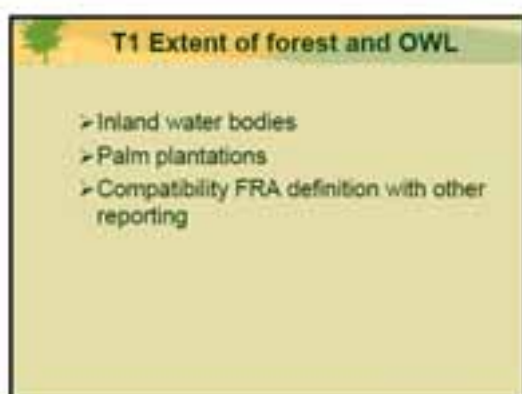
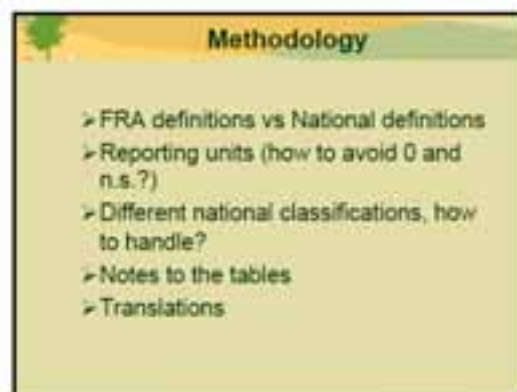
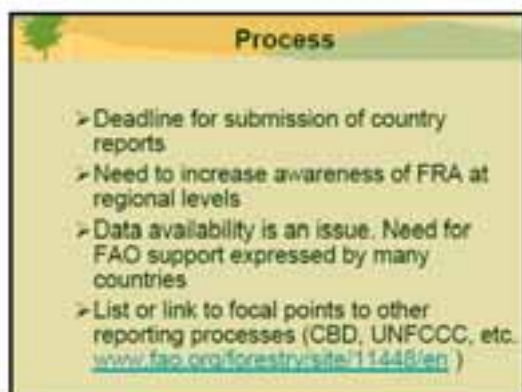
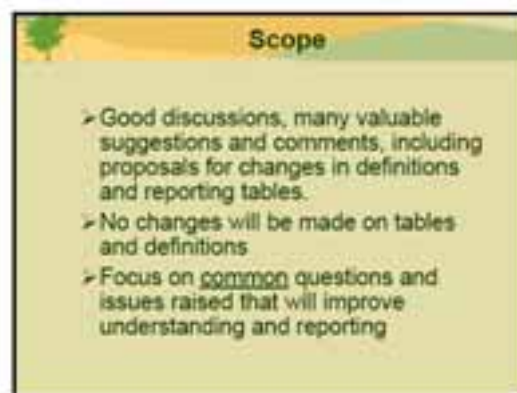


Annex 6: Plenary presentations (Thursday 6 March)

Annex 6.1: Summary of group work



T3a Primary designated functions

- Functions vs designations
- Level of designation
- When to report multiple use
- Why are IUCN Categories V-VI excluded?

T3b Special designation and management categories

- Permanent Forest Estate (PFE)
- SFM vs management plan
- Doing nothing = Sustainable management?
- Protected area and illegal logging...

T4a Characteristics

- Introduced species / naturalized species
- Planted forest (difficult to differentiate)?
- Forest fallows
- Primary forest vs protected areas

T5 Forest establishment and reforestation


- Afforestation vs Reforestation
- Reforestation FRA / UNFCCC
- Natural regeneration not included
- Enrichment planting

T6 Growing stock

- Biomass to Growing stock
- How to report on Bamboo?
- Growing stock of commercial species vs volume available for wood supply
- Fuelwood species commercial?
- Volume of trees in protected areas?


T7 Biomass & T8 Carbon

- Conversion factors
- Lack of data a recognized issue
- Should the same figures be reported as UNFCCC figures?



T9 Forest fire

- Total area affected by fire difficult to report on for many countries
- Planned fire vs Wildfire
- One fire may cover different categories or occur several times on the same area




T10 Disturbances

- When does a damage become a disturbance?
- Link defoliation and damage
- Woody invasive species
- Data availability an issue



T11 Removals and value of removals

- Point of measure (road side)
- "Industrial" round wood
- Illegal / informal removals
- Portable mills, charcoal etc.
- Self consumption and given away for free, how to value?



