

# Landscape, Water and Forestry in Developing Countries

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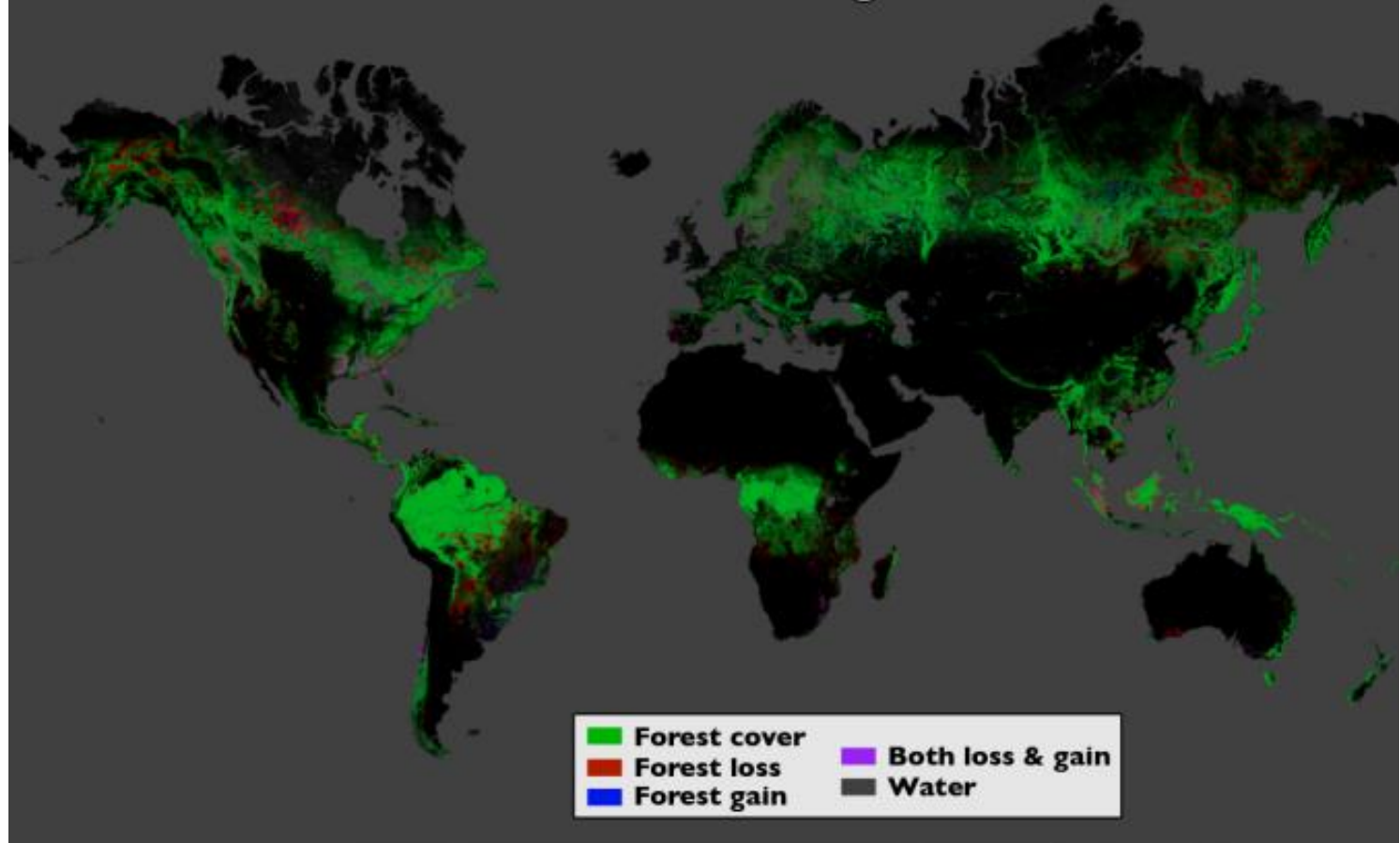
Stockholm Water House

April 4<sup>th</sup> 2014



# There is a problem

Global forest cover and changes since 2000



Forest loss affects, climate, and local hydrology.

