WG3-LULUCF Sector: How to Utilize RS and GIS Data for LULUCF Inventory

Chairperson: Rahim Nik (Malaysia)

Rapporteur: Rizaldi Boer (Indonesia)

Takahiko Hiraishi (Japan), Savitri Garivait (Thailand), Takako Ono (Japan), Lee Kyeong-hak (Korea), Noriko Kishimoto (Japan), Yasumasa Hirata (Japan), Hyun Kook Cho (Korea), U Than Naing Win (Myanmar), Junko Akagi (Japan)

Objectives

- To share experience and lesson learnt in applying RS and GIS data for LULUCF inventory
- To discuss actual application of RS and GIS data for LULUCF inventory

Points for discussion

1. How do we identify or estimate concrete data by applying RS and GIS data?
2. How do we verify RS and GIS data?
3. What kind of resource necessary for utilizing RS and GIS data?
4. What type of institutional arrangement is effective for applying RS and GIS data for LULUCF inventory?

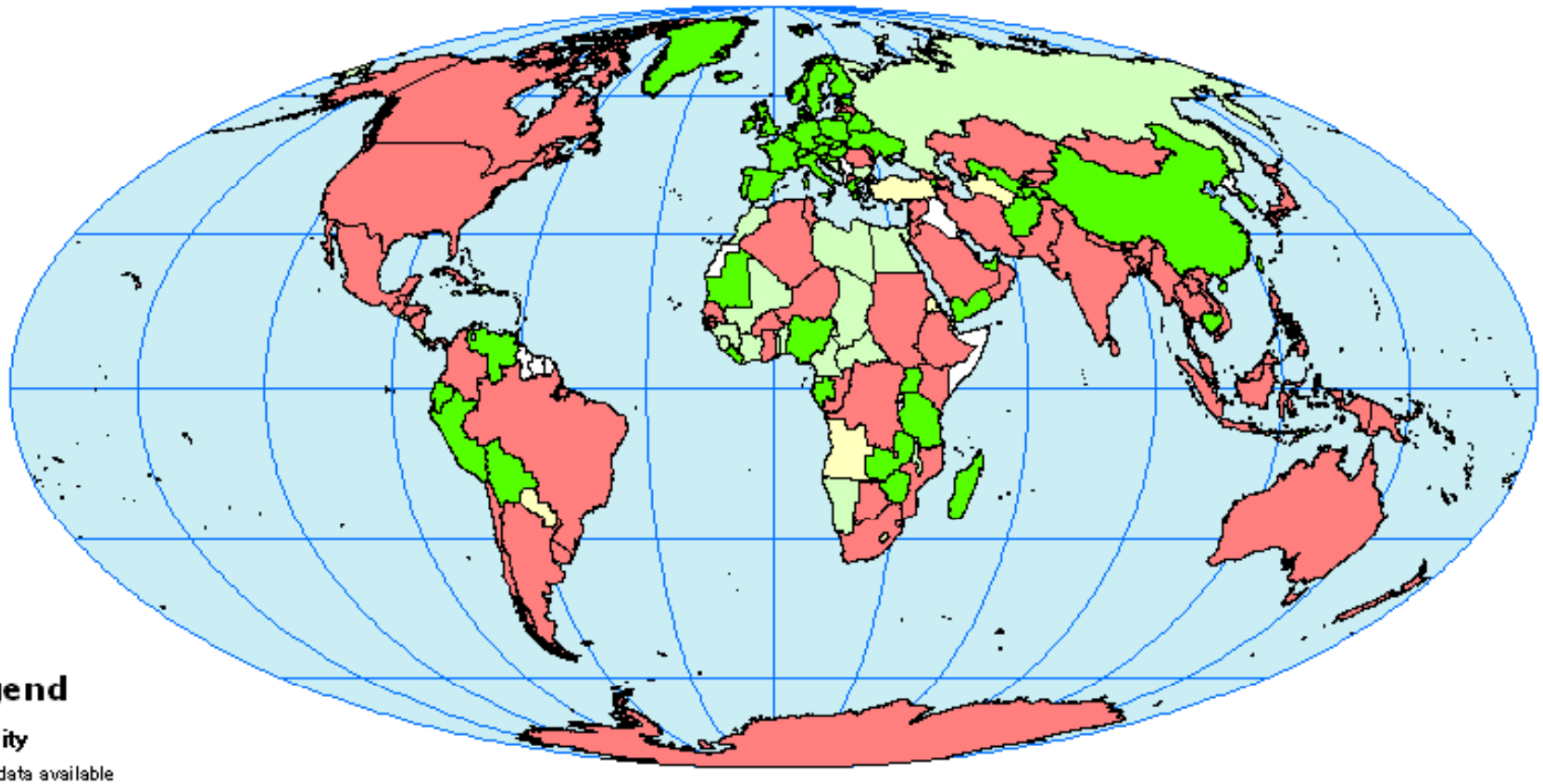
1, 2 and 3. How do we identify or estimate concrete data by applying RS and GIS data and their verification as well resources required for that?

