

State of scientific knowledge on water and forest

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Water & forests: facts

- More than **one in six people** do not have access to safe drinking water
- **80% of the global population** lives in areas where water resources are insecure
- By the year 2025, **1.8 billion people** will be living in regions with absolute water scarcity
- Forested watersheds supply **¾ of the world's accessible fresh water**

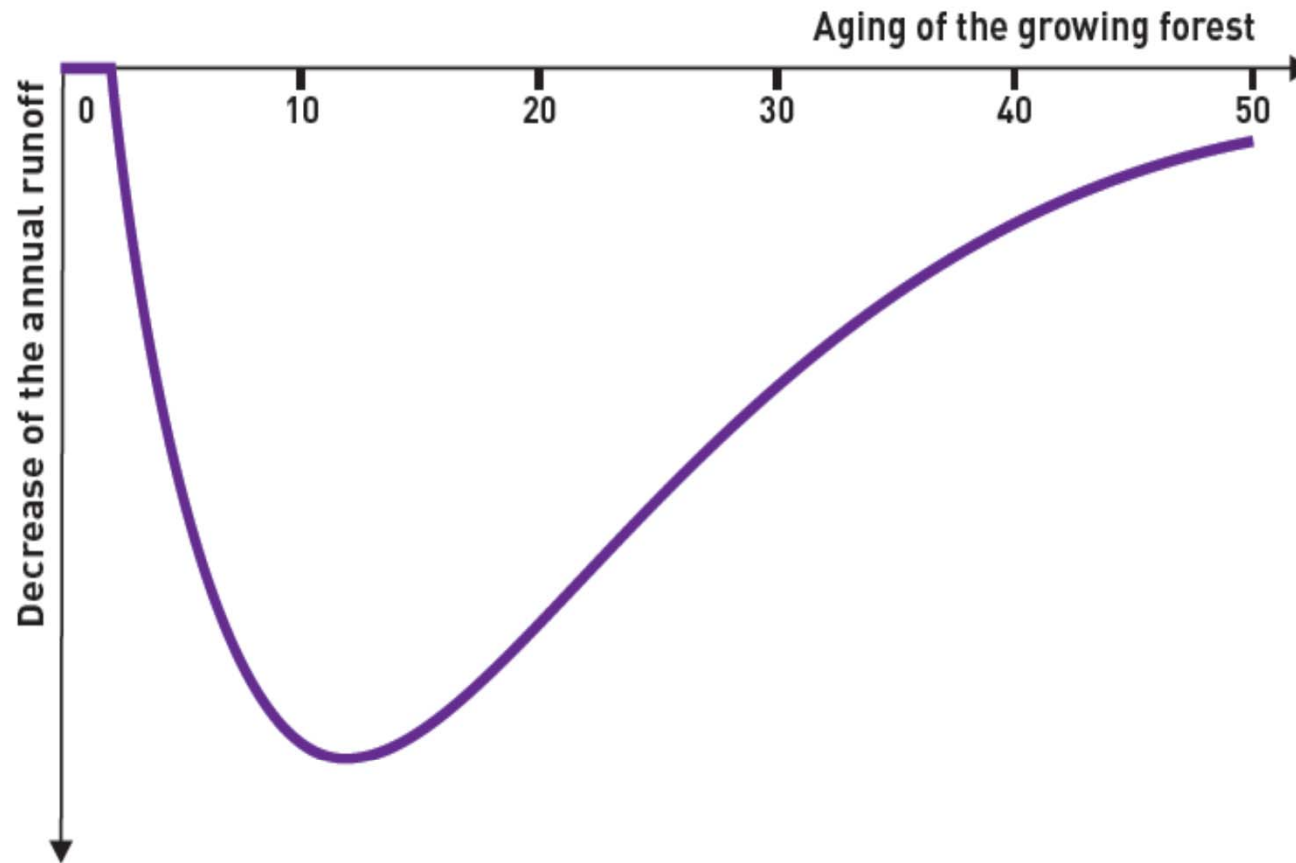
Water & forest interactions

The relationship between water and forests depends on:

- climatic zones
- time of the year
- geological situation
- tree species composition
- plant density, forest "quality"
- forest management practices



Water & forest interactions



Source: Kuczera 1987, de Paula Lima 2010

Forests & water quantity

Forests influence the water cycle by:

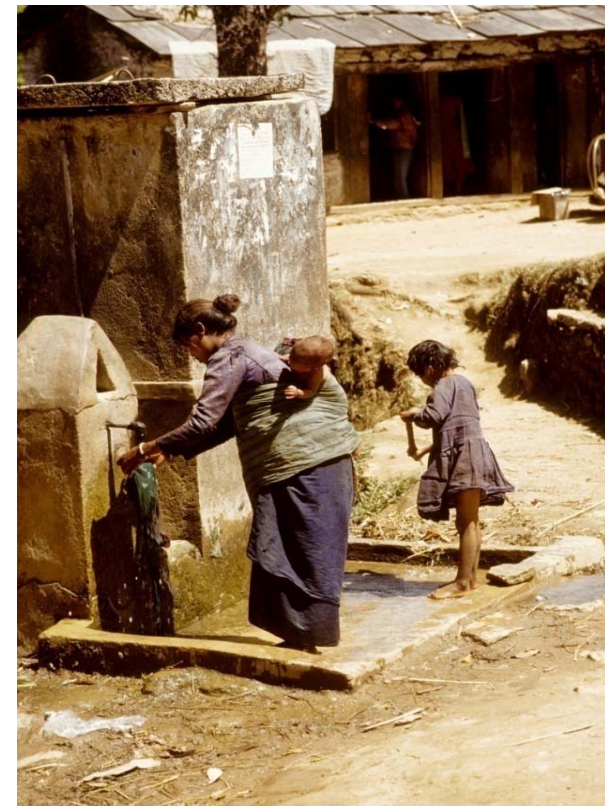
- **intercepting** precipitation
- capturing **transpiration** of soil moisture
- capturing **evaporation** from vegetative surfaces
- using water through **evapotranspiration**
- maintaining soil **infiltration**



