“Forest and Water on a Changing Planet”

Understanding the Forest-Water Nexus”
Redefining the Narrative?

Irena F. Creed

University of Saskatchewan, CANADA

World Water Week: Water, Ecosystems and Human Development

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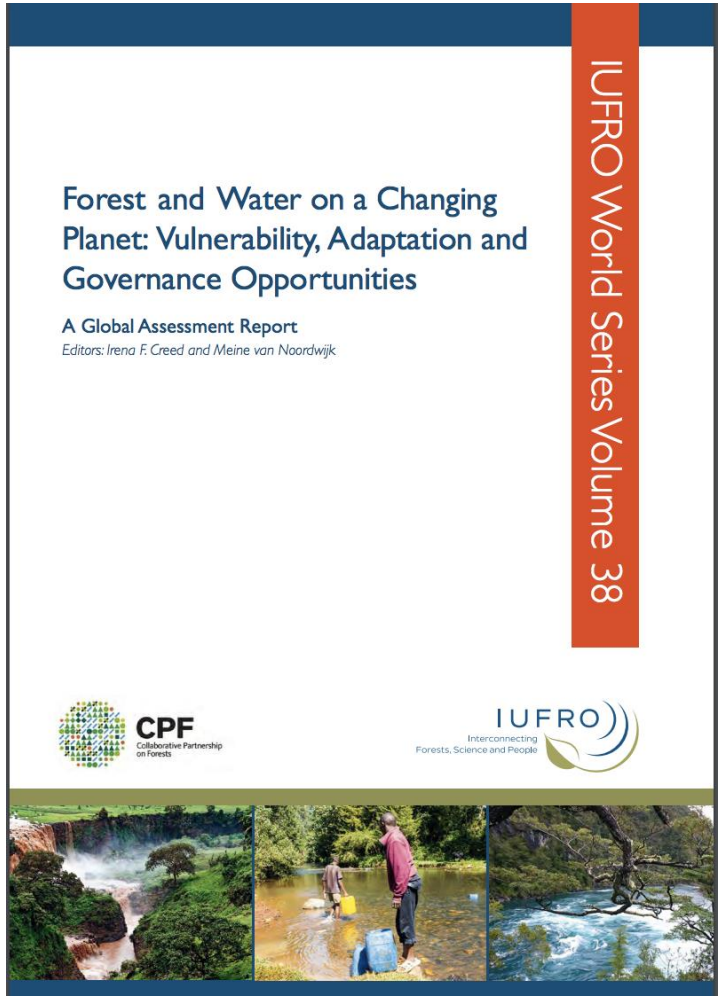
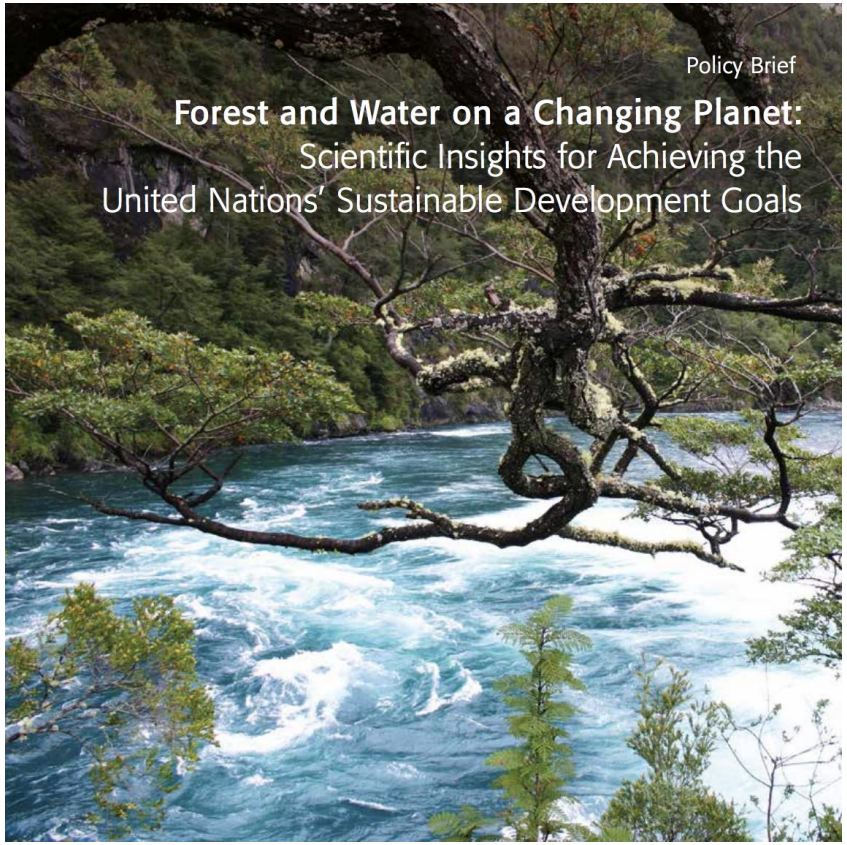
Forest and Water on a Changing Planet: Vulnerability, Adaption and Governance Opportunities