- There are three presentations
  - The use of Global Map for addressing CC (Noriko Kishimoto)
  - Application of RS for forest inventory for identifying DD (Yasumasa Hirata)
  - Thailand's experience in using RS and GIS data for estimating (Savitri Garivait)

- Global Map containing land cover data of the globe released in 2008 is downloadable for free through website
  - URL: www.iscgm.org
  - E-mail: sec@iscgm.org
    (for any inquiries)
- Scale: 1:1000,000

Progress of Global Mapping Project

As of 2009-01-16
International Steering Committee for Global Mapping



Legend

maturity

- data available
- data for verification
- developing data
- considering joining the project
- not participating in the project

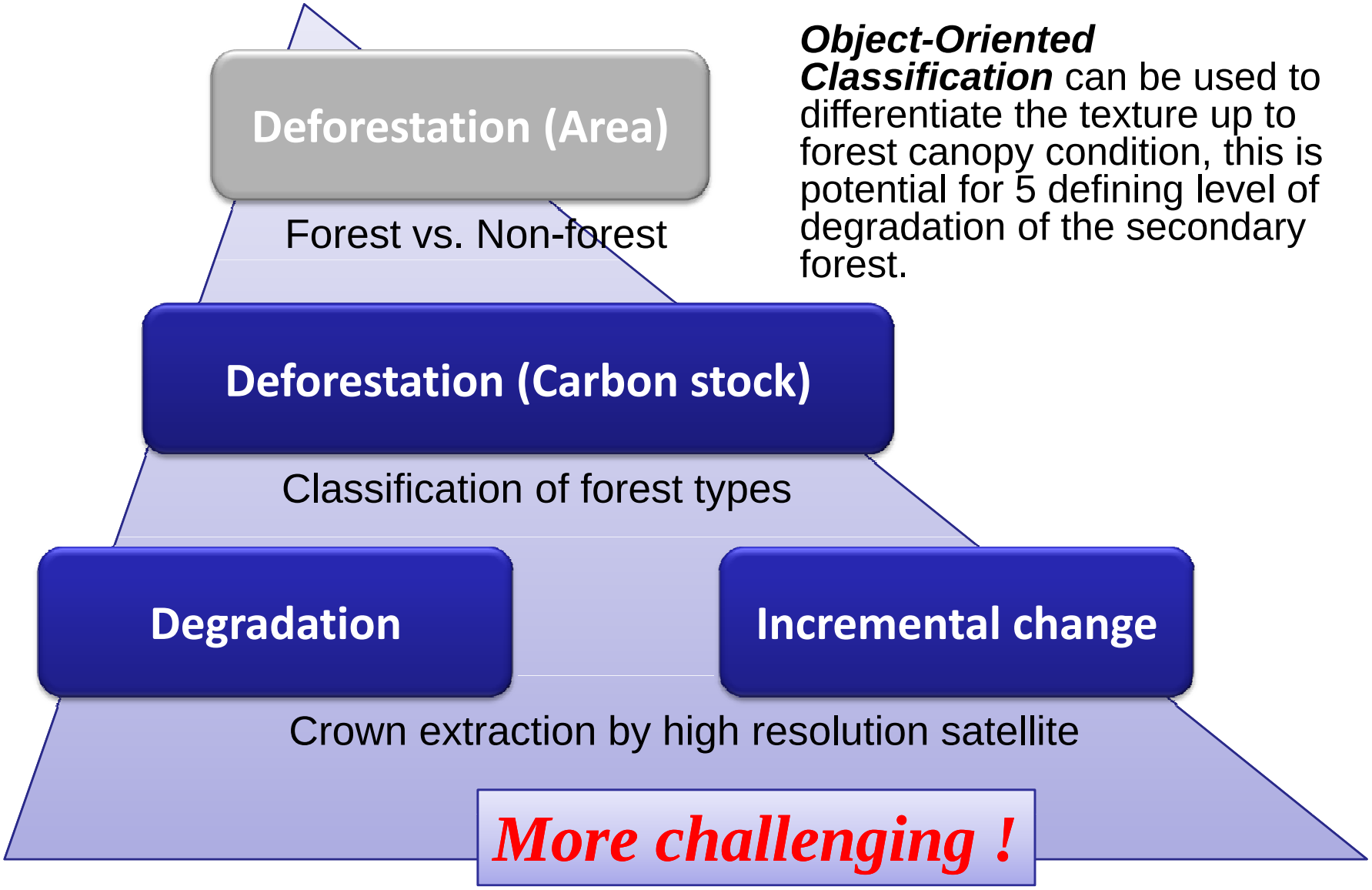
Most elevation data of current Global Map are compiled from GTOPO30, contribution of United States of America.

