthening the Science-Policy interface to reach water security at local, national, regional, and global levels

IHP-VIII Responses: 6 Themes, 3 Axes 2014-2021

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WATER-RELATED
DISASTERS AND
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GROWING
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ADDRESSING

**POVERTY
ERRADICATION
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EDUCATION,
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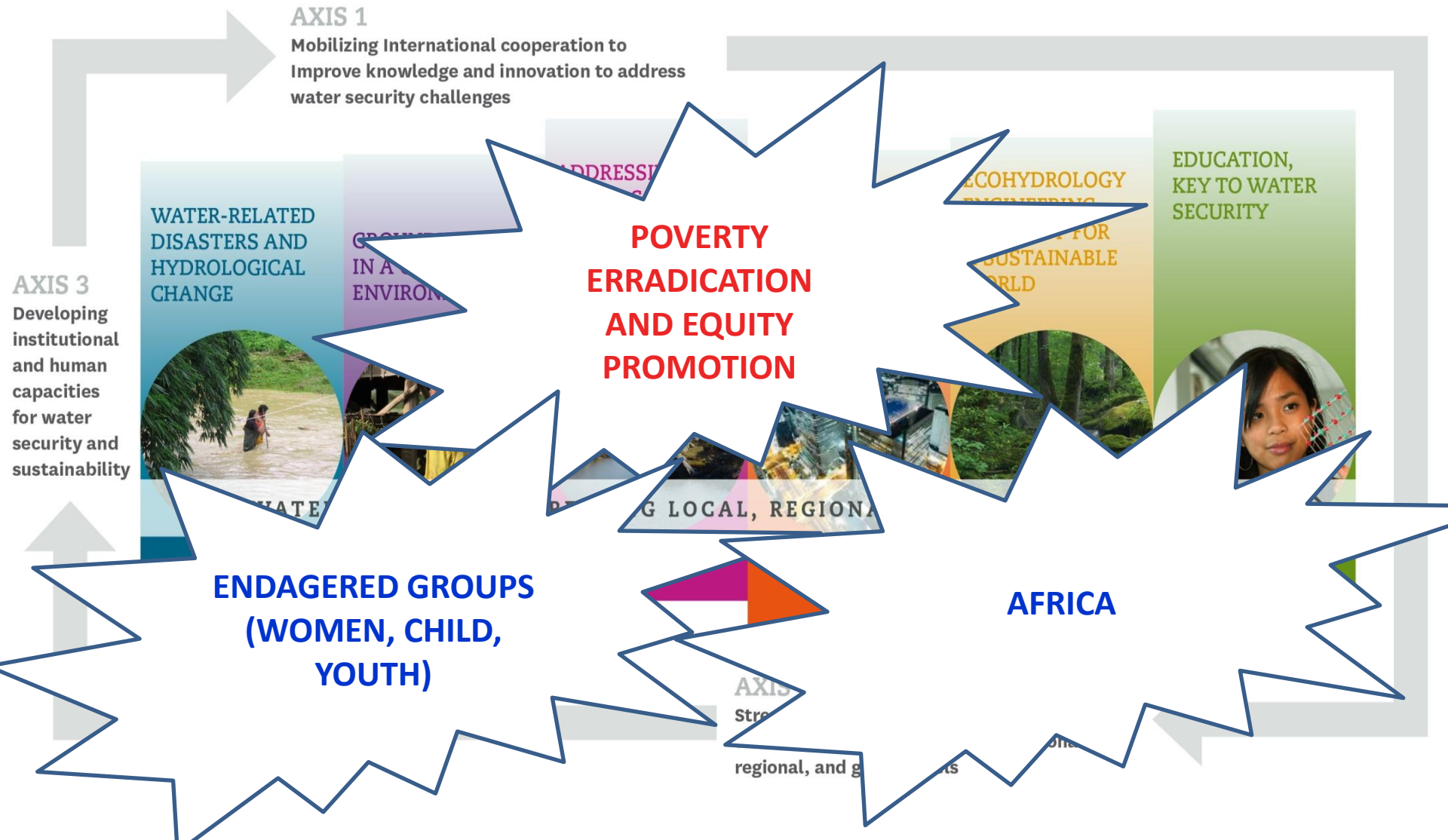
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International community's role

- Promote solutions through national and international campaigns
- Provide policy advice, facilitate knowledge and technology exchange based on international experience
- Promote international cooperation (south - south cooperation)



SUMMARY

- **Has water a role to play on increasing/reducing poverty?**
Yes
- **How?** Through the provision of water services (supply, sanitation) and the management of the resource (irrigation, economic development, ecosystems services, protection and resilience to floods and droughts)
- **Has the science a role to play? Yes**
- **How?** Assisting governments to develop sound programmes to fight poverty (SDGs???) and by providing feasible and realistic and feasible options to face challenges
- **What is needed?** Increase policy/science interphase and promoting international initiatives and cooperation to use science to reduce poverty and inequity
- **What can we do to mobilize scientists and make our voice to be listened ...contribution to be taken into consideration?**

Goal 6. Ensure availability and sustainable management of water and sanitation for all

6.1 by 2030, achieve universal and equitable access to safe and affordable drinking water for all

6.2 by 2030, achieve access to adequate and equitable sanitation and hygiene for all, and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations

6.3 by 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater, and increasing recycling and safe reuse by x% globally

6.4 by 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity, and substantially reduce the number of people suffering from water scarcity

6.5 by 2030 implement integrated water resources management at all levels, including through transboundary cooperation as appropriate

6.6 by 2020 protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes

6.a by 2030, expand international cooperation and capacity-building support to developing countries in water and sanitation related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies

6.b support and strengthen the participation of local communities for improving water and sanitation management

Goal 2. End hunger, achieve food security and improved nutrition, and promote sustainable agriculture

2.4 by 2030 ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters, and that progressively improve land and soil quality

Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable

11.5 by 2030 significantly reduce the number of deaths and the number of affected people and decrease by $y\%$ the economic losses relative to GDP caused by disasters, including water-related disasters, with the focus on protecting the poor and people in vulnerable situations

11.7. b by 2020, increase by $x\%$ the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, develop and implement in line with the forthcoming Hyogo Framework holistic disaster risk management at all levels

Goal 13. Take urgent action to combat climate change and its impacts *

*Acknowledging that the UNFCCC is the primary international, intergovernmental forum for negotiating the global response to climate change

13.1 strengthen resilience and adaptive capacity to climate related hazards and natural disasters in all countries