Forest inventory systems and the FAO/NAFORMA program:

Nurdin Chamuya
National Project Coordinator
MNRT

Soren Dalsgaard
Chief Technical Advisor
FAO-FIN

Regional Course on REDD+ MRV, NFI and Monitoring

Sokoine University of Agriculture, Morogoro, Tanzania

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Content

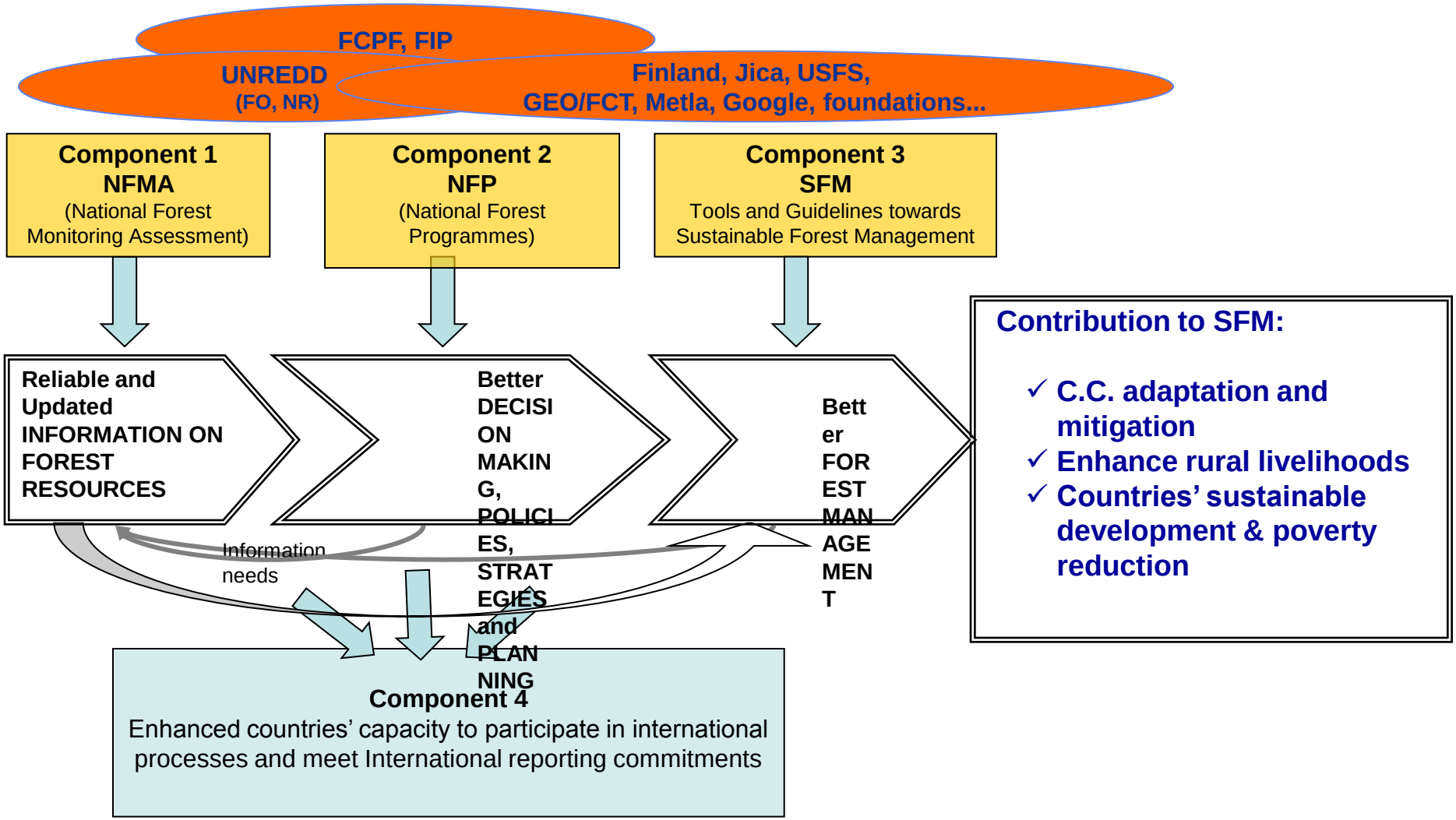
- Word of welcome
- FAO-FIN
- Brief overview of NAFORMA
- Main Activities
- Issues and Challenges