Report was launched at a side-event during the

United Nations High-level Political Forum on Sustainable Development (HLPF 2018),

10 July 2018, UN Headquarters, New York.

Photos by IISD/ENB | Natalia Mroz

Official coverage of the launch by IISD/ENB:
http://enb.iisd.org/hlpf/2018/side-events/10jul.html

Forest and Water on a Changing Planet: Vulnerability, Adaption and Governance Opportunities

Global Forest Expert Panel on Forests and Water commenced work in early 2017.

Scientific Expert Panel and Contributing Authors included 50 scientists from more than 20 countries.

The Global Assessment Report is intended to inform relevant policy processes, especially the discussions on the UN's Sustainable Development Goals.

We need to manage forests for water.

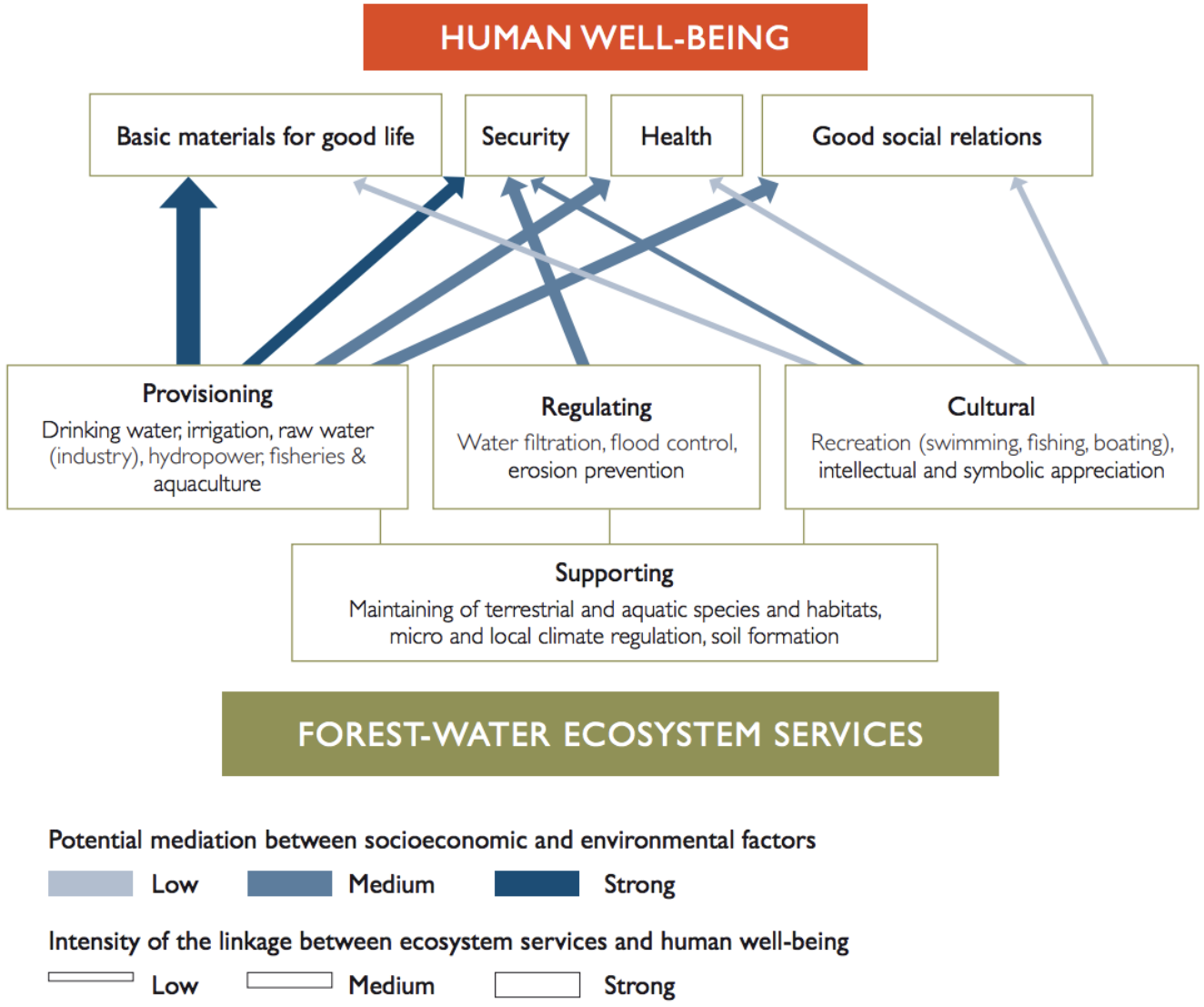
Redefining the narrative?:

Reposition forest-water discussions

Rethink forests as sources of water

Reimagine interventions

Forest-water ecosystem services are important for society.