This map is for the purpose of reference and the boundaries in this map are not authorized by any organizations.

Example of interpretation Interpretation requires further consideration

GM LC 20 Classes	LULUCF 6 Classes
Broadleaf Evergreen Forest	Forest land
Broadleaf Deciduous Forest	Forest land
Needleleaf Evergreen Forest	Forest land
Needleleaf Deciduous Forest	Forest land
Mixed Forest	Forest land
Tree Open	Forest land
Mangrove	Forest land
Shrub	Grassland
Herbaceous	Grassland
Herbaceous with Sparse Tree/Shrub	Grassland
Sparse vegetation	Grassland
Cropland	Cropland
Paddy field	Cropland
Cropland/Other Vegetation Mosaic	Cropland
Wetland	Wetlands
Urban	Settlements
Bare area, consolidated (gravel, rock)	Other land
Bare area, consolidated (sand)	Other land
Snow/Ice	Other land
Water	Other land

The challenges of forest monitoring



Object-Oriented Classification can be used to differentiate the texture up to forest canopy condition, this is potential for 5 defining level of degradation of the secondary forest.

- Dr. Garivait (Thailand) presented specific application of RS and GIS in estimating pollutants emissions from biomass open burning (*forest fire, rice husk/straw burning and garbage burning*) in Mekong River Basin
- It was indicated that biomass burning will affect rainfall pattern and acidity and Ozone formation. Particle matter from biomass burning may inhibit the formation of cloud
- The use of MODIS data is highly underestimate for hot spot data, particularly area for agriculture burning
- Problem, when fire occur, the satellite already pass over the sites (1x1 km, this is too large). Need to cross check with data from forest fire control statistics and ground survey, but still use many assumption is getting an estimates for biomass and burning efficiency

1, 2 and 3. How do we identify or estimate concrete data by applying RS and GIS data and their verification as well resources required for that?

- A margin error may occur when Global Data is applied to national context, thus a country should take care of this
- Many of GIS experts in developing countries have not been exposed to the application of RS and GIS in climate change
- More ground data is required for verifying the use of RS and GIS data, in particular for estimating EF and RF data (carbon stock of the five pools)

1, 2 and 3. How do we identify or estimate concrete data by applying RS and GIS data and their verification as well resources required for that?

- Need training for RS and GIS experts on utilization of RS and GIS data for climate change, in particular GHG Inventory
- Need to explore the use RS technology for estimating peatland C-stock such as ALOS (can estimate with reasonable accuracy)

4. What type of institutional arrangement is effective for applying RS and GIS data for LULUCF inventory?

- Different country has different institutional arrangement for effective use of RS and GIS data for LULUCF Inventory (e.g. Indonesia has set up alliance of 18 institutional who has RS and GIS base data; Korea set up the inventory team within one institution ~ effective coordination)
- Need to engage GIS experts and RS agencies within the country.
- Many global datasets available and can be accessed freely by developing countries to improve their inventory

4. What type of institutional arrangement is effective for applying RS and GIS data for LULUCF inventory?

- Next year Activities:
  - Need to have further discussion on identification of gaps, barriers and approaches in producing high quality National GHG inventory especially in obtaining data needs (many Asia countries have complete their inventory)
  - How to acquire relevant data nationally and globally for GHG Inventory (training GIS expert on the deriving AD and EF from global data)
  - What will be national system to support the development of high quality inventory in subsequent National Communication
  - Need to merge Agriculture and LULUCF experts and RS and GIS experts in the application of RS and GIS data for AFOLU