FAO-FIN

- Finnish Funded Support to sustainable forest management in a changing climate

FAO-FIN

- 4 year development programme for FAO HQ and pilot countries (2009 -2013)
- Budget USD 20 million + USD 2 million Zambia and USD 5,5 mill to Tanzania
  - HQ USD 9 million
  - Pilot countries USD 10 million
- Existing FAO tools => to develop innovative improvements, methods, tools and technology to meet new requirements
- Piloting in 5 countries (Tanzania, Zambia, Peru, Ecuador and Vietnam)


FCPF, FIP
UNREDD
(FO, NR)
Finland, Jica, USFS,
GEO/FCT, Metla, Google, foundations...
Component 1
NFMA
(National Forest Monitoring Assessment)
Component 2
NFP
(National Forest Programmes)
Component 3
SFM
Tools and Guidelines towards Sustainable Forest Management
Reliable and Updated INFORMATION ON FOREST RESOURCES
Better DECISION MAKING, POLICIES, STRATEGIES and PLANNING
Better FOREST MANAGEMENT
Information needs
Contribution to SFM:
✓ C.C. adaptation and mitigation
✓ Enhance rural livelihoods
✓ Countries' sustainable development & poverty reduction
Component 4
Enhanced countries' capacity to participate in international processes and meet International reporting commitments

Component 1. National Forest Monitoring and Assessment (NFMA)

Tool and method development for NFMA/MRV

- Inventory planning/design tools
- Local level socio economic/governance methodology
- Data base – statistical analysis, modeling
- Calculations = > Information systems
- RS tools (multi-source inventory)
- field inventories & RS for REDD+ MRV
- FRA special studies = > NFMA development
- Quality assurance & management tools for inventories

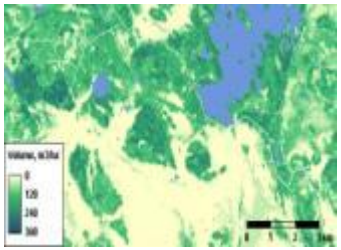
National Forest Information Systems

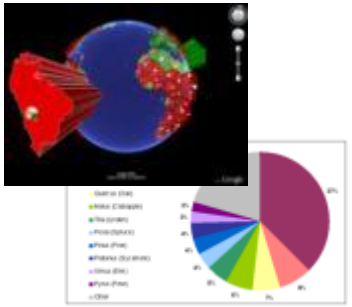
Design & Planning
Sampling design
Definition of variables
Field form preparation
Field computer setup
Field map production

Data Collection
Data entry from paper
Field computer software

Data Processing
Data validation & QA
Result calculation & analysis
GIS/RS analysis

Dissemination
Report generation
Online data and maps
Integration w/other systems





Component 2.
National Forest Programme

1 NFMA — **2: NFP** — 3: SFM

1. Support consensus, planning and **implementation of the forest policy** and its tools (i.e. Action plans, strategies, legislation, decentralization, etc).
2. Strengthen **Cross-sectoral dialogue** between forestry and other sectors, - Enhance participation and **contribution** of the forestry sector to **national development strategies**, programmes and international discussions, including those related to climate change
3. Enhance stakeholder **participation** and promote the integration of **poverty reduction** aspects into National Forest Programmes
4. Support **national financing strategies**, plans and mechanisms for SFM (including access to new CC markets)
5. Integrate **CC aspects** in National Forest Programmes and Policies, including strengthening **MRV governance (national and local)**
6. The **institutional capacity** to implement forest policy and legislation and to respond to new challenges, including climate change, and advance towards SFM

Special studies for NFP tool development:

- CC & NFP
- Integration of NFP & NFMA
- Governance for MRV
- NFP & economic planning

Component 3. Good SFM practices

a. Formulation of New International guidelines:

Guidelines for integrating climate change into forest management planning and operational practices

Guide to Forestry Practices and International Phytosanitary standards

Agroforestry guidelines for national policy and decision-makers

Component 3.Good SFM practices

b. Strengthen country and stakeholders capacity towards SFM through Good Practices Guidelines and tools :