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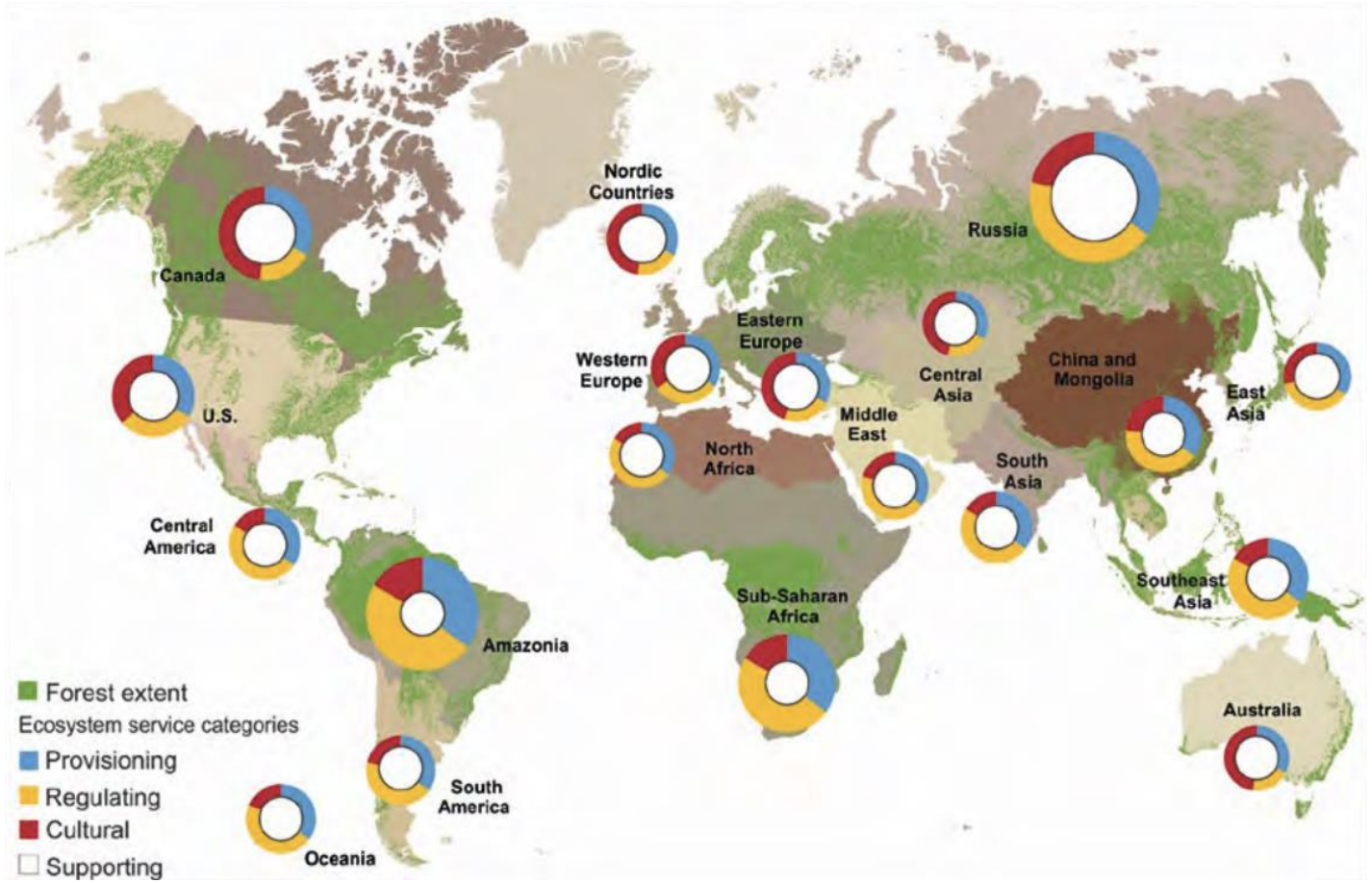
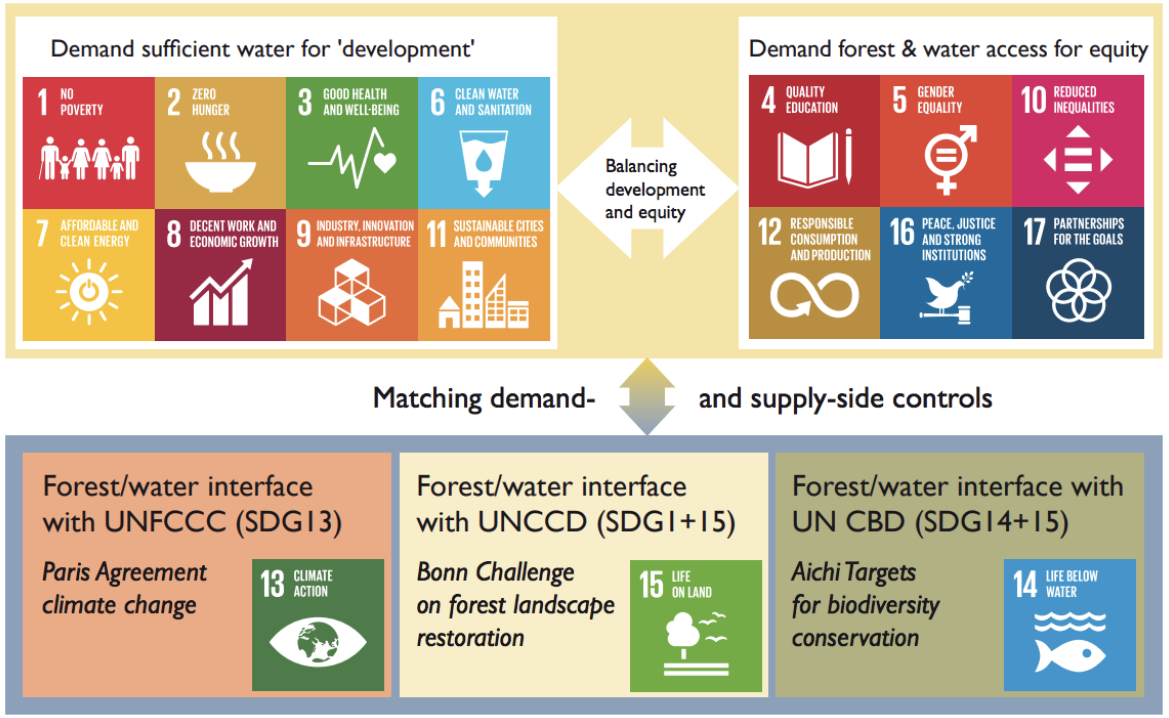


