Natural Water Sanctuaries, Rich in Biodiversity

KEYWORDS: Groundwater, Sustainability, Water resource management

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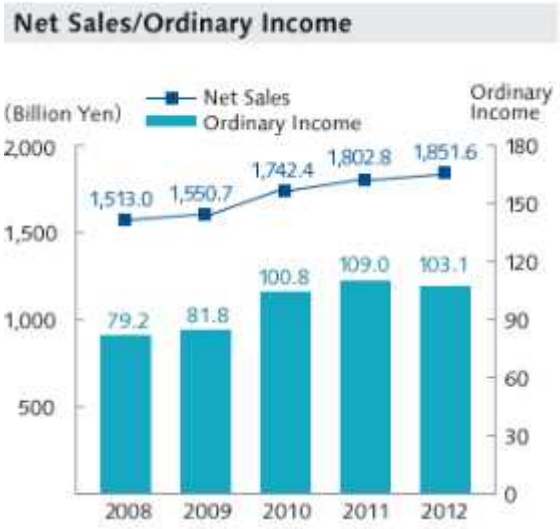
Suntory Global Innovation Center Ltd.

Suntory, Beverage Company

Founded in 1899

Mission: In Harmony with People and Nature

bringing happiness into lives by alcoholic and soft drinks



Net Sales: 19.5 Billion CAD

Ordinary Income: 1.1 Billion CAD

(1 CAD = 95 JPY)

Suntory's Origin

Suntory's very existence depends on "Water"

1899 Foundation

1923 Yamazaki Distillery Constructed

Whisky = aqua vitae

1963 Beer marketed

Search for high-quality water for brewing

1989 Natural Mineral Water marketed

Water Sustainability

Water source

- Groundwater recharge
- Conserving biodiversity

Marketing

- Creating new value of products

Society

- Water education
- Coexist with local communities

Manufacturing

- Quality assurance
- Conserving water
- Return to natural environment

Natural Water Sanctuary Project

Water Neutral

Natural recharge of groundwater in forests **>** Total groundwater withdrawal in all factories