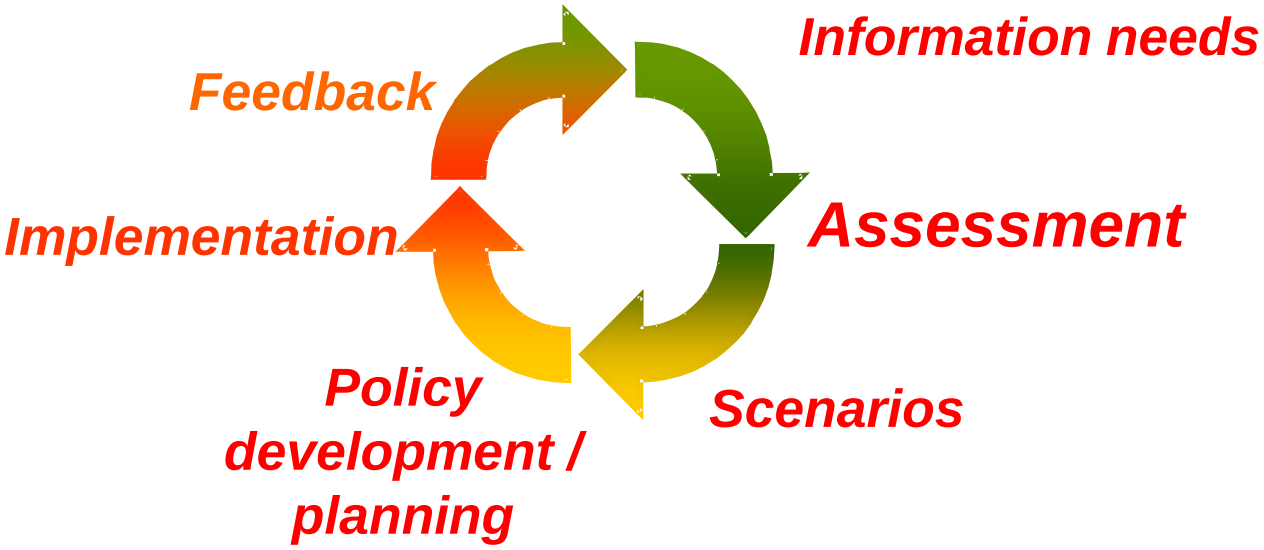
Based on Countries' priorities

- Tanzania ➢ Fire Management
- Ecuador ➢ Watershed management and planted forests
- Peru ➢ Plantation forestry *(ongoing discussion)*
- Zambia ➢ Land-use planning for REDD+
- Nepal ➢ Watershed management

- **Sustainable forest management is complex as well as are forest policy processes.**

- **Accurate and relevant information is one basis and precondition for good decisions;**