Magnitude = relative size of the circles.
Portfolio = relative size of each segment.

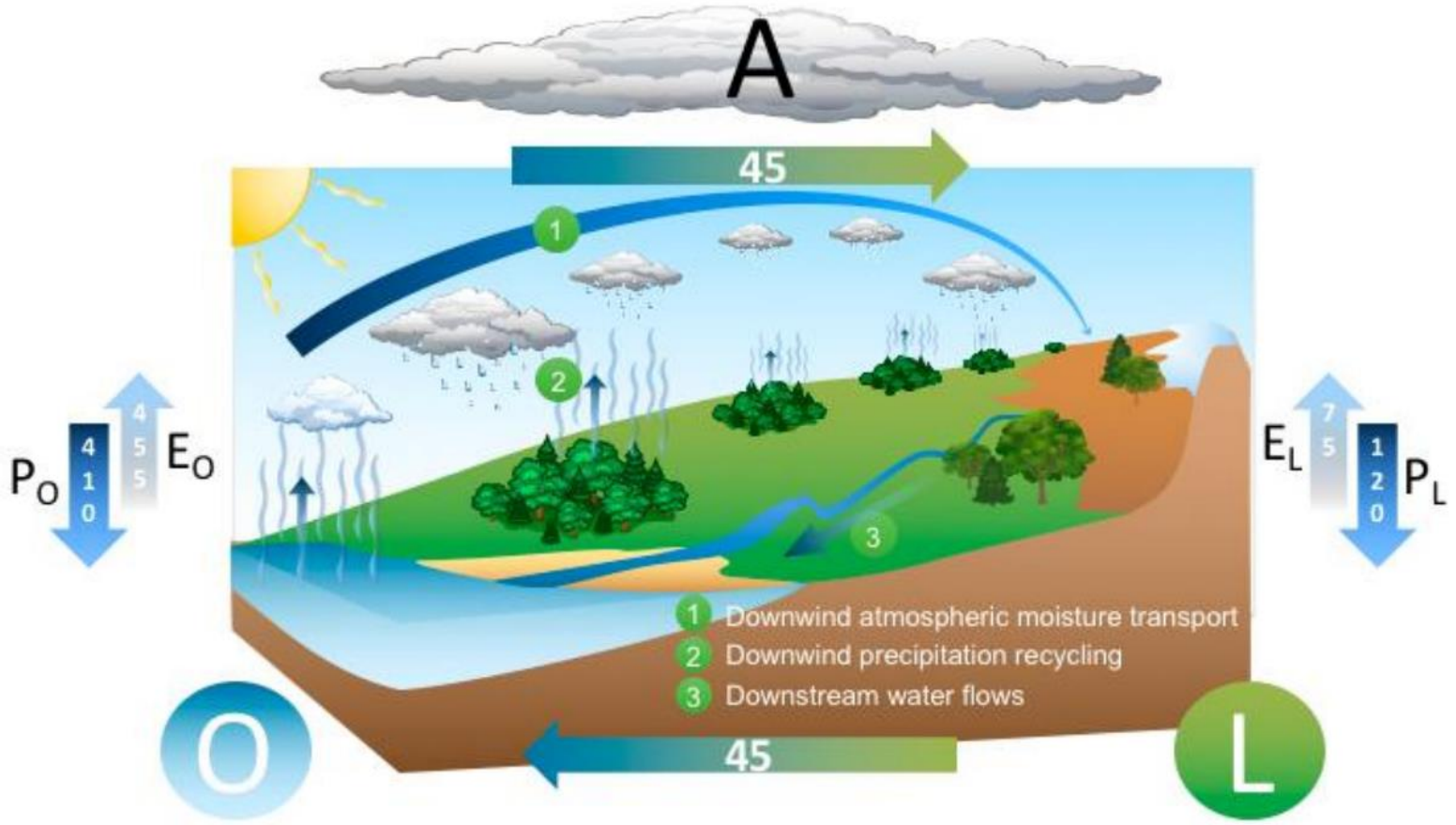
10 insights for informing international policy processes to ensure sustainability of forest-water ecosystem services and thereby achieve the UN's Sustainable Development Goals.