Required forest area = 7,000 ha

Accomplished in 2011

Natural Water Sanctuary Project

Ecological pyramid

Highest consumers

Primary consumers

Primary producers

Decomposers

Forested soil

Root system

Unsaturated zone

Saturated aquifers

Bedrocks

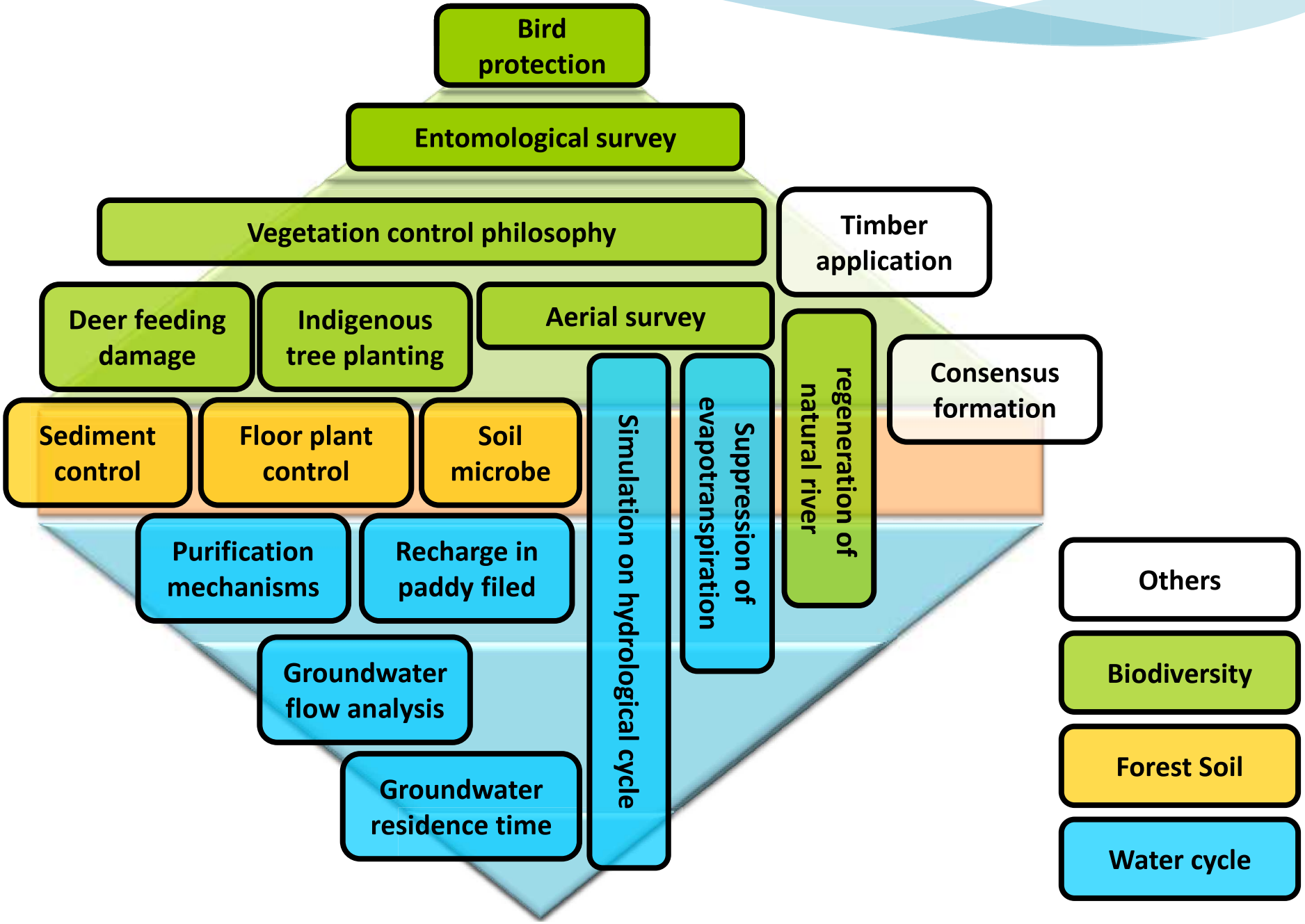
Groundwater pyramid

Protect the future of life by conserving biodiversity and food chains

Manage forest soil in the center of both pyramids

Protect the future of freshwater by conserving soundness of natural water cycle

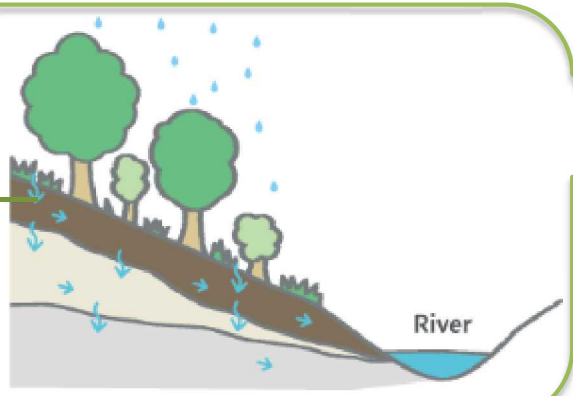
Research Network in Natural Water Sanctuaries

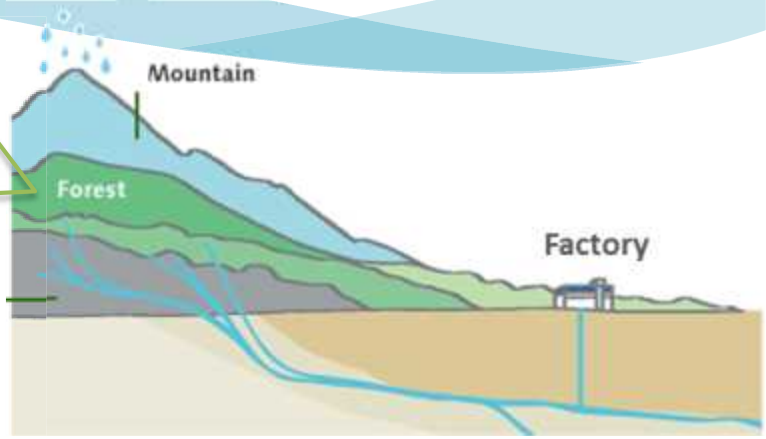


Forest Soil Management

Soft, aerated soil

When a forest has accumulated an abundance of soft soil, it is ready to receive and retain rain like a sponge, allowing the rainwater to soak into the ground.