- **Forest inventories provide the required data to derive such information.**

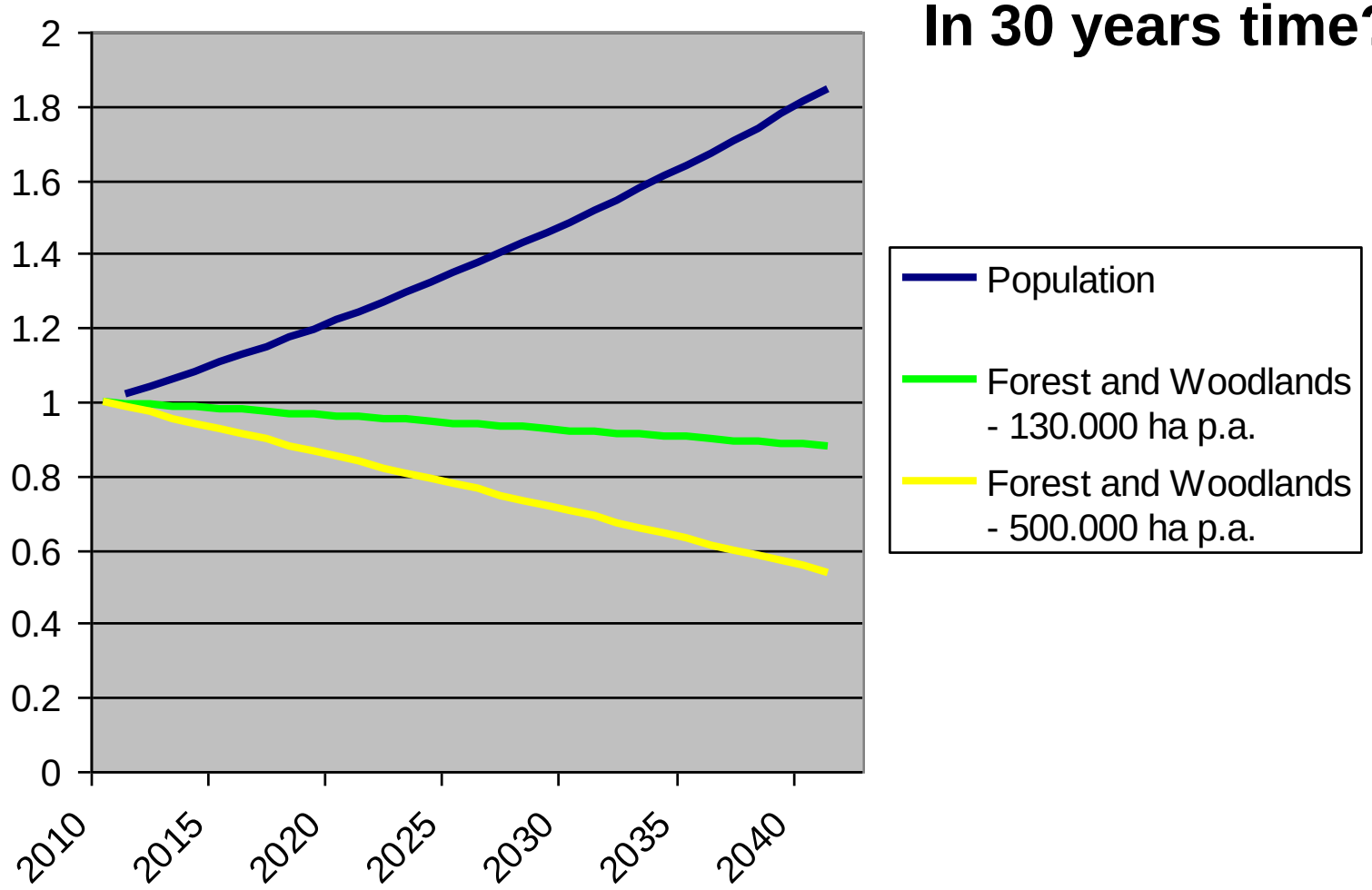


Complex problems require integrated and cross-sectoral solutions.

SFM is only one contribution.

Why Important?

In 30 years time?



Assessing the forest

Sample based NFI - No shortcut around plots on the ground.

- Remote Sensing is helpful and necessary but cannot do it alone.
- RS can provide spatial info and historic Deforestation rates
- Re-measurements of the sample plots on the ground can provide information on Forest Degradation.

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Thereby providing the needed info on the 2 Ds in REDD+

- Even without the Carbon and Climate Change issues there is still a hundred good reasons to do NFI.
  - Water management
  - Rural livelyhoods
  - Wood supply
  - Energy planning
  - Biodiversity conservation
  - Etc - just to mention a few.

Brief overview of NAFORMA

3 parties involved in compiling the NAFORMA Project Document (2007 – revised 2010):

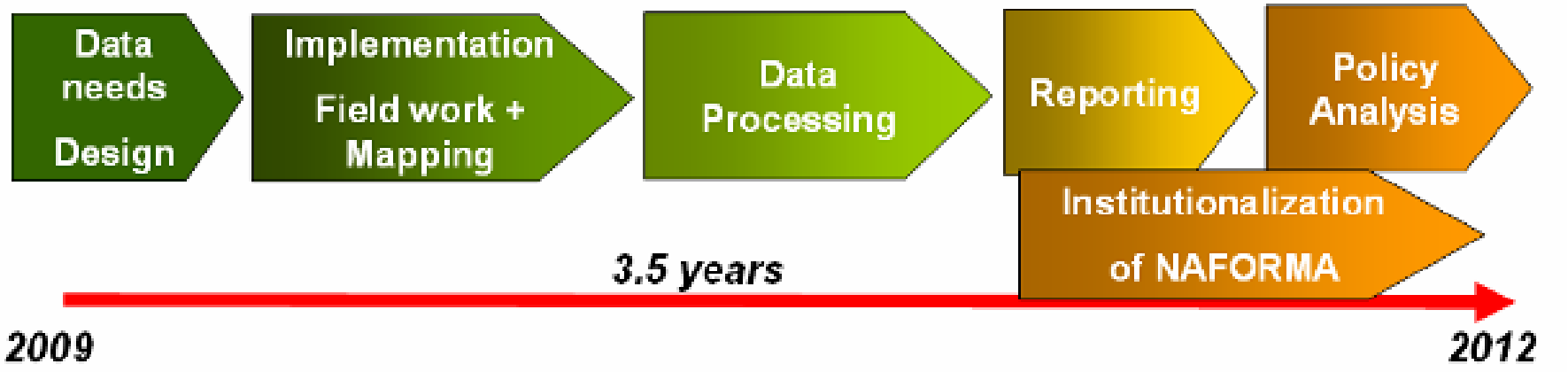
- Government of Finland, Donor (US$ 5.6 million over 44 months).
- Government of the United Republic of Tanzania US$ 794.200 + staff and office facilities.
- FAO logistical framework and technical support

+ additional technical assistance and methodological support through *FAO-Finland SFM in a Changing Climate Program*.