Insight: Water is central to all 17 SDGs. [1]



- 4 billion people do not have sufficient access water, and the capacity of forests to provide water is increasingly threatened.
- 3 SDGs support the other 14 by securing the integrity of the planetary system.
- 8 SDGs call for an increased water security to meet development demands.
- 6 SDGs call for an increased water security to address social justice and equity.

<u>Insight</u>: Climate, forests, water and people are inextricably inter-connected, and, despite the complexity this creates, they must be managed as a system. 2



**In the absence of such management strategies,
ongoing changes to forests are altering water supplies,
and the consequences of these changes are not distributed evenly.**

Insight: National governments must focus on the focus on the role of forests for water (and water for forests), not just forests for carbon. 7

A clear policy gap in climate-forest-water-people relations exists, waiting to be filled.

The role of forests in current climate policy is limited to targets that reduce net greenhouse gas emissions and to increase carbon storage.

Some local-scale efforts to increase carbon storage may reduce local water availability.

Potential water impacts generated by carbon-centered forestation strategies must be considered.

Insight: Forests influence water security, both "upstream" as a source of water in streams and "upwind" as a source of rainfall, and should be managed accordingly. [3] [4]

La Tuna wildfire in Los Angeles, CA in 2017
Photo © iStock: Jorge Villalba

Mountain Pine Beetle (MPB) infestation in Baskerville, British Columbia, Canada,
Photo © John L. Innes