T12 NWFP removals and values

- Include services, water, ecotourism, recreation, hunting, carbon etc.?
- Ornamental plants and crops growing under tree cover
- Honey, Christmas trees
- Value refers to raw material
- Grazing vs fodder collection




T13 Employment

- Reporting on employment in T13, T15 and T16 are mutually exclusive
- FTE and reference period
- Difficult to separate production of goods and management of protected areas
- Participatory forest management
- Tourism management



T14 Policy and legal framework

- Policy – sometimes part of an overarching development policy
- Policy but no formal statement
- Status of nfp you may tick several options.
- National vs sub-national




T15 Institutions

- Number of years to be considered as university degree
- Clarification on total staff
- Autonomous agency responsible for forestry not depending on a minister
- Several ministries responsible for forest



T16 Education and research

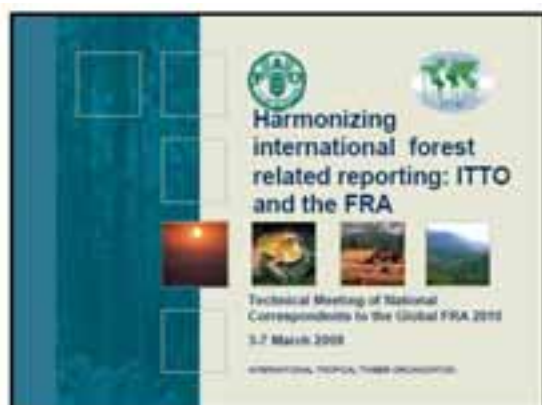
- Students educated abroad excluded
- Foreign students graduated in the country included
- Number of years for different academic levels
- Forest degree holders not working in forestry?
- Partially privately funded research centers?
- Secondary training of technicians?



T17 Forest revenues

- Public owned business entities?
- Transfer payments
- Allocation vs Expenditures
- Exclusion of tax income?

Annex 6.2: Harmonizing forest related reporting: ITTO and FRA



Status of Tropical Forest Management

- Primary data source: C&I reports
- First rigorous attempt to estimate areas of tropical forest under SFM
- Covers 33 tropical countries accounting for over 80% of total tropical forest area



Information base – Quality of country C&I reports

Indicator	Number of indicators	Average score			Overall average
		Africa	Asia & Pacific	Latin America & Caribbean	
1. Country conditions for SFM	20	1.8	2.1	2.2	2.0
2. Forest resource security	5	1.1	1.9	2.1	1.7
3. Forest ecosystem health and condition	5	1.2	1.8	1.5	1.5
4. Forest livelihoods and income	15	1.7	1.8	1.8	1.8
5. Biological diversity	10	1.2	1.6	1.4	1.4
6. Socio-economic	4	2.8	1.4	2.2	2.1
7. Governance, social and cultural aspects	17	1.3	1.8	1.7	1.6
Average of overall scores		1.5	1.7	1.7	1.6

1. Source: ITTO/FAO, 2004

Data sources: ITTO sources in Africa

Country	ITTO C&I report	ITTO mission	ITTO C&I workshop
Cameroon	★		★
Central African Rep.		★	★
Senegal	★	★	★
Cote d'Ivoire	★		★
DRC	★		
Gabon	★	★	
Ghana	★		★
Liberia		★	
Nigeria			★
Togo	★		★

Data sources: ITTO sources in Asia & the Pacific


Country	ITTO C&I report	ITTO mission	ITTO C&I workshop
Cameroon	★		★
Fig		★	
India			★
Indonesia	★	★	
Malaysia	★		
Myanmar	★		
Papua New Guinea	★		★
Philippines	★	★	★
Thailand	★		
Vanuatu	★		★

Data sources: ITTO sources in Latin America & the Caribbean


Country	ITTO C&I report	ITTO mission	ITTO C&I workshop
Belize	★		★
Brazil		★	
Colombia	★		★
Ecuador		★	★
Guatemala		★	
Guatemala	★		★
Honduras	★		
Panama	★	★	★
Paraguay	★	★	
Trinidad & Tobago	★	★	
Venezuela	★		★

Other data sources

ITTO consultants and staff	Country visits/consultations
FAO	FRA – forest area, etc.; FODS – Forest products
UNEP-WCMC	Forest in IUCN protected area categories
IUCN	IUCN red list of threatened species
Certification bodies	Certified forest area
Other published and unpublished sources, including official websites	Various data



Information base



Inconsistent/conflicting information
eg country estimates of forest area vs FRA vs UNEP-WCMC vs other sources

PFE – not all countries had clear definition or good-quality data; concept didn't always apply

Little verification of implementation of forest management plans/legal obligations



Ascertaining SFM areas



Sum of FMUs:

- independently certified or making progress towards certification;
- with fully developed, long-term (10 year +) mgmt. plan and evidence it is being implemented;
- included in model forests with information on mgmt. quality; and/or
- community based with secure tenure and known high-quality mgmt.




