



Forests and Trees for Healthy Cities
Improving Livelihood, Wellbeing and Environment for All

***“Watershed management:
contribution of urban and peri-urban
forestry”***

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***Watershed management:
contribution of urban and peri-urban forestry***

- Why to invest in urban watershed forestry?
- Citizens, cities and governments building Green, grey and blue infrastructures
- FAO: Forests, Water & Watershed for Cities
- Merging agendas: Building a common vision
- UN International Year of Forests 2011
- Conclusions

Why to invest in urban watershed forestry?

Cities cover less than 3% of global terrestrial surface.
50% of the world's population now live in cities.

Cities are world consumer of:

- 75% energy
- 75% Green Gas Emission
- 60% residential water use
- 76% wood for industrial

... Deforestation



Why to invest in urban watershed forestry?

The intensification and extension of cities has contributed to
- a *drastic depletion of tree and forest cover in and around cities* -

- Cities consequently suffer from:
 - floods
 - dust encroachment
 - water shortage
 - aridity
 - soil erosion
 - heat island effect
 - landslide





Why to invest in urban watershed forestry?

One billion city-dwelling people – no access to clean & healthy water

Integrated land management in/around cities?

Integrated urban watershed management?

→ Protection of forests and sound integrated watershed management are some of the most effective means by which largest cities supply sufficient fresh water to their inhabitants.



[Click to open: Why Invest in Watershed Management?](#)



Why to invest in urban watershed forestry?


Urban Watershed Forestry

- Water supply and Water quality (erosion and sedimentation control)
- Disaster risk management (floods and landslides)

Urban and Periurban Forestry

- Harmony from Urban to Rural
- Built-up + Peri-Urban + Watershed
- Building a mosaic of trees/forests
- Green Corridors, Patches, Blocks






Why to invest in urban watershed forestry?

Other reasons for caring Urban Forest and Trees:
Impact of healthy green city on economy saving, people health, energy saving, economic assets (land value, business, etc.)

- ✓ Fruit trees & agroforestry
- ✓ Jobs and incomes
- ✓ Wood energy
- ✓ Energy saving




Citizens, cities and governments building Green, grey and blue infrastructures

Green infrastructures:
Trees, shrubs, and grass.

- Porous; allowing water to soak into soil which naturally filters pollutants before entering rivers.

Gray infrastructures:
Residential & industrial buildings, roads, utilities, parking lots.

- Impervious; forcing water to runoff and which must be managed and cleaned before entering rivers.

Blue infrastructures
Rivers, lakes, irrigation ...



Citizens, cities and governments building Expertise acquired

Water quality issues (case of Tokyo, Japan)

- Metropolitan Government Bureau of Waterworks manages forests
- Increase capacity to recharge water resources
- Prevent reservoir sedimentation
- Forest's water purification capacity
- Conservation of natural environment

Pure water supply (case of NYC, USA)

- A reason for forest protection or reforestation
- Cheaper option than building more treatment plants
- Enjoy high quality, affordable drinking water
- Avoid need for costly filtration: US\$ 8 to 10 billions to construct facility; US\$ 1 million each day to operate and maintain the filtration system

Citizens, cities and governments building Expertise acquired

Payments for environmental services

Cities are buying watershed based environmental services to secure their water provision

Payment to providers:

- Payment in cash, but also in kind
- Cities even acquire land to ensure maintenance of certain land uses (in particular forest cover): from 10 to 400 USD/ha/year

Payments by users:

- The range of payments to the service providers vary widely
- When it is a voluntary agreement, city water users do contribute through their water bill for the watershed management (some USD cents/m³)

**Citizens, cities and governments building ...
... Expertise acquired**

Floods & Disaster risk management (San Antonio, USA)

“Trees can do better than adding new concrete”

Phase 1: Tree loss trends

- 22% tree canopy decline from 1985-2001
- Loss of \$9 million in air pollution mitigation per year
- Loss of \$146 million in storm water management services
- Loss of \$17.7 million in residential summer energy services per year

Phase 2: Green Data Layer – Challenging Programme

- Protect significant ecological areas within ground water recharge zones
- Determine optimal tree canopy cover in new development
- Prioritize planting for energy conservation
- Improve flood control while reducing gray infrastructure

**Citizens, cities and governments building ...
... Lessons learned**


To establish a healthy balance of grey and green infrastructure, communities needs to and can:

- Quantify the green infrastructure and its function for air and water improvement.
- Designate green infrastructure as a public utility (just as gray infrastructure is) in the budget process.
- Establish a tree canopy goal or target as part of every development and management project to utilize its functional potential.
- Adopt public policies, regulations, and incentives to increase and protect green infrastructure.