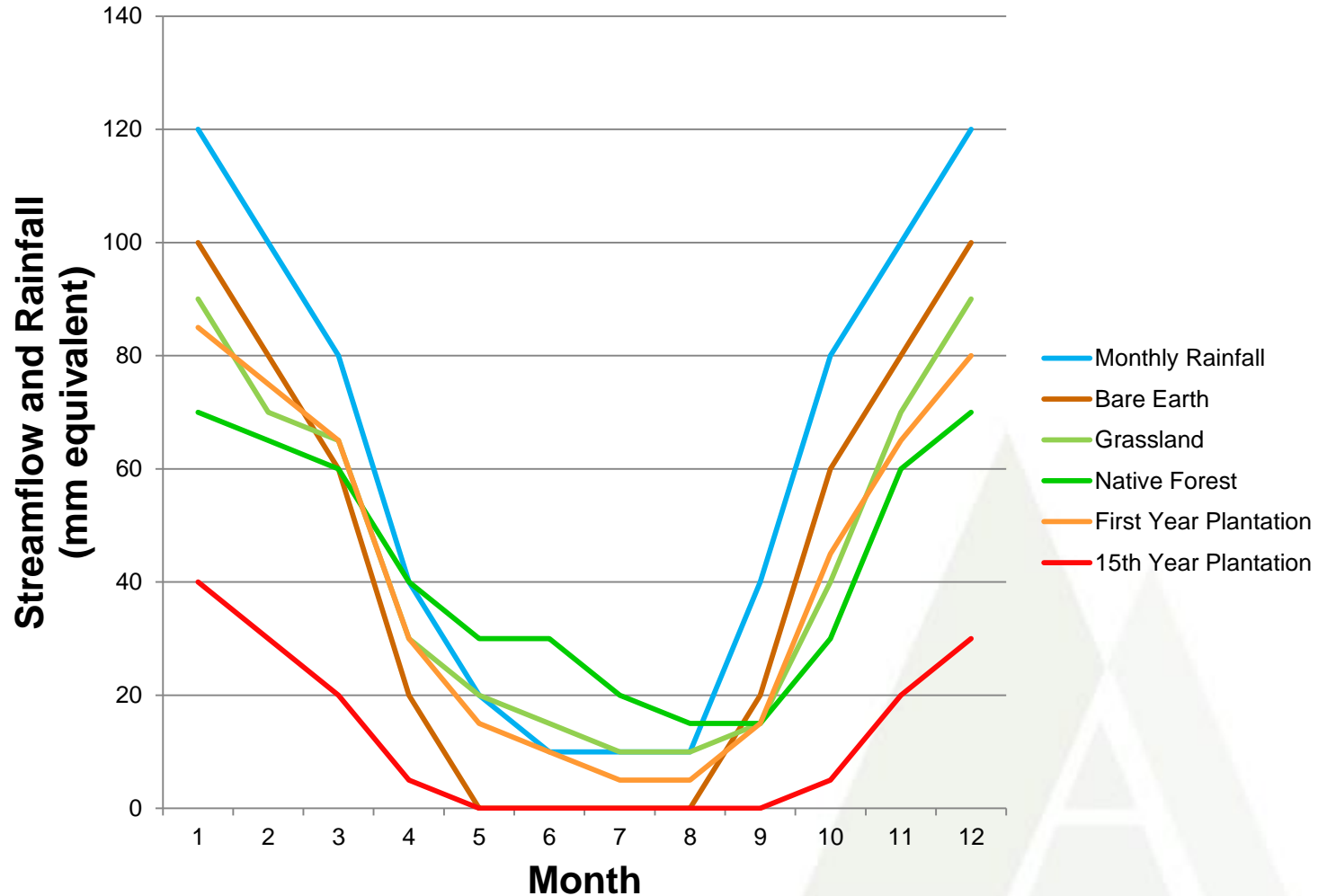




# Trees, Water and CO<sub>2</sub>

- Trees are the largest living consumers of water.
  - 1 ha of forest can consume 8,000,000 litres of water in a year.
- Trees are the most efficient tools for turning water into organically fixed carbon.
  - 1 ha of forest can fix up to 40 tonnes of Carbon per year.
- Trees produce wood, the only truly renewable engineering material.
  - As every Swede knows money grows on trees.
- Trees have enormous impacts on hydrological cycles at local, regional and global scale.

# Streamflow under different land covers





# Developing Countries, Forests and Water

- Forest loss today is concentrated in developing and transitioning countries.
  - Europe lost its forests years ago and then started to restore them.
- Forest loss disrupts water cycles with strong –ve impacts on the poorest people.
- Forests are lost because the value of alternative land uses is higher than the value of the forest.
- Costs of forest loss are often felt by poor people while benefits go to the urban rich.