Status of tropical forest management



Total PFE: 859 million hectares

Of which:

- 353 million hectares** natural production forest
- 45 million hectares** production planted forest
- 461 million hectares** protection forest




Status of tropical forest management



Natural-forest production PFE (353 m ha)

Area under management plans	96.2 m ha
Area certified	10.5 m ha
Area managed consistent with SFM	at least 25.2 m ha (7.1%)




Status of tropical forest management



Natural-forest protection PFE (461 m ha)

Area under management plans	17.8 m ha
Area certified	n.a.
Area managed consistent with SFM	at least 11.2 m ha (2.4%)





Status of tropical forest management




Total natural PFE (814 m ha)

Area under management plans	114 m ha
Area certified	10.5 m ha
Area managed consistent with SFM	at least 36.4 m ha (4.5%)





SFM Tropics: Conclusions



Area under SFM has increased significantly but is still a small proportion of the PFE


More work needed to strengthen information base

The PFE needs further clarification, and work to determine its extent, location and integrity

International technical and financial support often pivotal, including in use of C&I



FAO FRA Data Relevance to ITTO






- Around half of ITTO's 57 indicators covered or partially covered by FRA data tables
- Very relevant: extent of forests, designated function(s), characteristic (forest type)
- Relevant: ownership, growing stock, carbon stock, disturbances, tree species, growing stock composition, NWFPs, employment
- Less relevant: biomass, wood removals (JFSQ)




FRA and ITTO




- ITTO will continue to work towards and report on sustainable forest management in tropics
- ITTC requested SFM Tropics 2005 report to be updated for 2010
- Concepts important to ITTO (eg PFE, assessment of sustainability) being incorporated in FRA 2010



FRA and ITTO (cont.)




- Possibility of utilising common database, joint questionnaire approach
- Possibility of joint/shared analytical work for tropical countries, special study or studies
- ITTO has included coordination with/ support for FRA 2010 in 2008-2009 Work Program, more work to do to ensure major countries support this

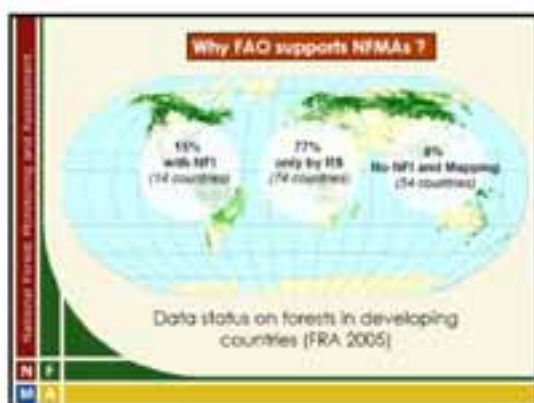
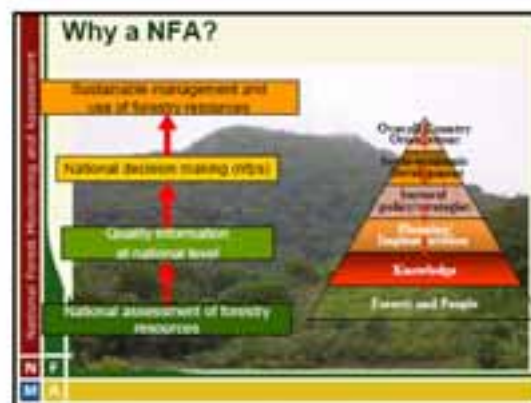



THANK YOU

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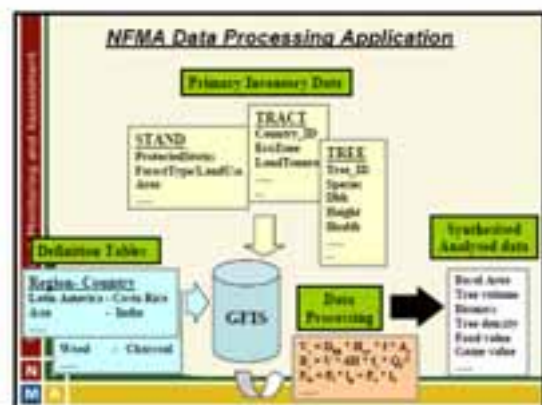
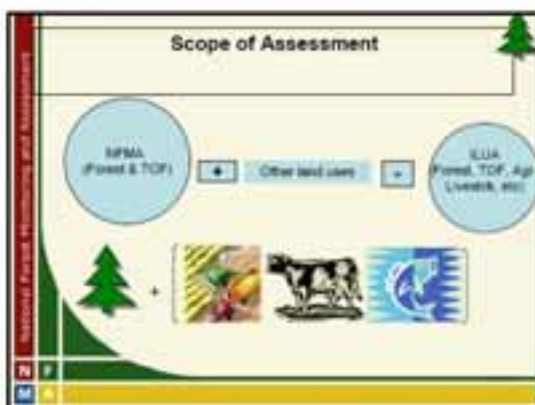
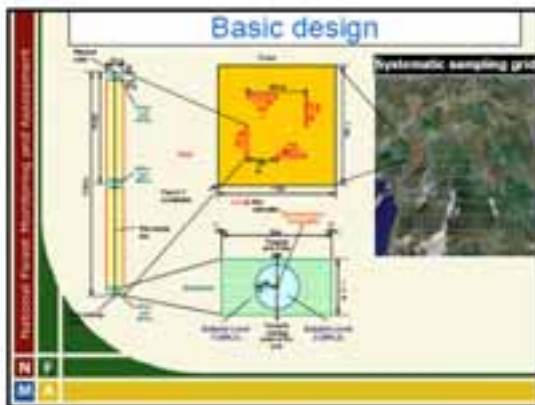
Annex 6.3: FAO support to National Forest Monitoring and Assessment