Unmanaged forest

Thinning

Underbrush (photo by Kawanishi)

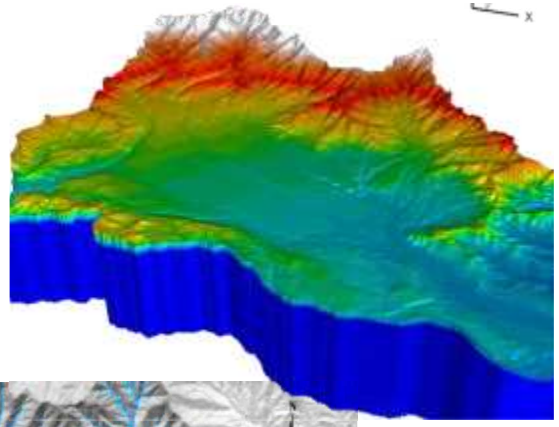
Soil disruption

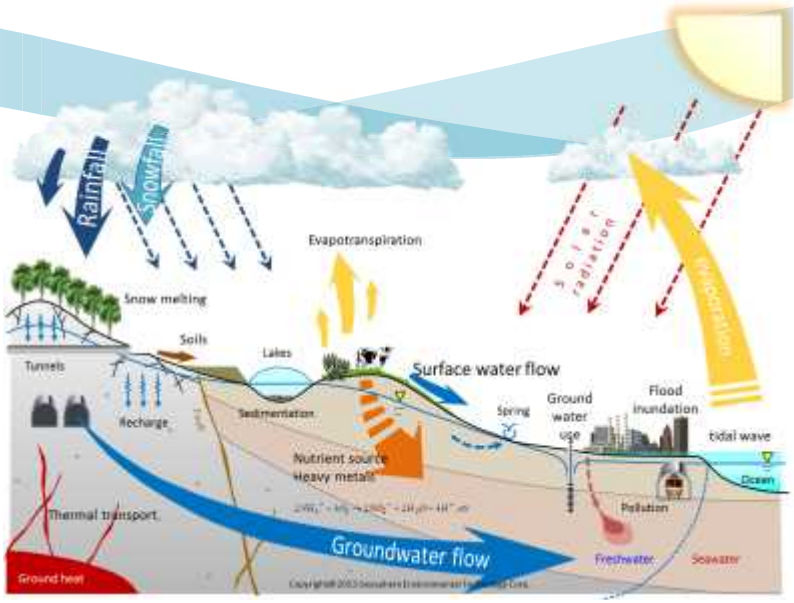
Reforestation

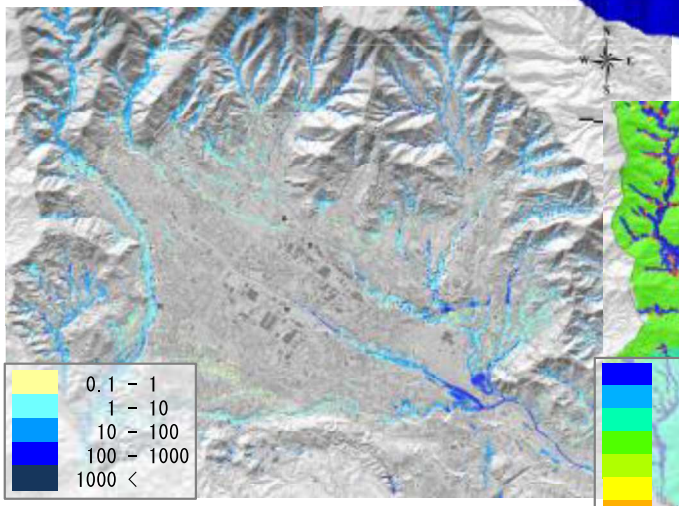
Organic-rich A-horizon layer (Photo by Ito)