FAO: Forests, Water & Watershed for Cities
 Forum and Dialogue on Watershed, Mountain and Landslide

... In Practice ...

The new generation of watershed management programmes and projects

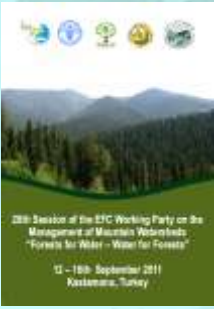


- The Fouta Djallon - GEF Project

“Transboundary watershed management and regional integration in West Africa”

9 countries related:
 ✓ Up/down stream
 ✓ Up/down lands
 ✓ Humid/Arid zones

Management of Mountain Watersheds
“Forests for Water – Water for Forests”



FAO: Forests, Water & Watershed for Cities
 Assessment, Managing Grey & Green Resources, Policy





The Second World Landslide Forum


“Putting Science into Practice”
 3-9 October 2011
 FAO, Rome

- FAO TCP project -

“Watershed management and strategy against water erosion in Brazzaville, Congo”

Payment for Environmental Services - Community of Practice - “D group” moderated by NRL on the web



FAO: Forests, Water & Watershed for Cities


Assessment, Managing Grey & Green Resources, Policy

Forest Restoration using **Treated Waste Water** to Sustain Smallholders and Farmers Livelihoods (Algeria, Egypt, Morocco and Tunisia)

[Workshop, Tunisia , 16 to 17 October 2010](#)

Forest and Agroforestry for Cities in Arid Zones and Low Forest Cover Countries

Thematic Report 2011
“[Trees Outside Forests](#)”
Forest Resources Assessment (FRA)



2012
Guidelines for Decision & Policy Makers
“Trees and forests for Healthy Cities”

Workshop in Glasgow, 30-31 May 2011

Governance, Regional Planning
Climate Change
Disaster risk management
Watershed Management
Water and Waste water
Health & Wellbeing
Food & Nutrition Security, PES



Merging agendas

Urban	Forestry Urban forestry	Watershed
<p>2nd World Congress on Cities and Adaptation to Climate Change – (ICLEI - Resilient Cities) 3-5 June 2011, Bonn, Germany ICLEI</p> <p>EcoCity World Summit 2011 22-26 August 2011, Montréal, Canada</p>	<p>11 Mediterranean Forest Week 5-8 April 2011, Avignon, France FAO, Silva Mediterranea and other co-organizers</p> <p>FAO International Workshop « Guidelines for Policy and Decision Makers promoting urban and peri-urban forestry » 30-31 May 2011, Glasgow, UK FAO</p>	<p>Cities of the Future: Sustainable Urban Planning and Water Management 22-25 May 2011, Stockholm, Sweden IWA, IFHP and other co-organizers</p> <p>Payments for Ecosystem Services – what role for a green economy? 4-5 July 2011, Geneva, Switzerland UNECE, FAO and other co-organizers</p>
<p>10th World Congress of Metropolis 22-23 November 2011, Porto Alegre, Brazil - Cities in Transition Metropolis</p>	<p>14th European Forum on Urban Forestry 1-4 June 2011, Glasgow, UK IUFRO</p>	<p>8th International Conference on Urban Watershed Management 6-8 September 2011, Beijing, China Tsinghua University</p>
<p>6th World Urban Forum, 2012 UN Habitat</p>	<p>Second World Landslide Forum 3-7 October 2011, Rome, Italy IPL (FAO and others)</p>	<p>28th Session of the EFC Working Party on the Management of Mountain Watersheds “Forests for Water – Water for Forests” 12-16 Sept. 2011, Kastamonu, Turkey FAO</p>



UN International Year of Forests 2011

« *Celebrating forests for people* »



March - ***“Forests and Water”***

October - ***“Forests and Urban Forestry”***

December - ***“Forests and Mountains”***



Conclusions

By 2025

1.8 billion people with absolute water scarcity

Two-thirds of the world's population with water-stress conditions

Forests : drinking water for millions of people of world's mega-cities



Collaborative Partnership on Forests (CPF)

call upon countries

to pay more attention to forest protection and management for the provision of clean water