- Support to NFMA
- FAO Mandate
 - COFO
 - IPF and IFF

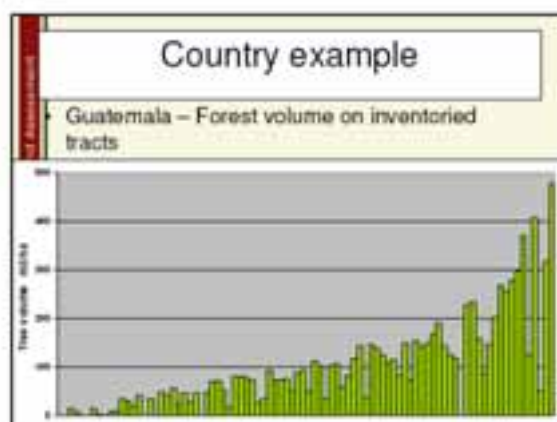
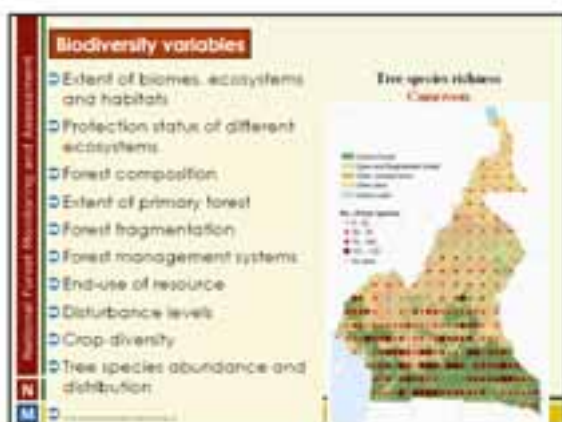
- How ?
- Through adopting holistic and cost effective approach to NFMA
 - Broadening & harmonising information to meet national & international users requirements
 - Data driven by decision making and inter-sector policy harmonisation
 - Support national policy dialogue and reporting to international processes

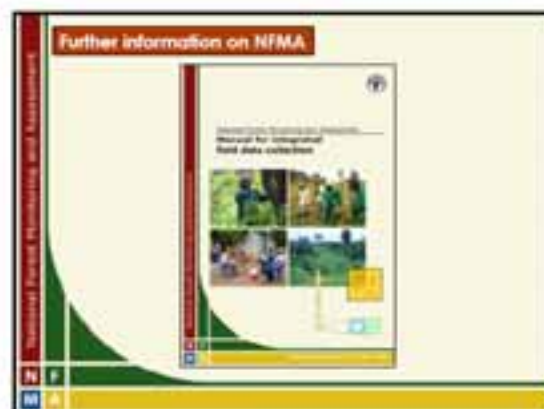
- Approach
- Capacity building
 - Improve knowledge (National Decision making):
 - State of resources in forests and TOF and their benefits (products & services)
 - Management, use and users of resources
 - Improve information management systems
 - Set up long term monitoring of indicators for national & international reporting (extent, growing stock, carbon, biodiversity, health, etc)



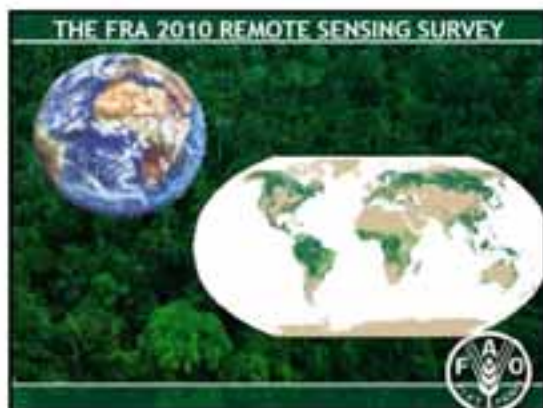
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Outputs of NFMA, basis for policy analysis			
	1 million	Forest 100	Corresponding FIA Tables
NFMA	Extent of forest, other wooded land & other land	1	11 Extent of forest & other wooded land
	Ownership	2	12 Forest ownership & management rights
	Designation	3	13 Forest designation & management status
	Forest characteristics	4	14 Forest characteristics
	Origin of forest and trees	5	15 F. establishment & regeneration
	Volume per land use category	7	16 Growing stock
	Biomass per land use category	8	17 Biomass stock
	Carbon per land use category	9	18 Carbon stock
	Forest fire	10	19 Forest fires
	Environmental problems	11	20 Forest fires & other disturbances affecting forest health & vitality
	Forest and tree health	12	
	Biodiversity (tree species)	13	
	Wildlife	14	
	Forest rights	15	
	Management & utilization policy analysis	16	
NFMA	Forest area	17	21 Forest area
	Forest area by land use	18	22 Forest area by land use
	Forest area by forest type	19	23 Forest area by forest type
	Forest area by forest class	20	24 Forest area by forest class