First nationwide inventory (mainland).

Biophysical and Socioeconomic data.

NAFORMA timeline

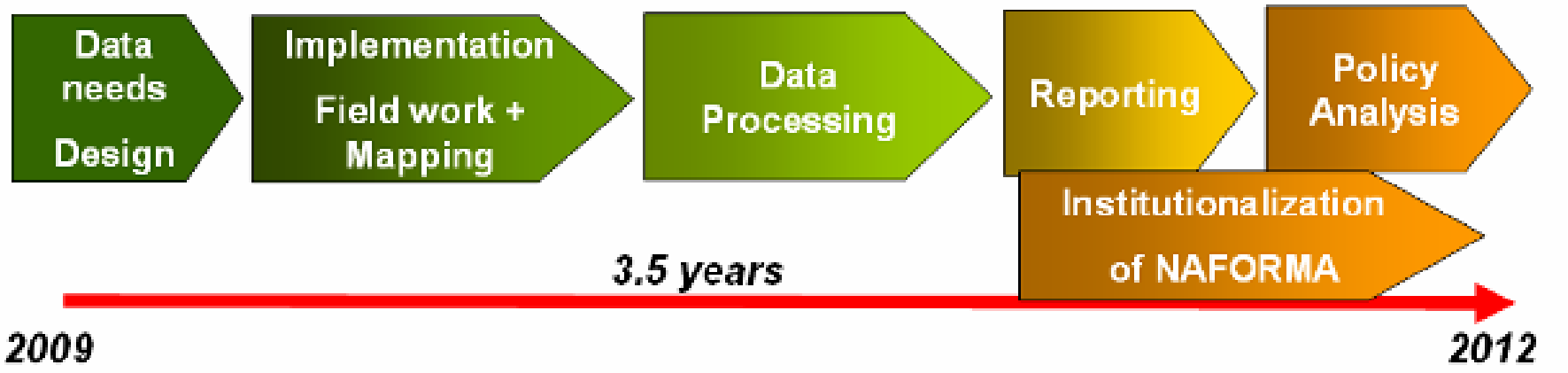


During initial stakeholder analysis and information needs assessment (2009) 2 main conclusions:

- NAFORMA should aim at providing information valid at SNU level
- NAFORMA should provide data compliant with a possible REDD+ mechanism

Thus need to make new sampling design and revise methodology

NAFORMA timeline



NAFORMA main components / Activities

Field Inventory
Mapping
Datamanagement
Quality Assurance

Objectives of NAFORMA 1/2

1. **Establish broad consensus** at the national level on the process and approach to NAFORMA in Tanzania, taking into account national users' information requirements for planning and sustainable management of the forestry resources and country's obligations of reporting to the international processes including GHG reporting and expected REDD+ MRV.

2. **Strengthen the capability of FBD** to collect, analyse, update and manage the needed information on forests and TOF for planning and sustainable management of the forestry resources and REDD+ MRV.

3. **Develop a national database** and information system on Forests and TOF.

Objectives of NAFORMA 2/2

4 **Prepare national maps** of forests and land uses based on harmonised classification and forest related definitions.

5 **Undertake a national assessment** of the forest and TOF resources with the aim to create an information base according to national and international requirements and to set up a long term monitoring system of the resources.

6 **Define long term monitoring programme** of the forestry resources, design specific and management oriented inventory in priority areas and formulate projects.

