

# Water and Human Security

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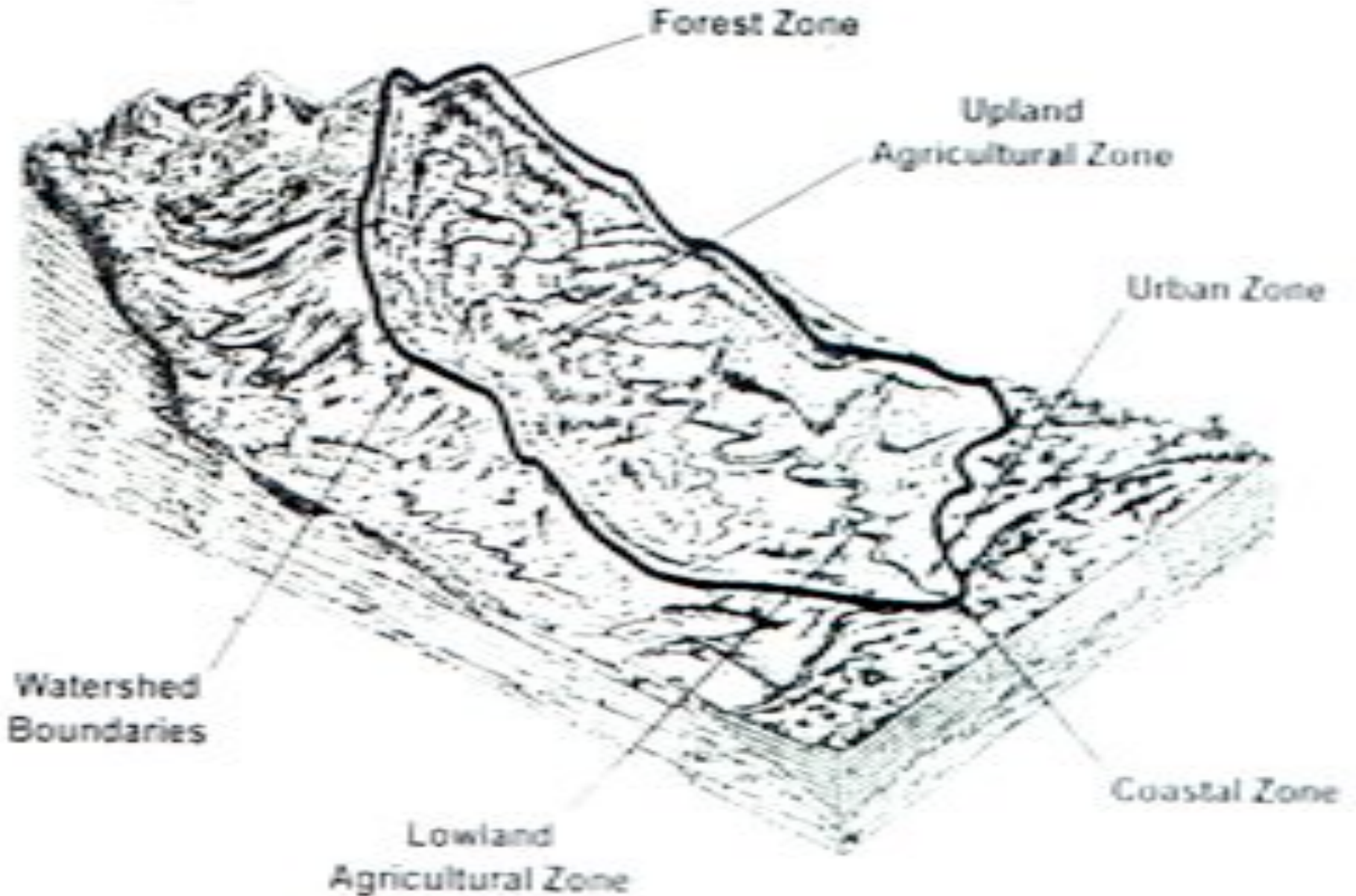
Human Development and Resource Management: A Field Course