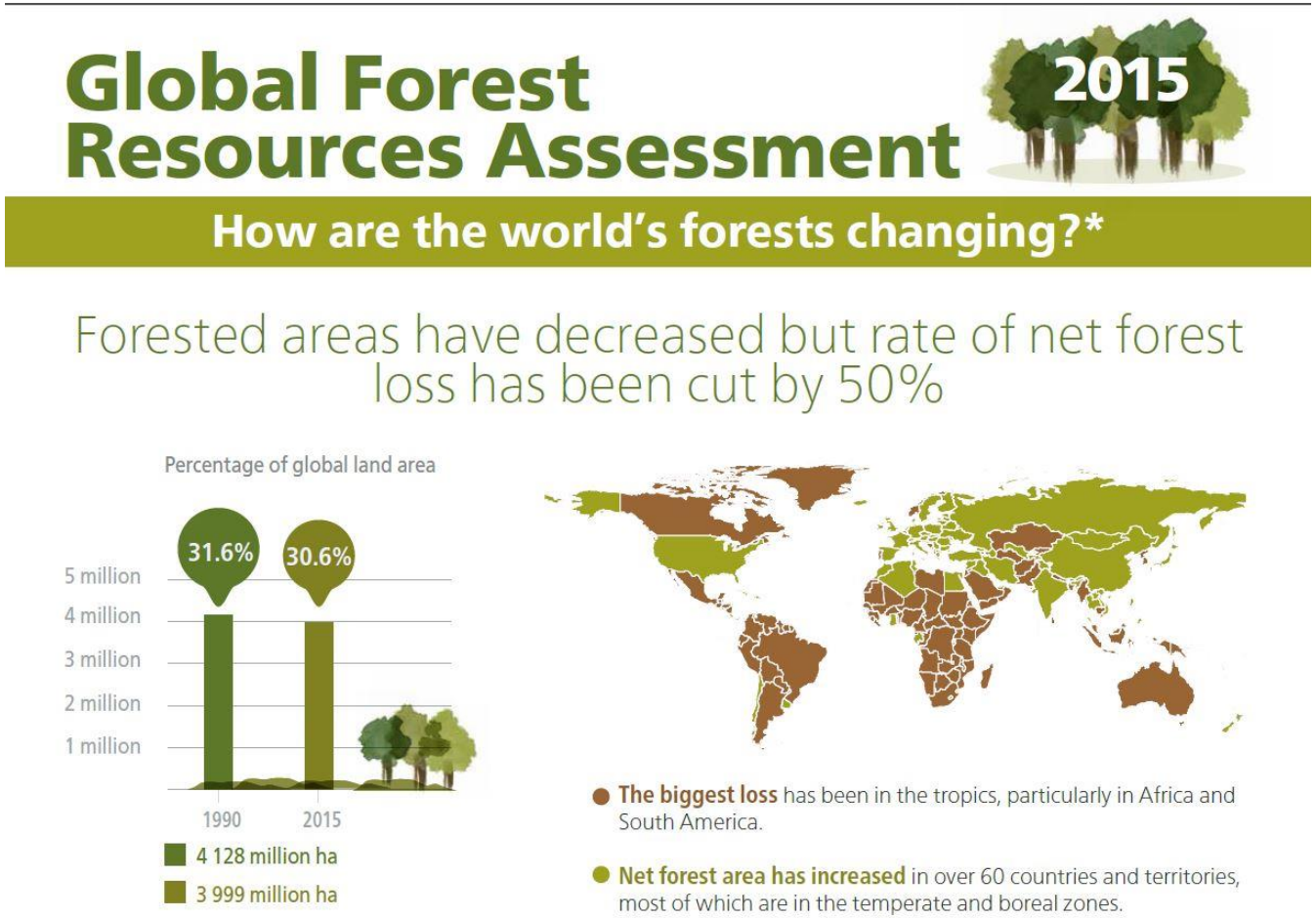
The swidden-fallow mosaic landscape in Xishuangbanna of China has been replaced by monoculture rubber plantation
Photo © Xiaobao Han

Water towers project in Mau Forest, Kenya - Eucalyptus tree plantation
Photo © Patrick Shepherd/CIFOR

Natural forests improve resilience of water supply.

Changes – both natural and anthropogenic – in natural forests are undermining this resilience, and this loss in resilience cannot be fully replaced by tree planting efforts.

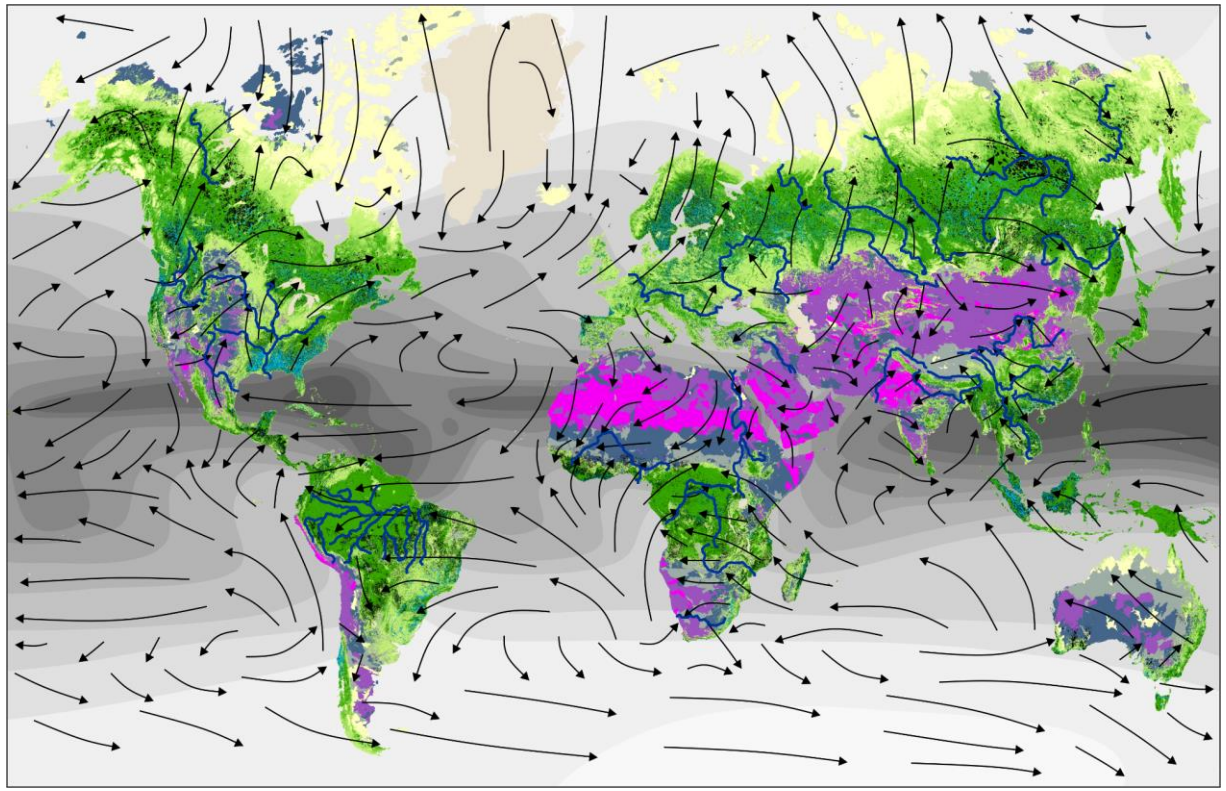
Large-scale deforestation, reforestation and afforestation efforts may alter how forests transmit water downstream and downwind.