# What can be done?



## A World of Opportunity

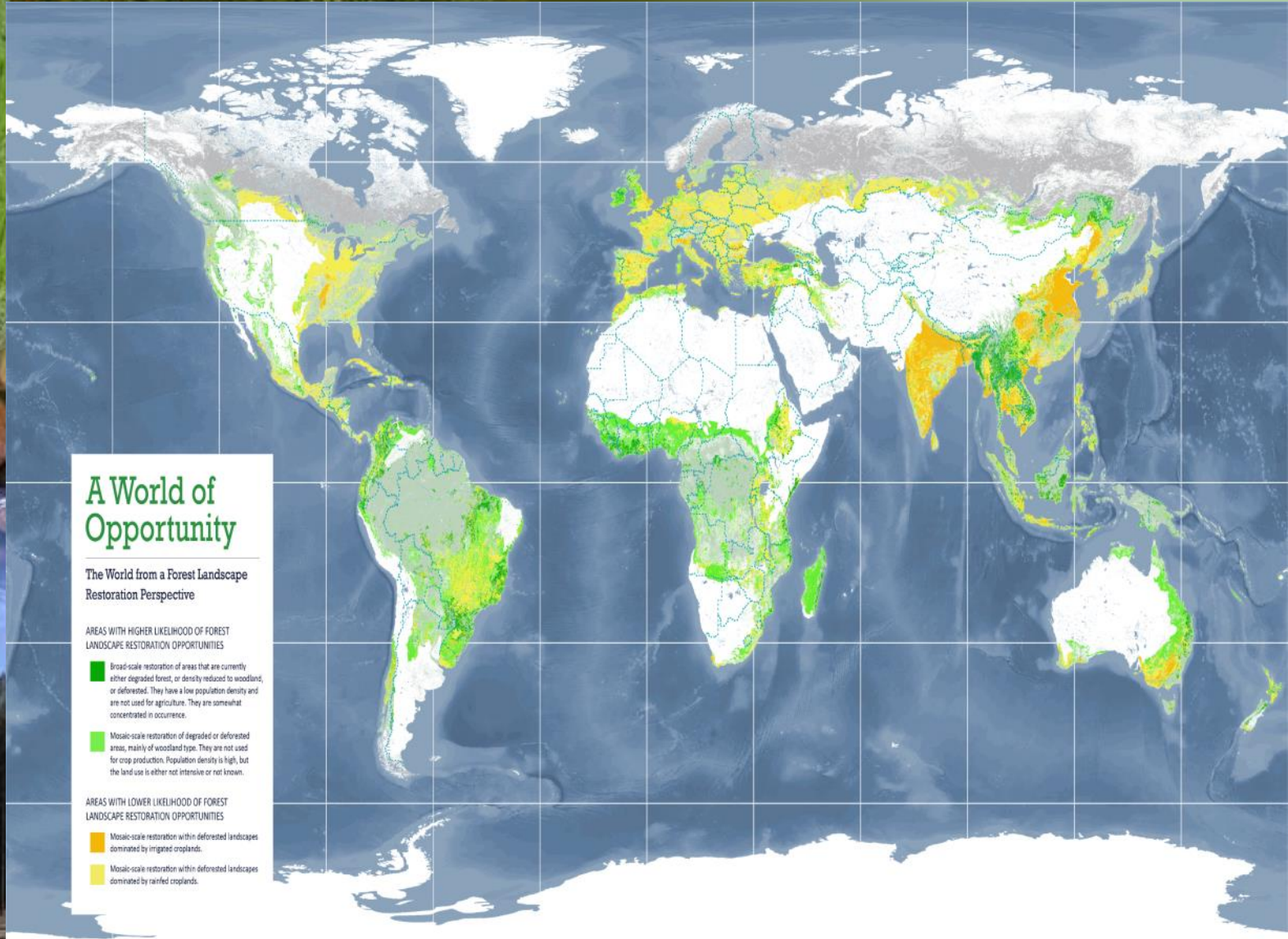
### The World from a Forest Landscape Restoration Perspective

#### AREAS WITH HIGHER LIKELIHOOD OF FOREST LANDSCAPE RESTORATION OPPORTUNITIES

-  Broad-scale restoration of areas that are currently either degraded forest, or density reduced to woodland, or deforested. They have a low population density and are not used for agriculture. They are somewhat concentrated in occurrence.
-  Mosaic-scale restoration of degraded or deforested areas, mainly of woodland type. They are not used for crop production. Population density is high, but the land use is either not intensive or not known.