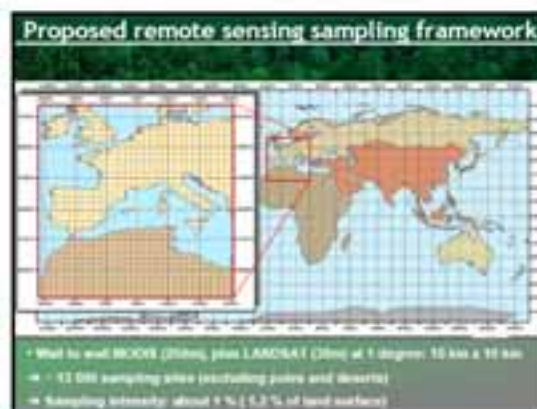


Annex 6.4: The FRA 2010 Remote Sensing Survey



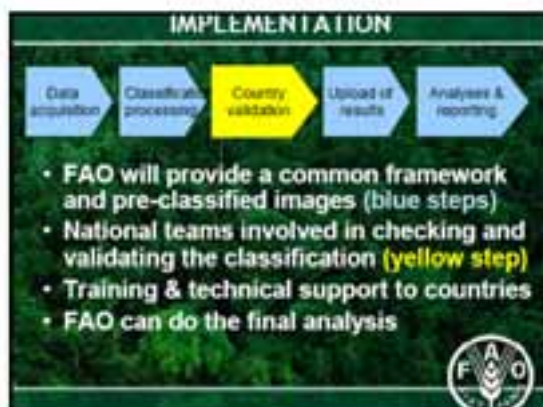
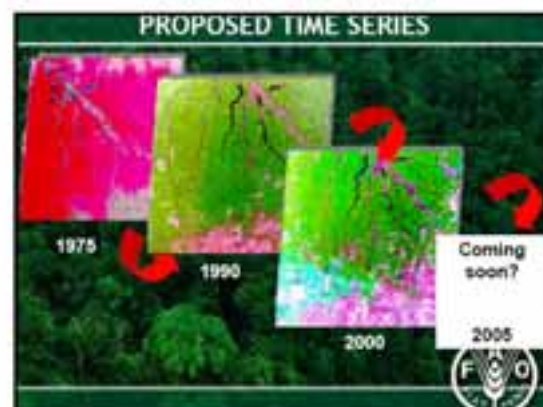
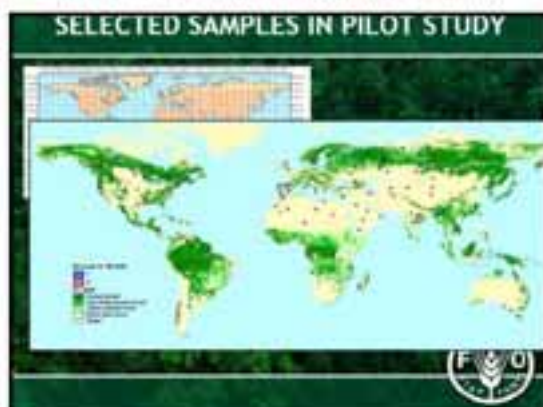
Why are we doing a REMOTE SENSING SURVEY?

1. Complement (not replace) National data
2. Global and regional maps of tree cover
3. Get TRENDS from more consistent data = show where changes are located
 - deforestation and
 - + afforestation



Pilot study to test the process

- The initial step will be to undertake a Pilot study to test and refine the process before global application
- 20 countries covering wide range of forest types participating in Task Force and Pilot
- using a subset of the global scenes selected across varied biomes



- ### EXPECTED OUTPUTS
1. Global and regional tree cover maps - (not intended to be used at national scale)
 2. Trends in regional, biome and global tree cover from 1975 (if poss.), 1990-2000 and to 2005
 - area change statistics
 - information on tree cover and dynamics
 3. Improved technical skills through capacity building
 4. A framework to support monitoring of forests, land use & environment
 5. Baseline data for further research & modeling

- ### Partners to add expertise and value
- Countries: national agencies, regional hubs
 - FAO
 - Joint Research Centre (Italy)
 - Universities (SDSU, UMD, Jena, Boston, Mississippi)
 - USGS/EROS data center
 - NASA
 - Heinz Center (US)
 - World Bank
 - UNEP
 - World Resources Institute, CI
 - GEO-C-GOLD
 - GEO Secretariat
 - Open to others

NEXT STEPS

- Finalise preparations for the remote sensing survey
- RSS Task Force set up to refine methods, advise & test the process
- 2008-2009: most of the work
 - Hold regional workshops, training etc
- 2010: Data analysis and prepare drafts
- 2011: Final report and maps



THANK YOU

More information is available from:

www.fao.org/fra

fra@fao.org



Annex 6.5: Evaluation of methodologies in the context of application of Remote Sensing Survey for the Global Forest Resources Assessment Programme