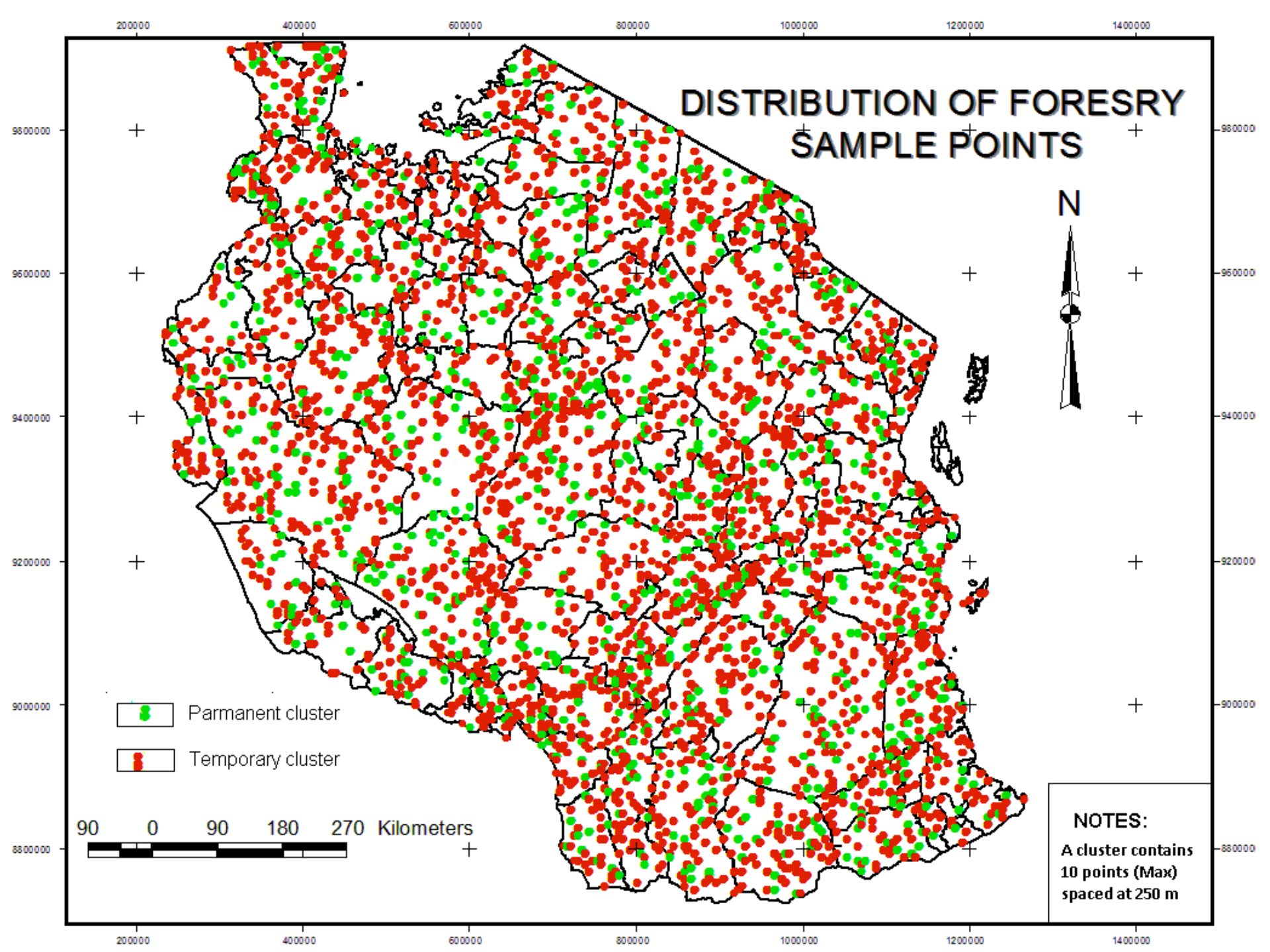
7 **Develop Tools and methods for integration of REDD+ MRV** to NFMA methodology

2009	
April - May	CTA fielded, launch
June – Aug	Information needs assessment, stakeholder consultations, FBD appointments
Sept – Dec	Sampling Design and methodology development. Recruitment of FAO NCs and Adm. Sec.
Dec	1st training of field teams