#### AREAS WITH LOWER LIKELIHOOD OF FOREST LANDSCAPE RESTORATION OPPORTUNITIES

-  Mosaic-scale restoration within deforested landscapes dominated by irrigated croplands.
-  Mosaic-scale restoration within deforested landscapes dominated by rainfed croplands.





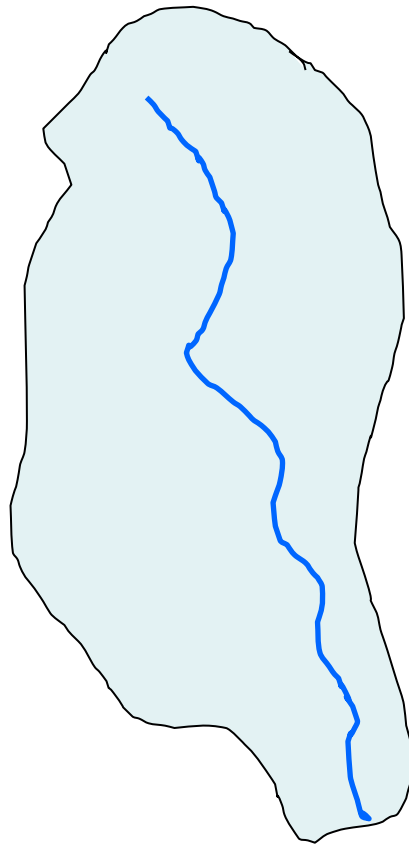
# Landscape Mosaic Reforestation



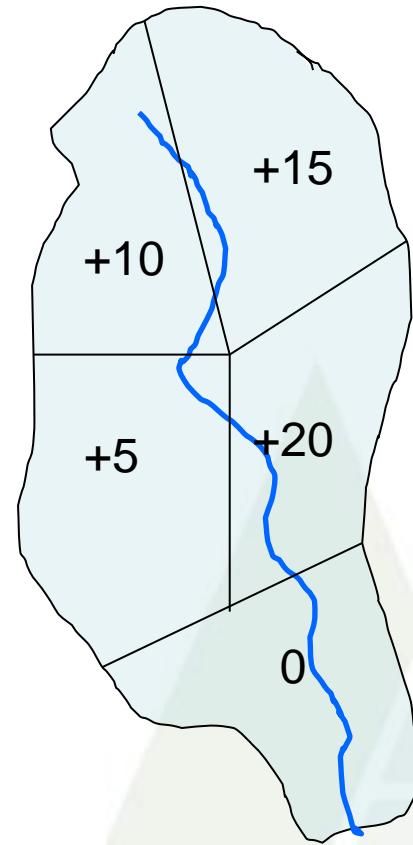


# Spatial Arrangement of Plantations

Single even aged stand



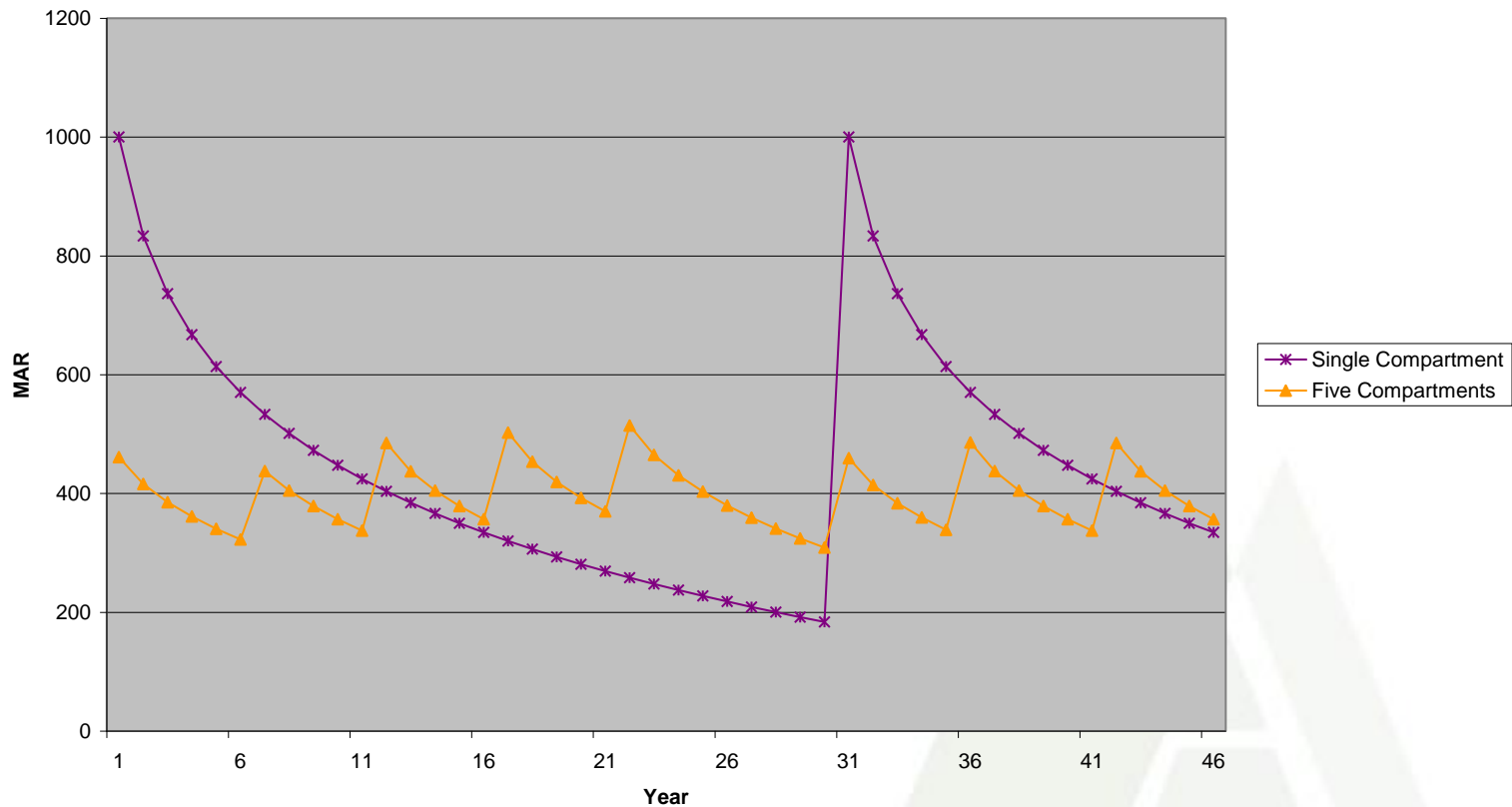
Five stands of different ages



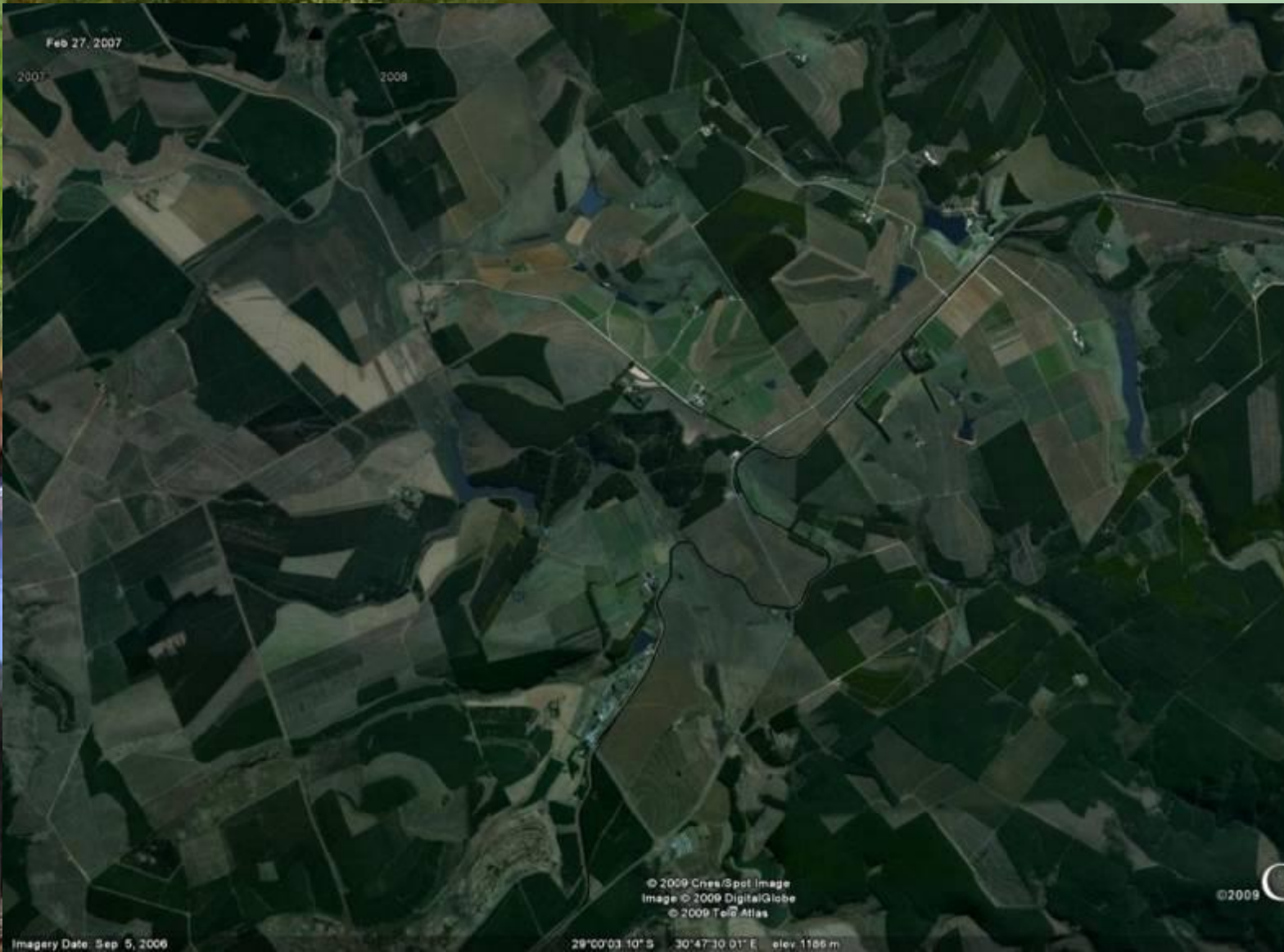


# Diversity of Plantation Ages Improves Streamflow

Stream Flow under different plantation management scenarios



# How can this be achieved?







# What is wrong with attempts to help forests today?

- Carbon money and development aid money aimed at large projects.
  - Large plantations for biomass or for pulp.
    - 200,000ha Afram Plains Ghana, Biomass.
    - 1,000,000ha Mozambique, Pulp.
  - Hydrological Impacts on downstream users.
  - Transfer of land rights from customary rights holders to corporations.
    - Hunting, Shifting Cultivation, NTFPs
- Foreign aid money directed at governance and illegal timber trade.
  - Governance reform leads to local control but without a plan for a sustainable business from the forest.
  - Illegal timber trade is a minor cause of forest loss in tropics.
- Agroforestry projects: planting trees without a market.
  - Environmental benefits of trees are not enough on their own.

# What is needed?

- Land use management systems that give value to small owners and communities.
- Forests as part of this landscape.
- Organisation of producers to
  - Process wood and NTFPs
  - Access markets prepared to pay a fair value.
- Markets prepared to pay a fair price.