Evaluation of methodologies in the context of application of Remote Sensing Survey for the Global Forest Resource Assessment (FRA 2010) Programme

John Latham
Natural Resource Environment Assessment and Management (NREAM)
Food and Agriculture Organization of United Nations

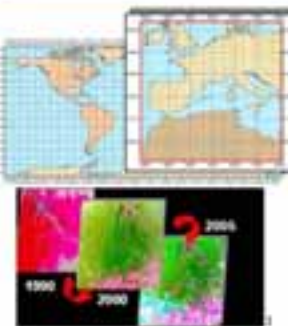
Rome, March 2008

Introduction

- Background and linkages
 - Global Forest Resource Assessment (FRA)
 - National representatives
 - International Partners
 - FAO - FOM, NRCE, EU-JRC, SDSU, University of Jena et al...
- Methodologies
- Functionality and Tools – Processing & Gateway

FRA 2010 – Remote Sensing Survey


- Specifically designed to cover the forest-related information needs for monitoring and progress towards the 2010 Biodiversity Targets, the Global Objectives on Forests of the UNFCCC and the Millennium Development Goals
- Over 220 countries will be covered
- A systematic sampling design (grid of blocks at 1x1 deg intervals) will be used
- The area covered at each sample site is 10 km x 10 km (with a 5-km buffer zone)
- Landcover images—dating from 1990, 2000, 2005 will be analyzed, initially
- Opportunity for broader utilization at country level



Activities

- Expert consultations to identify
 - Main activities and tasks
 - Input data sources
 - Legend
 - Minimum mapping unit
 - Processing environment
- Testing and assessment of various approaches and proposed methodology
 - Sample blocks creation and screening
 - Evaluation of methodologies
 - Information gateway
- Evaluation of software and tools
 - Mapping Device – Change Analysis Tool software

Sample blocks screening



220 sample blocks

Activity two - Methodology

Evaluation of different approaches to FRA change detection

```

graph TD
    Input[Input  
22 x 22 km blocks  
grid 1x1 deg] --> Visual[1. Visual]
    Input --> Pixel[2. Pixel-Based]
    Input --> Object[3. Object-Based]
    Visual --> Output[Output  
Transfer model to  
user features]
    Pixel --> Output
    Object --> Output
    Output --> Evaluation[Evaluation]
  
```




Food and Agriculture Organization of United Nations
Natural Resources Assessment and Management (NRCE)

FRA-RSS Information Gateway

The FRA-Remote Sensing Survey-Information Gateway is a web-based integrated system to manage data and information produced by the FRA 2010 programme activities.

It aims to:

- disseminate and share remote sensing and any other geo-spatial data relevant to the programme;
- facilitate global, regional and national monitoring efforts; ATIS
- implement a decentralized approach that ensures an increased involvement of countries in the assessment and mapping task.

Food and Agriculture Organization of United Nations
Natural Resources Assessment and Management (NRCE)

FRA-RSS Information Gateway

Provides controlled access to raw and processed satellite imagery, software downloaded, interpretations, pre-processed segments, auxiliary information, statistics, maps, and other information related to RSS assessments.

- Functionalities
 - search/ display
 - download
 - upload
 - users management
 - process status
- Guidelines/tools
- Features:
 - User friendly interface
 - Controlled access to various level of information
 - Online decision support tools

Food and Agriculture Organization of United Nations
Natural Resources Assessment and Management (NRCE)

Thank you!

Contact:
zohra.ghannouchi@fao.org

Food and Agriculture Organization of United Nations

Natural Resources Assessment and Management (NRCE)

10

Annex 6.6: Global activities of the Joint Research Centre in support to FRA 2010 Global Remote Sensing Survey

JRC
COMMISSION EUROPEENNE

Global activities of the Joint Research Centre
(within its Framework Programme)
in support to FRA 2010 Global Remote Sensing Survey

1. Geographical and temporal focus
2. Objectives and methodological approach
3. Outputs



JRC
COMMISSION EUROPEENNE

Objectives

- To produce estimates by region & biome of
 - Tree cover
 - Tree cover change with change matrix
- Not a national monitoring – but can link to the national level or be intensified
- Method:
 - A sample of sites across the globe for which satellite data are collected