# Water as a critical ecosystem service

- Where does water come from?
  - Water is drawn from running water (springs, streams rivers lakes, marshes and dams), ground water (wells - aquifers, aqueducts – Water Table
  - Surface runoff
  - Rainfall
- The majority of this water falls as rain and is gathered over the land, or simply waters the land

# What is a Watershed?



## | Areas of Physical and Economic Water Scarcity

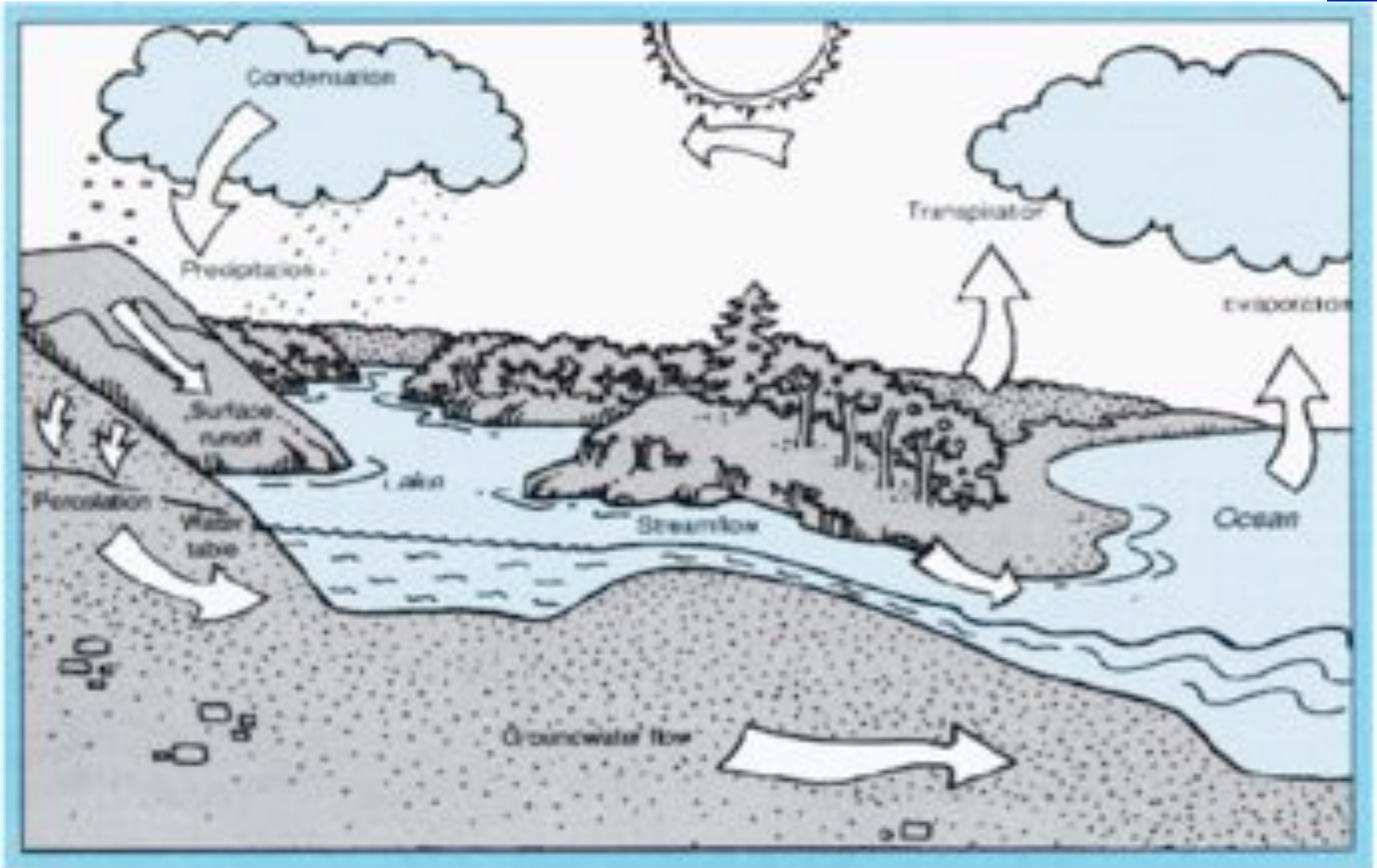


Source: International Water Management Institute

# What is a Watershed?

- **Watershed: area drained by a water course**
  - The total land area that contributes to the flow of a river, stream or creek and drains to a common outlet.
  - Its boundary can be located on the ground by connecting all the highest points of the area around the river, stream or creek, where water starts to flow when there is rain.
  - It is not man-made and it does not recognize political boundaries. In most cases, it includes several villages, municipalities, and cities.
- **Watershed is a living organism with a human face**
- **It's the lungs and heart of the river basin**
- **Watershed management: any human action aimed at ensuring a sustainable use of watershed resources**

# Hydrological Processes



Economic Benefits	Social Services	Environmental Services
Water supply: industry, agriculture, domestic urban/ rural	Small scale agriculture, domestic urban/ rural, fisheries	Hydrological cycle water conservation, groundwater recharge
Hydro energy:	Tourism & Recreation	
Forestry industry	Livelihoods	Carbon sequestration, Oxygen
Agriculture	Food production	Soil Conservation
Livestock	Cultural practice & Identity	Micro-climate amelioration
Fishery	Health	Biodiversity
<b>GDP Contribution</b>	<b>Social Service Contribution</b>	<b>Sustainable Ecosystems</b>

# Water as a basic human right

*“Access to safe water is a fundamental human need and, therefore, a basic human right. Contaminated water jeopardizes both the physical and social health of all people. It is an affront to human dignity.”*

*Kofi Annan, UN Secretary-General*

- Bare minimum: 20 liters a day/person