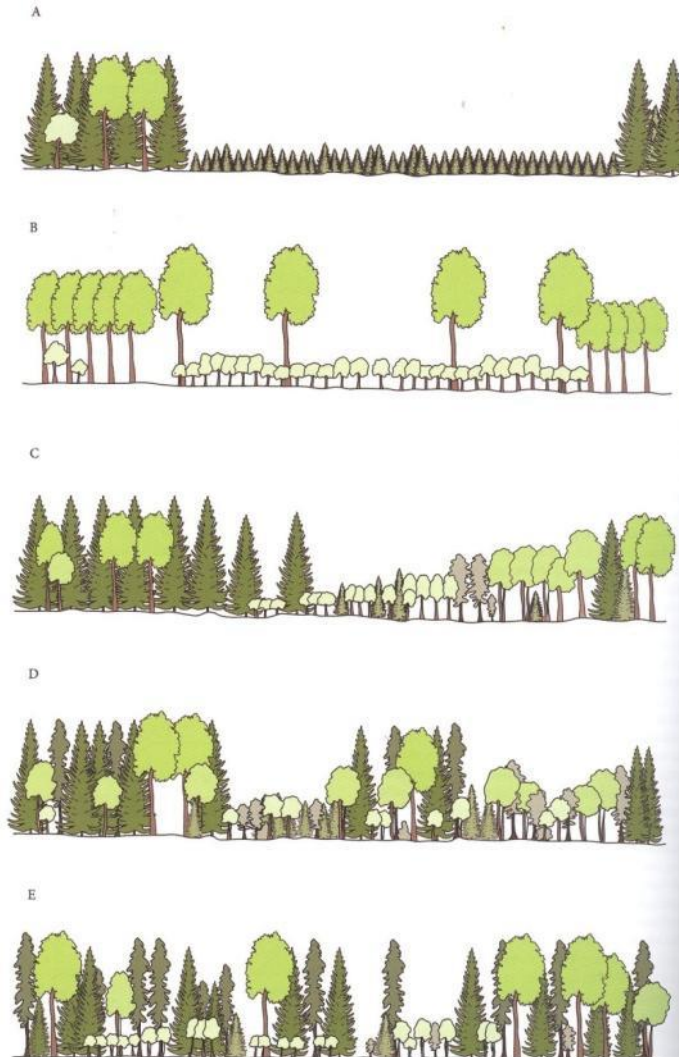




# What can Sweden Contribute?

- Swedish hydrology barely relevant.
  - Sweden  $PET < MAP$
  - Developing Countries  $MAP < PET$
- Water quality management?
- Forestry management
  - Swedish forests have been increasing for 100 years.
- Forestry business
  - Small forest owners are a key component of the Swedish forest success story.

# Forest Management



Figuur 25-3. Vergelijking van boslandschappen met verschillend hooghoutbeheer. A: Kaalslagstelsel; B: Schermslag; C: Zoomslag; D: Femelslag; E: Plenterslag (Uitkapbos). Naar Troup (1928).



# Appropriate Technology



**Pamja**  
CLEANTECH AB

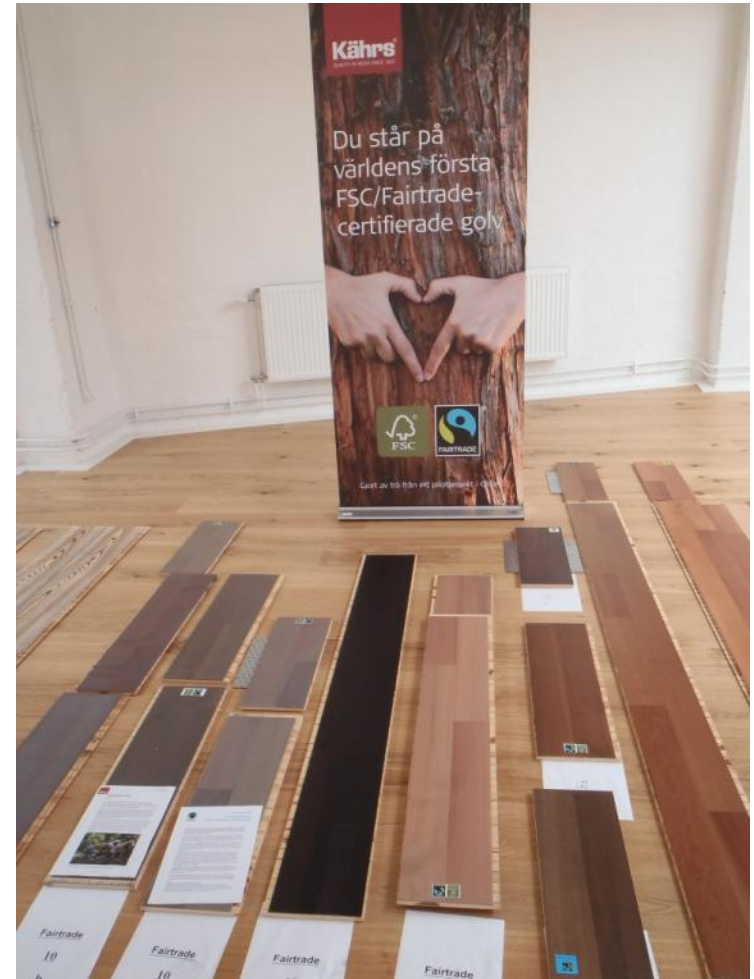


# Organisation and Integrity





# Markets and Product Development



# Goal



Millions of happy farmers profitably managing forests for their future generations and safeguarding the forests for our future generations.