JRC
COMMISSION EUROPEENNE

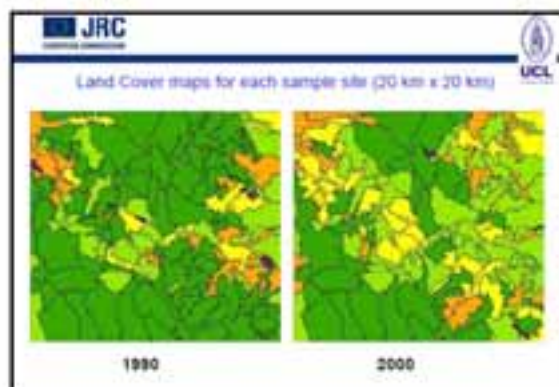
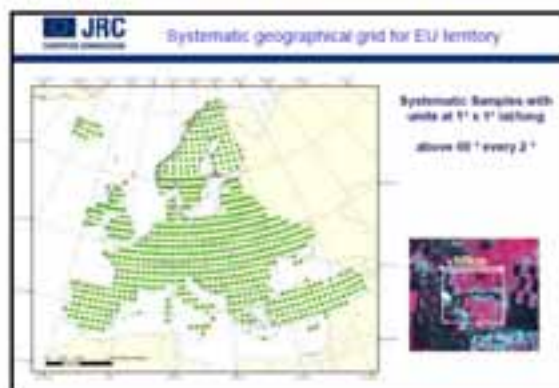
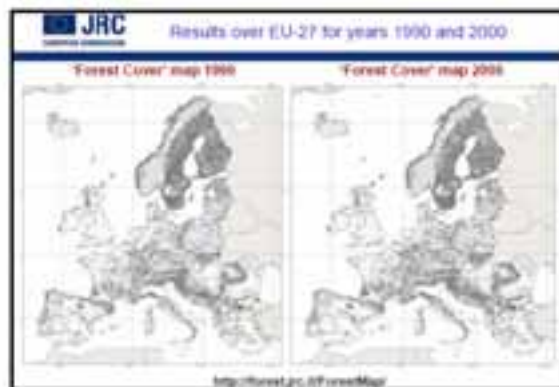
Satellite data for each sample site (20 km x 20 km)

1990 2000



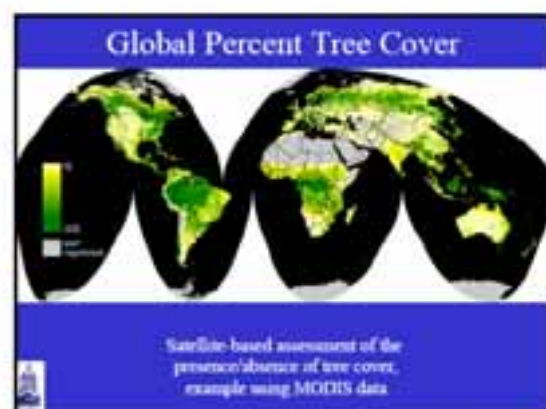
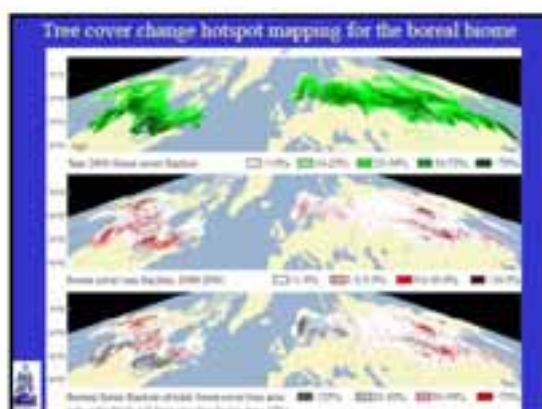
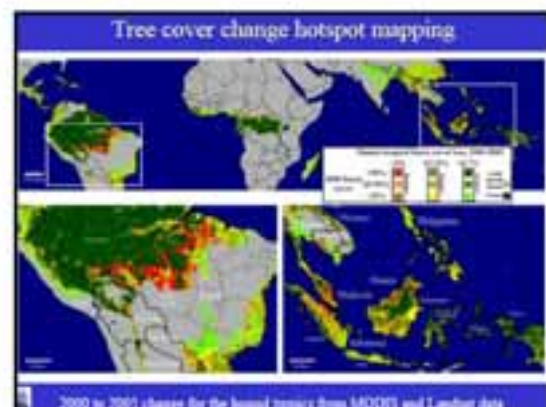
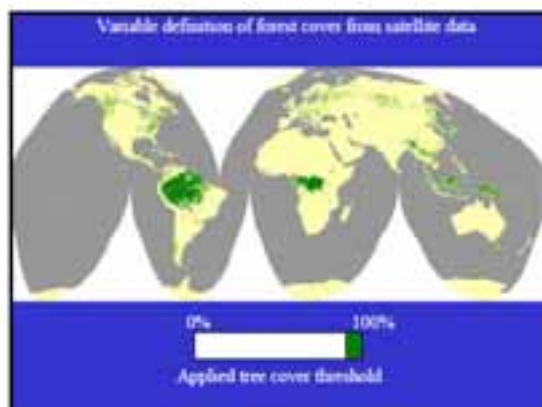
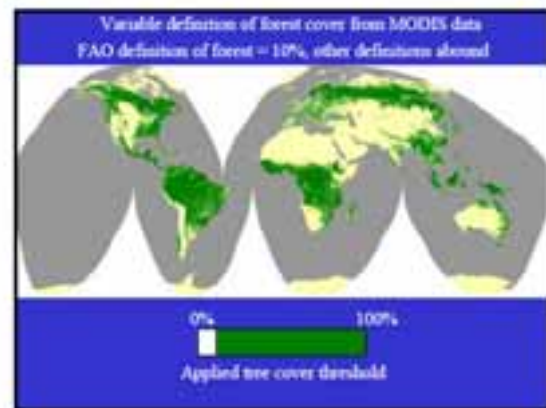
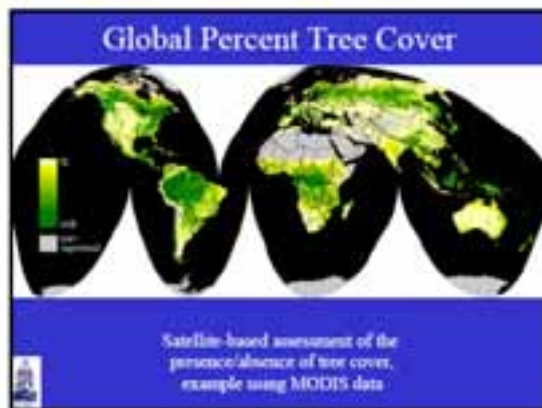
JRC What has been achieved so far