# Water and human development

- Human progress depends greatly on access to clean water and the ability of society to harness the potential of water as a productive resource
- Foundation for human development is based on
  - Water for life (household)
  - Water for livelihoods (production)
- For many, these basics are not present

# Today's water context

- Water for life
  - MDGs: water supply and sanitation
  - Experience of many countries show that these challenges can be overcome
  - Biggest challenge today is getting water and sanitation **for all**

# Today's water context

- Water for livelihoods
  - Different scenario, different challenges
  - The most vulnerable populations live in areas of increasing water stress
  - 1.4 billion people live in river basins, where water use exceeds recharge rates
  - The symptoms of water overuse are clear: rivers drying up, groundwater tables falling, water-based ecosystems becoming rapidly degraded

# Water scarcity

- 1.2 billion live in areas of physical water scarcity
  - Not enough water to meet demand
- 1.6 billion face economic water shortage
  - Insufficient investment and management to meet the needs of those with no financial means to use existing water sources
- By 2025, 1.8 billion will live in absolute water scarcity
  - Water supplies below 500 cubic meters per year

## Water Availability by Region, 2012

Region	Average Water Availability (cubic meters / person)
Arab World	500
Sub-Saharan Africa	1,000
Caribbean	2,466
Asia-Pacific	2,970
Europe	4,741
Latin America	7,200
North America (includes Mexico)	13,401

Sources: FAO, AQUASTAT (2013), UNESCO (2012)

# Water crisis?

- Some say “global water crisis” —referring to absolute shortage of physical supply
- The Human Development Report 2006 presents a different view
  - Water crisis can be traced to poverty, inequality and unequal power relationships
  - Flawed water management policies that exacerbate scarcity

# Peace and Security

- Potential for conflict over access to resources
- Insecurity of communities who manage the ecosystems critical to water supply
  - Pressure from industry, pressure from agriculture, pressure from rapid urbanization and expansion