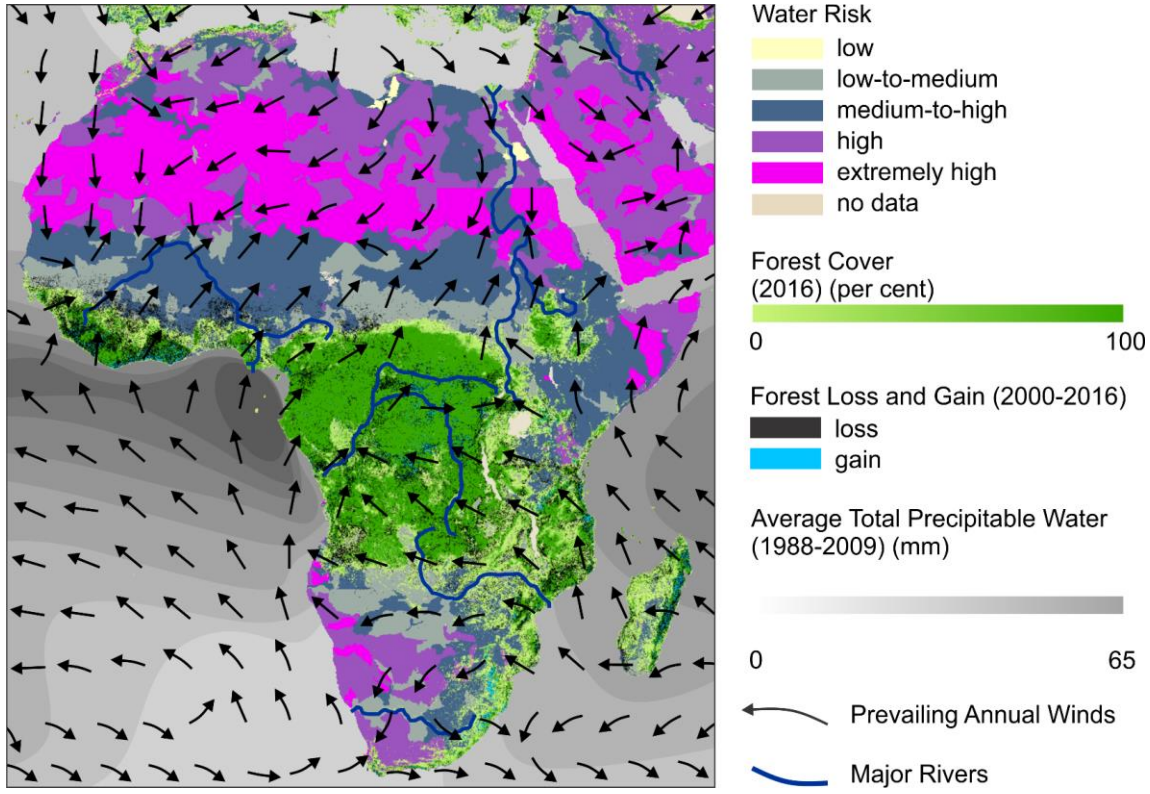


Forests often cover areas of low water risk.

Forests provide water to the atmosphere that can be transported and redistributed via prevailing winds (black arrows) from areas of low water risk (yellow) to high water risk (pink) and thereby reduce drought vulnerabilities.

The loss of forests in an area will have both localized, regional, and global effects on water availability.





Halting deforestation, preventing forest degradation, and restoring forests are not panaceas for water security.

But science does not support simple "one-size-fits-all" universal policy solutions involving forests and water.

Managing forests for water requires the right kind of forest (or tree), at the right place and at the right time.

Forests must be managed for resilience of water supplies to enable adaptation to global change.

ADAPT forest management practices to respond to opportunities of climate change.

PROTECT and **RESTORE** water towers.

FOCUS forestation efforts in locations where the water supply is relatively abundant and can be removed by evapotranspiration.

FOCUS forestation efforts in locations where the water supply is relatively abundant and where the transpired water can be transported downwind.