- Produced image data base and Forest Cover maps for European Union territory (1990 & 2000)
- Tested the methods over the Congo basin to produce Land Cover change statistics from 1990 to 2000
- Tested the sampling scheme with respect to full coverage as provided by INPE
- Tested an intensified sampling scheme with respect to a classical forest inventory (French Guiana)
- Created an image data base and screened the images for the Tropics

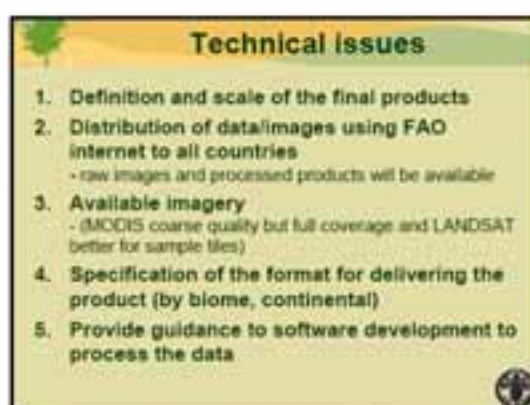
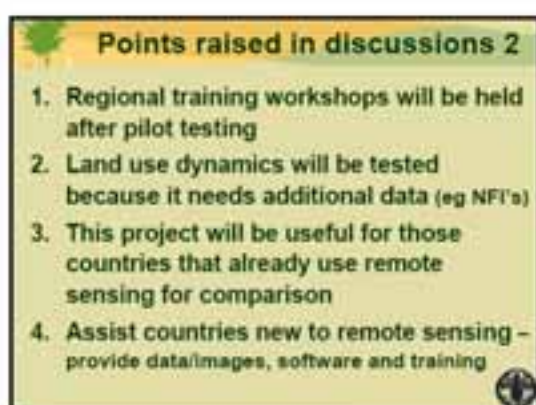
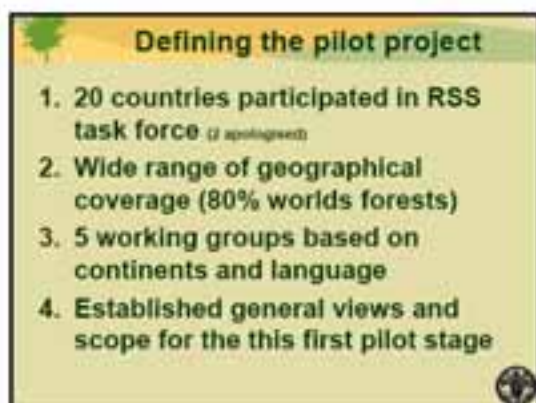
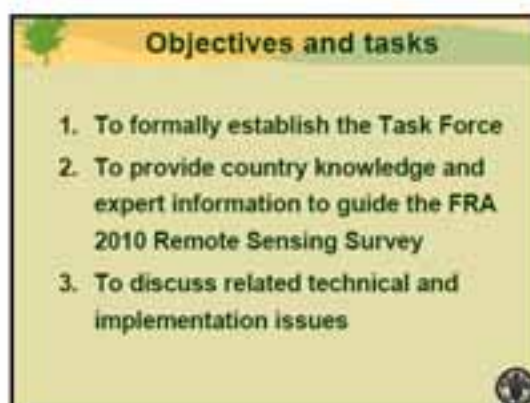


1. Screened preprocessed image dataset
2. Processed imagery
 - 2- levels segmentation
 - Preliminary Land Cover class labels
 - Change layer
3. Visually validated Land Cover products

Annex 6.7: New technology for forest cover mapping



Annex 6.8: FRA 2010 Remote Sensing Survey Task Force Report





Conclusion - product outputs

1. Global tree cover map (trees, non-trees, water bodies) –not in FRA tables
2. Tree cover area and change (+/-) for 1975?(will be evaluated)
1990, 2000
2005 (when ready, late 2008)
3. Task force countries will test and refine the FRA RSS methods before available for all other countries to use