Loss of the Aral Sea  
Drought in Syria



# Water Wars?

- Although there is no clear causality can be established, the drought and lack of water in Syria are much neglected factors in the rise of civil unrest in the country
  - Between 2006 and 2011, the period that preceded the outbreak of the revolt, up to 60% of Syria was experiencing one the worst droughts in modern history



- The drought, plus the poor management of natural resources (government subsidized water intensive crops, such as wheat and cotton and promoted bad irrigation techniques) resulted in devastation
- The drought is estimated to have displaced 1.5 million people within Syria
  - 75% of farmers experienced crop failure, so there was an influx of people into cities that were already experiencing economic insecurity due to the presence of Iraqi and Pakistani refugees

No.	Global Risk
1	Fiscal crises in key economies
2	Structurally high unemployment/underemployment
3	Water crises
4	Severe income disparity
5	Failure of climate change mitigation and adaptation
6	Greater incidence of extreme weather events (e.g. floods, storms, fires)
7	Global governance failure
8	Food crises
9	Failure of a major financial mechanism/institution
10	Profound political and social instability

# Water tomorrow

- Intensified competition for water
  - Population growth
  - Urbanization
  - Industrial development
  - Increasing needs of agriculture
- People with weakest rights will be at greatest risk
- Potential for cross-border tension and conflict in water-stressed regions

## The Water-Food-Energy-Climate Nexus

Analysis from McKinsey & Company as part of the 2030 Water Resources Group report<sup>8</sup> provides this clear and basic primer to the global water challenge through 2030:

- Globally, agriculture accounts for approximately 3,100 billion m<sup>3</sup>, or 71% of water withdrawals today, and without efficiency gains this will increase to 4,500 billion m<sup>3</sup> by 2030.
- Industrial withdrawals account for 16% of today's global demand, growing to a projected 22% in 2030. The growth will come primarily from China (where industrial water demand in 2030 is projected at 265 billion m<sup>3</sup>), which alone will account for 40% of the additional industrial demand worldwide.
- Demand for water for domestic use will decrease by 2030 as a percentage of the total water withdrawals, from 14% today to 12% in 2030, although it will grow in specific basins, especially in emerging markets.

# Water and human security

- Water security is an integral part of this broader conception of human security
- In broad terms, water security is about ensuring that every person has “reliable **access to enough safe water at an affordable price** to lead a **healthy dignified and productive life**, while **maintaining ecological systems that provide water and also depend on water.**”
- If these conditions are not met or if access to water is disrupted, people will face acute human security risks that are the result of poor health and disrupted livelihoods.

# Inclusive economic development

- Payment for Ecological Services
- Privatization and commodification of water  
—the impact on poorest and most vulnerable  
calls for equity
- Who owns the water?

# Inclusive economic development

- Four organizations, including food and beverage companies, control 40 percent of the global market for bottled water.
- These companies are aggressively expanding around the world to gain market share and increase their profits. Half of their turnover from bottled water comes from selling water into emerging countries and some of the largest increases in consumption have come from these areas.

# Who pays the most for water?



If you live in a slum in Manila, you pay more for your water than people living in London.



# Inclusive economic development

- Privatizing water without ensuring the protection of poorest sectors can end up marginalizing them and denying them access to the water they need. It may also result in overexploitation of groundwater

# Inclusive social development

- Women and children
  - Impact of limited access to water on health; these sectors of society will suffer the most
  - The poor—and poor women in particular—often lack the political voice needed to assert their claims to water
  - Some of the world's poorest people are paying the highest prices of water. This reflects the limited coverage of water utilities in slums and informal settlements where poor people live

# Environmental Sustainability

Water:

- Too little
- Too dirty
- Too much

# Water and sustainable development

*“Water links the local to the regional, and brings together global questions **of food security, public health, urbanization and energy.** Addressing how we use and manage water resources is central to setting the world on a more sustainable and equitable path.”*

Ban Ki-Moon, World Water Development Report 4

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Drought in Syria

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