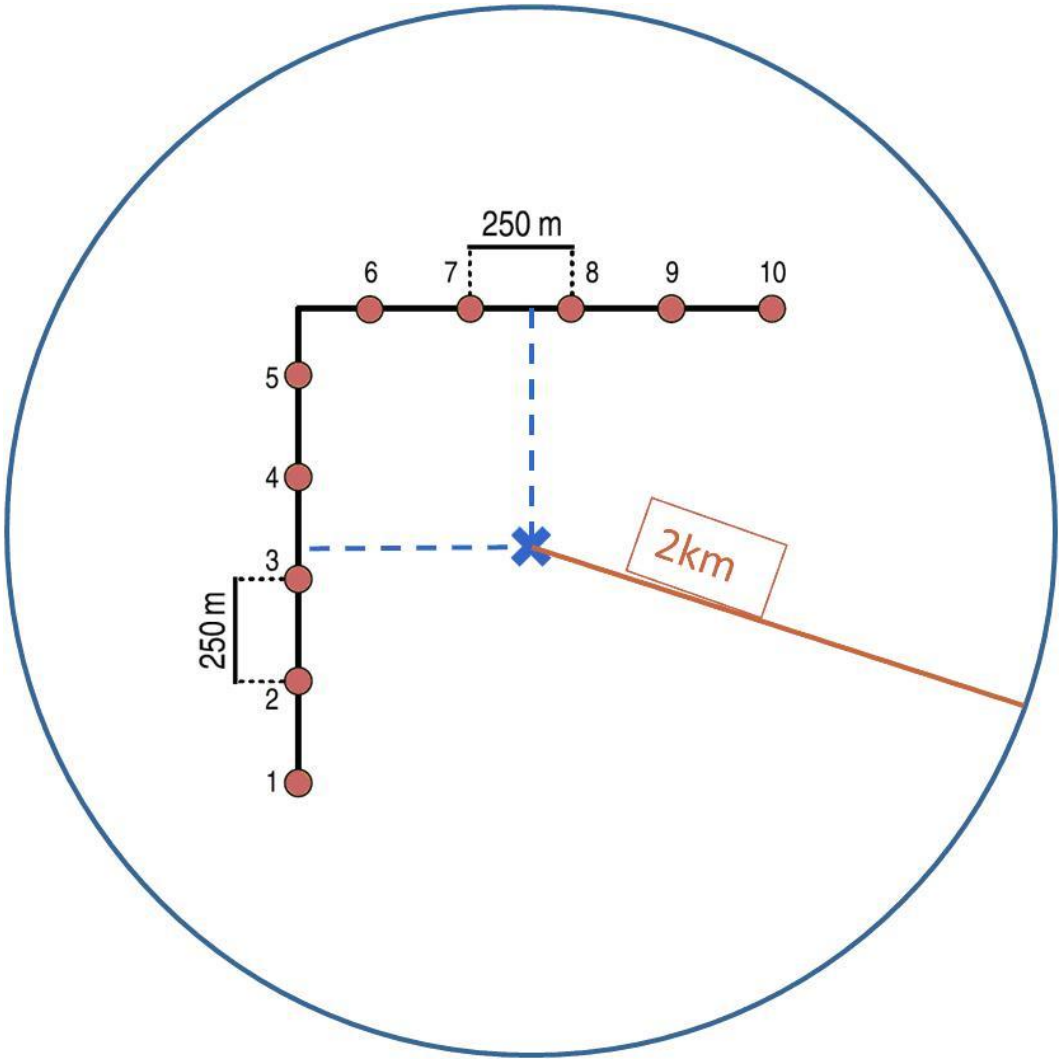
2010	
Jan – March	2nd and 3rd Training of field teams, Finalizing methodology and sampling design, manuals.
May	Start fieldwork (5 Field Teams, 1 QA Team, 1 Management Team). NAFORMA Database developed.
Nov – Dec	Eastern zone finished, manual revision (soil carbon and Forest Governance). Up scale fieldwork (10 field teams). Image acquisition for 2009/2010 LCLU map
Dec	Revised Project document, expanded scope, donor funding increased (From 2 million € to 4 million €). Project Document on support for NFP revision and SFM signed.
Throughout	Procurement, Data entry, Field map production

2011	
Jan – March	Fieldwork upscaled to full size. 16 Field Teams, 2 QA Teams, 1 Management Team (125 people)
Jan - March	Consolidated effort in NAFORMA mapping, change of NC – development of approach for LULC and Change Assessment.
March	Revised version of NAFORMA database. Currently being tested
March - Dec	Field work+ consolidated effort in datamanagement
March - Dec	LULC Mapping Forest Change Assessment Development of MSNFI approach