Maximize groundwater recharge by preparing forest soils

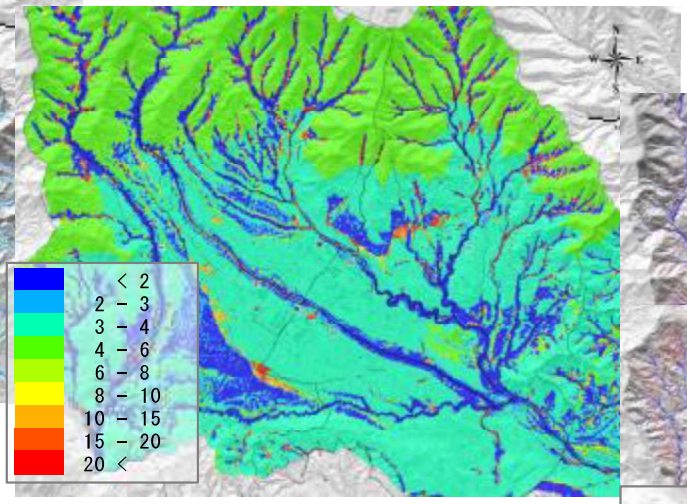
Groundwater Flow Simulation



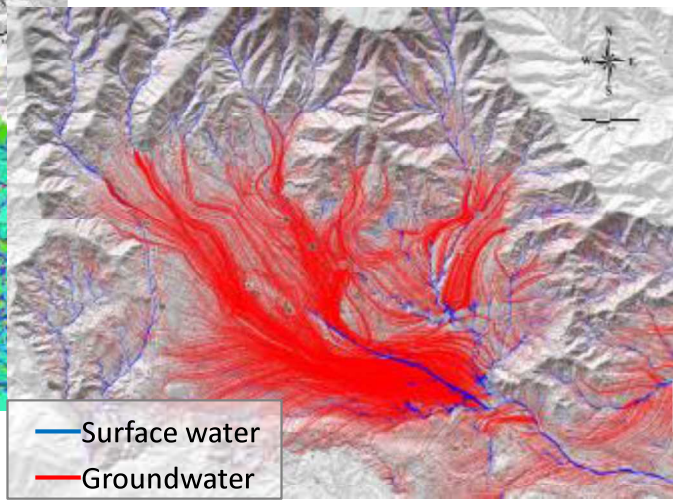




Runoff (mm/d)



Recharge rate (mm/d)

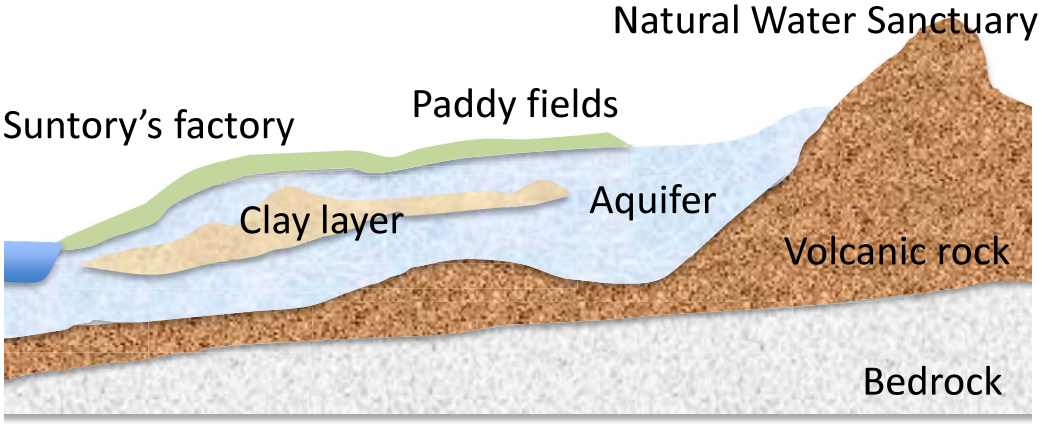


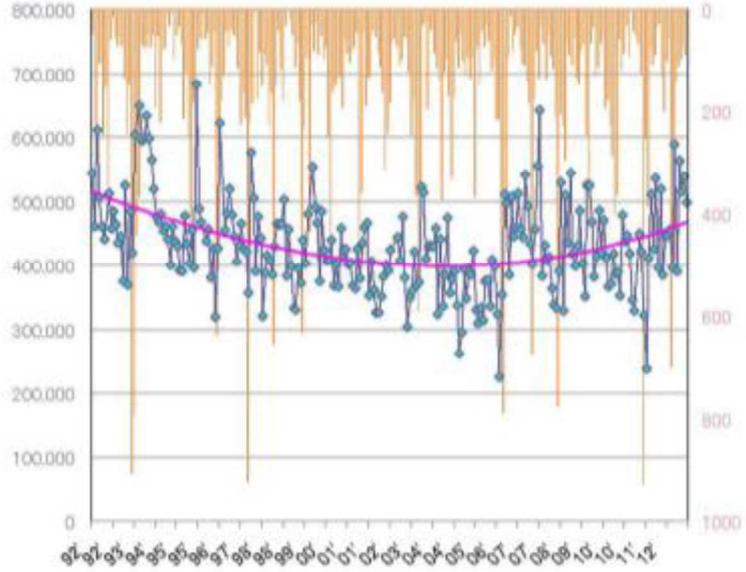
Pathways

(Modified from Hadano city, Kanagawa pref.)

- **Effect of forest management on groundwater**
- **Contamination risk assessment**
- **Water resource management with local community**

Groundwater Recharge in Paddy Fields





Data from Ichikawa (2013)

Birds and water creatures

Improve groundwater recharge
Improve biodiversity
Improve rice yield & quality??

Thank you for your kind attention!