Forests & water quality

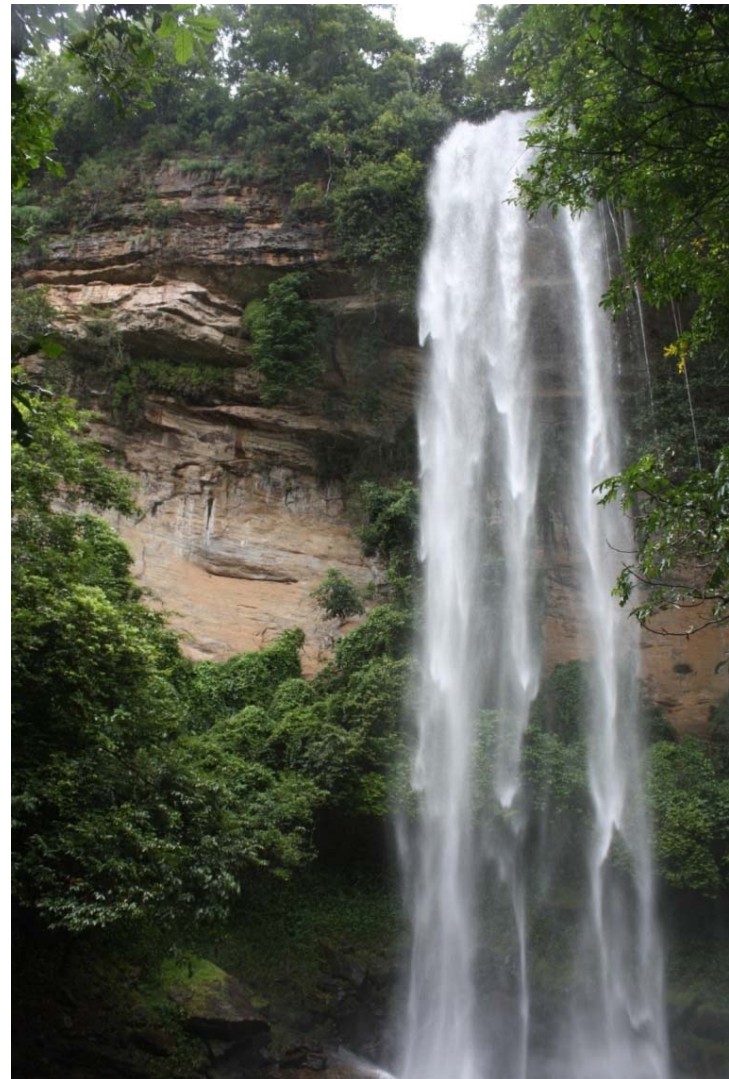
Forests contribute to high water quality by:

- **stabilizing** soils
- **minimizing** surface **erosion**
- **reducing sedimentation** in watercourses
- **filtering sediments** and pollutants from upstream activities



Water & forests in drylands

- Forests **consume water**
- Forests **reduce water availability** for other uses
- Water use by trees depends on **tree type** and **species**



Water & forests in drylands

- Forests prevent **desertification** and **salinization**
- Forests & trees provide **shade**
- Forests & trees improve **water infiltration**
- Forests & trees protect against **soil erosion** and **flash floods**
- **Economic significance!**



Water & forests in drylands

- **Climate change** scenarios in drylands
- **Water-related environmental benefits** of trees / forests get more important
- Forests support **adaptation and mitigation efforts** to climate change
- **Vitality** of forests / trees is affected by increased aridity

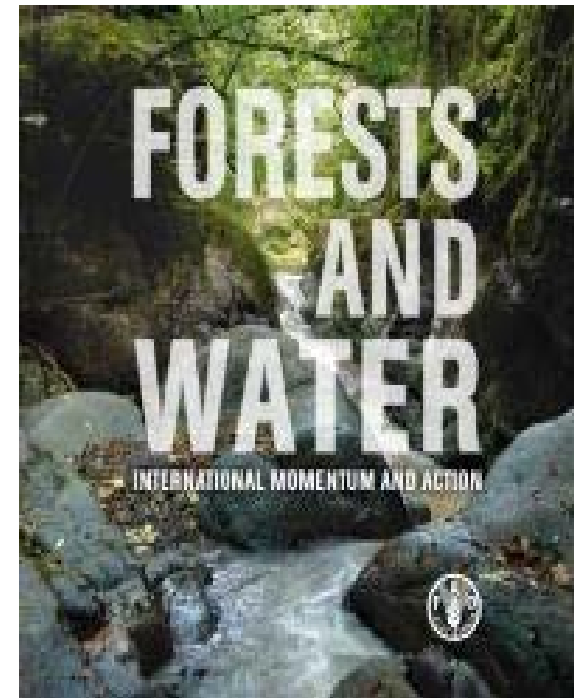


Recommendations

- Improve knowledge, bridge science and policy
- Share lessons learned
- Harmonise interests, weigh trade-offs, balance solutions
- Dialogue across administrative boundaries
- Innovative institutional mechanisms
- Value water-related environmental services
- Develop planning, policy and legal instruments

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Thank you for the opportunity!