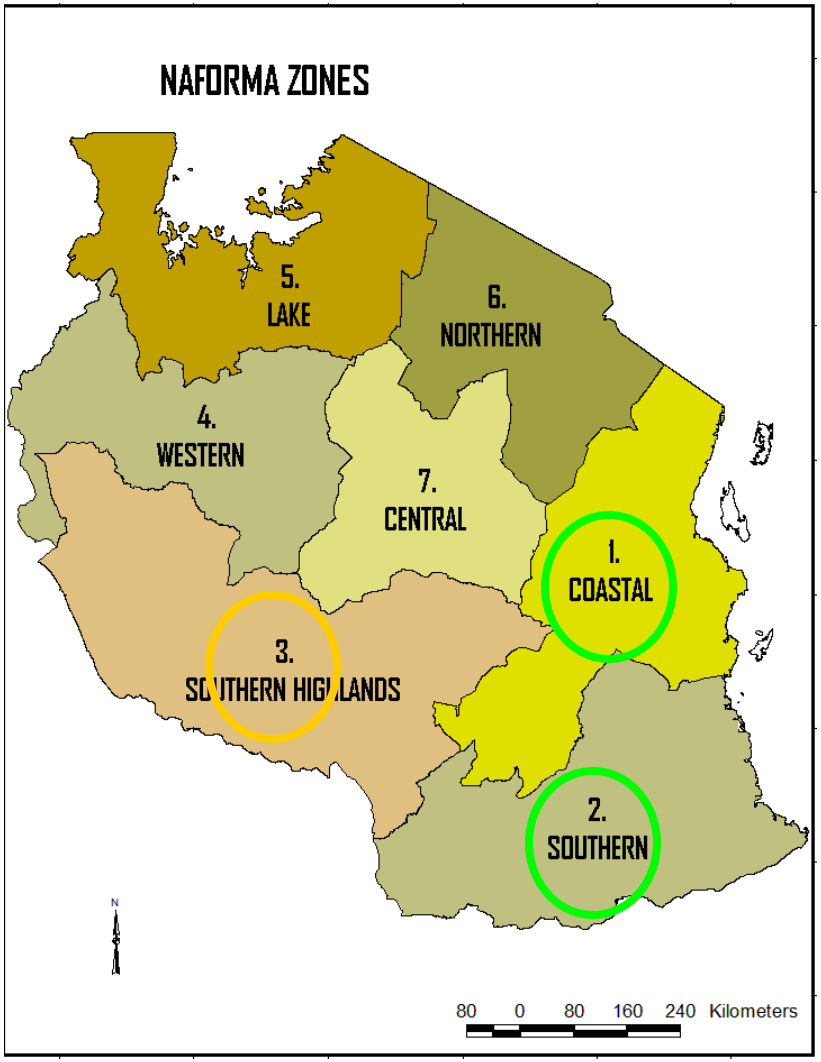
2012	
Jan – March	Finishing fieldwork.
Jan - Dec	Analysis and reporting
Jan - Dec	Institutionalizing NAFORMA


DISTRIBUTION OF FORESRY SAMPLE POINTS
N
Parmanent cluster
Temporary cluster
90 0 90 180 270 Kilometers
NOTES:
A cluster contains 10 points (Max) spaced at 250 m
200000
400000
600000
800000
1000000
1200000
1400000
9800000
9600000
9400000
9200000
9000000
8800000

Relationship between Biophysical and Interview components



Fieldwork



App 1200 out of 3351 sample clusters measured (35%).

Coastal zone
- Done in 2010

Southern Zone
- Done early 2011

April – May – break for rains

Southern Highlands Zone
– to be done by August 2011

Western Zone
– to be done by October 2011

Lake and Northern Zone
– to be done by December 2011

Central zone
- to be done by early 2012

How big is NAFORMA?

- App 110 people in the field:
  - 16 field teams
  - 2 quality assurance teams
  - 1 field management team

- App 20 people in the office
  - Management
  - Datamanagement
  - Mapping

Of which 12 are recruited by FAO full time

+ additional technical assistance and methodological support through FAO-FIN and short term consultancies.

Challenges

PAST

- Slow take off
- Slow procurements / complex procurements
- Slow progress in mapping 2010

CURRENT

- Field work and office logistics
- Stable working environment for mapping and dataentry (electricity and server)
- Ensuring data of high quality – QA System
- Maintaining motivation
- Other duties of staff
- Unexpected events

Challenges

CURRENT / FUTURE

- Sustainability
- Institutionalization
- Gradual phasing out of FAO staff
- Maintaining motivation

Linkages – FRA RSS

Change Assessment of NAFORMA / UNREDD, aims at:

- Establishing sample tiles over NAFORMA permanent sample sites (850)
- Assessing change 2010 – 2000 – 1990 – 1980 (if available)
- Possibly using FRA RSS software and methodology.

Linkages – Google Earth

- Google Earth Outreach MoU with FBD
- Google Earth pro used for:
  - Training areas LULC mapping
  - Updated field maps for field teams
- Piloting handheld electronic data entry (Android/ODK).

Linkages – UNREDD

- Close technical dialogue and consensus on change assessment and recruitments
- Common mapping unit at FBD
- Common trainings workshops

Linkages – LIDAR

- Upcoming LIDAR study Liwale 2011 – 2013 (University of Life Sciences Norway and Sokoine University of Agriculture) starting September 2011.

Linkages SUA

- NAFORMA soil samples are analyzed at SUA through letter of agreement


KAFORIMA


Ilala
Temeke
Mafia
Kilwa
Lushoto
Namtumbo
Nanyumbu
Songea
Lindi
Mbinga
Masasi
Kibaha
Tandahimba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