ESTABLISH thresholds for forest removal to optimise water budget (recharge, evapotranspiration, discharge) and sustain safe and reliable water flows.

ASSESS site-specific circumstances.

Insight: National governments should work together on global water governance to ensure resilient and reliable upstream-downstream and upwind-downwind water supplies. 5 6 8 9

New institutional and governance frameworks can play a key role in optimising climate-forest-water management.

REDUCE vertical and horizontal fragmentation of governance between forest and water agencies.

EMBRACE polycentric governance systems, with multiple centers of power and with multiples interacting scales of decision-making.

ENABLE debate, negotiation, and agreement on the optimal strategies for managing the climate-forest-water-people system.

ENSURE social and environmental justice and equity are reflected in policies and practices.

INCENTIVIZE collective action, coordinated action, and sustainable forest and water management will be needed.

Insight: Outstanding knowledge gaps on the forest-water interactions within the climate-forest-water-people system must urgently be tackled. 10

A series of regional assessments should complement the current global assessment.

But major knowledge gaps need to be filled to inform these regional assessments.

What are the characteristics of natural and managed forests (e.g., species, ages, densities) that contribute to sustainability of water supply?

What are the locations of forested areas that are most important as sources of water to ecosystems and to downstream and downwind users?

What is the uncertainty in forest-water relations as a result of the cumulative effects of climate and land use/land cover changes across geographic regions?

How are forests and the water that comes from forests are perceived and valued by people?

We need to manage forests for water.

1. **Reposition forest-water discussions**
   Forest-water relations must be central to policy discussions at regional, continental and international scales.

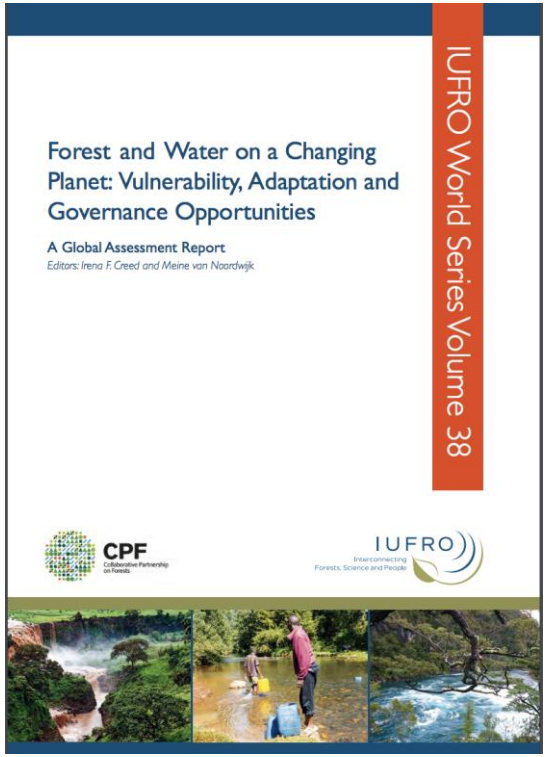
2. **Rethink forests as sources of water**
   Forests contribute to water supplies, both downstream and downwind, at a range of spatial and temporal scales.

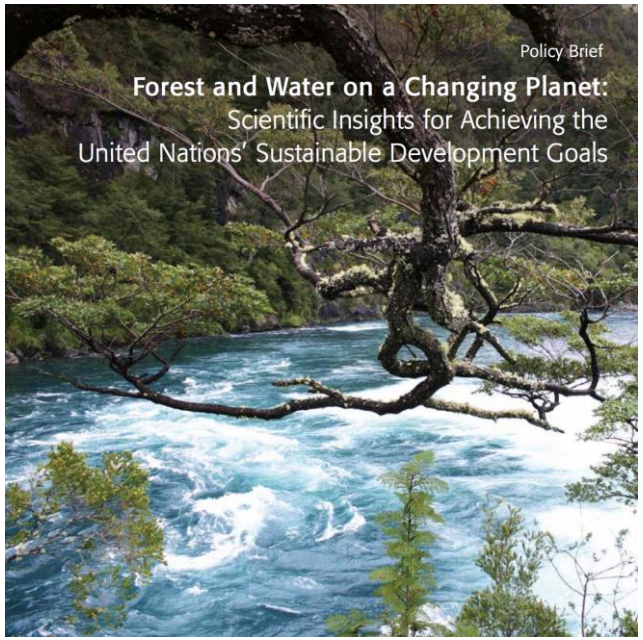
3. **Reimagine interventions**
   New institutional and governance frameworks that permit holistic consideration of forests and water are needed to create local policies that support global water security.

“Forest and Water on a Changing Planet”

The report and policy brief are available
at the GFEP on Forests and Water official website

https://www.iufro.org/science/gfep/forests-and-water-panel/





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