NAFORMA DB

National Forest Monitoring and Assessment Data Entry System

MNRT Tanzania

FAO-Finland Technical Cooperation

DATABASE MANAGEMENT

NAFORMA EXPERIENCE

Course on REDD+ MRV, NFI and Monitoring

Sokoine University of Agriculture, Morogoro – Tanzania

11th – 15th July 2011

Amina Akida

NAFORMA TWG – Database

FBD, MNRT

NAFORMA DB

National Forest Monitoring and Assessment Data Entry System

MNRT Tanzania

FAO-Finland Technical Cooperation

Contents:

- Introduction on the database
- Data management activities
- Status and future activities

NAFORMA DB
National Forest Monitoring and Assessment Data Entry System

MNRT Tanzania

FAO-Finland Technical Cooperation

A **database** is an organized collection of data for one or more purposes, usually in digital form

- To store the data for further processes of the project and meeting government needs of data/ information – **NAFOBEDA** (*Extent of resource; Ownership status; Stocking levels; Use status; Biodiversity extent; ToF; NTF*)
- To link the field activities and future desired results of the process such that will be able to e.g. meet REDD+ MRV requirements, FRAs etc.

NAFORMA DB

National Forest Monitoring and Assessment Data Entry System

MNRT Tanzania

FAO-Finland Technical Cooperation

- NAFORMA database has been designed to manage the collected data so that can be converted into electronic format. All the forms in the database are as is in the manual/ data collection sheets:
- ***Cluster data***
  - ***Plot Data - Biophysical***,
    - Tree
    - Regeneration
    - Dead wood
    - Etc. etc.
  - ***Socio-economic***
  - ***Key informants information***,
  - ***Household surveys:***
    - General information (A/B/C)
    - *Household Assets (D)*
    - *Food security (E)*
    - *Income and opinions (F/G)*
    - *Forest products and services (H)*
    - *Organization & comments (I/J)*

NB: The database is simple in its operation and can easily be learned & applied. It is based on XML – allows data to be exported and arranged into the desired format.

1. CLUSTER FORM

Cluster No.					
Region code					
District code		District name			
Crew No.					
Map sheet(s)					
Accessibility code					

Starting position *(where the field crew leaves the vehicle)*

GPS Y (Northing)	– °	'	. "	*Degrees, Minutes, Seconds (0.01)*
GPS X (Easting)	°	'	. "	

GPS Receiver model name			Real-time correction	yes / no
Direction to the 1st plot		degrees	Post-diff. correction	yes / no
Distance to the 1st plot		m		

Time study - Cluster

Date (dd/mm/yy)			
Start time (HH / MM)			*time when leaving the vehicle*
End time			*time when returning to the vehicle*

If return to the cluster

Date (dd/mm)		
Start time (HH / MM)		
End time		

Remarks

Data input to the computer

Date (dd/mm/yy)			
Name			

2. PLOT FORM

Cluster No.			Date		(dd/mm/yy)
Plot No.			Start time		
Share	%	in case of shared plot, fill in 2 plot forms	End time		
Permanent plot	Y / N				
Group Leader			District code		
Accessibility code			District name		
Plot location		*(00.01)*	Division		
GPS Y (Northing)	° ' . "		Ward		
GPS X (Easting)	° ' . "		Village		
Direction to plot centre		degrees	Forest name		
Distance to plot centre		m	Slope		%
Description of plot centre					

	number	*file name* (CxxxxxPxx.jpg)
Photo		

In the plot

Land use		Damage	Severity	Soil depth		cm
Vegetation		(1)		Soil colour		
Ownership		(2)		Soil texture		
Canopy coverage	%	Plantation forests:		Soil structure		
Undergrowth		Planting year		Soil collected	Y / N	

Surrounding the plot

				Estimated time
Erosion		Human impact (1)		years ago
Grazing		Human impact (2)		
Water catchment		Human impact (3)		

Non-timber forest products and services

NTFP (1)		Management proposal (1)	
NTFP (2)		Management proposal (2)	
NTFP (3)			

Biodiversity (1)		*Specify*
Biodiversity (2)		
Biodiversity (3)		

Remarks

On slope apply the Slope Correction Table!

3a. SHRUBS

Plot radius: 15 m

Cluster No. | | |

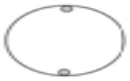
Plot No. | | |

Shrub coverage class | | **0**: No data; **1**: <10%; **2**: 10 - 39%; **3**: 40 - 69%; **4**: > 70%

Mean shrub height | | m

3b. REGENERATION

Radius: 1 m (2 sub-plots)



No.	Species code	Species name (+Dialect)	Number of seedlings and saplings: 10 cm tall - DBH< 1 cm
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Remarks

NAFORMA

4. TREE FORM

Cluster No. _____

Plot No. _____

Tree No.	Stem #	Species code	Species name (+Dialect)	DBH (cm)	Health	Origin (N/P/C)	Sub-sample tree data *Every 5th tree in the cluster*				Remarks	Marked
							Stump diam. (cm)	**Stump** height (cm)	**Total** height (0.5 m)	**Bole** height (0.5 m)		

Number of trees to be carried to the next plot for sub-sampling: _____

Form No. 4, Version No. Draft 13.1.2010

5a. DEAD WOOD

Cluster No. _____

Plot No. _____

Plot radius: 15 m
Min. diam.: 10 cm

Tree No.	Species code	Species name (+Dialect)	Diam 1 (cm)	Diam 2 (cm)	Length (0.5 m)	Number of stems	Decay (S / R)	Remarks
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

5b. STUMPS

Plot radius: 15 m
Min. stump diameter: 10 cm

No.	Species code	Species name (+Dialect)	Diam. (cm)	Height (cm)	Possible use(s)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

6. BAMBOO

Cluster No. ____

Plot No. ____

Plot radius: 15 m

No.	Species code	Species name (+Dialect)	Alive=A Dead=D	Average diameter (cm)	Average height (0.5 m)	Number of stems
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Remarks

NAFORMA DB
National Forest Monitoring and Assessment Data Entry System

MNRT Tanzania

FAO-Finland Technical Cooperation

WORKFLOW FOR DATA MANAGEMENT

- Data handling
- Data entry
- Data validation and Error checking
- Back-up and storage – within computers, external storage and server
- Updated backups - Rome for preliminary **analysis**
- Performance Report
- Data extraction

Data handling

- Field – register
- Hq - register – store

Data entry

- personnel,
- skills,
- equipment

NAFORMA DB
National Forest Monitoring and Assessment Data Entry System

MNRT Tanzania

FAO-Finland Technical Cooperation

NAFORMA Quality Control Chart

Feedback to field teams (same day)

Field Teams

Data Collection

Filled out field forms

Feedback and instructions

Fieldwork Management

Coordination

20 % of clusters controlled

10 %

10 %

Permanent Sample Clusters

Temporary Sample Clusters

Quality Assurance Teams

Control Measurements (4 plots /cluster)

20% of clusters entered controlled after measurement

80 % *Of clusters entered directly*

Data Entry Team

Data Entry

Data Entry Team

Data validation

Data ready for analysis

Feedback to data entry

Head TWG Database

Data entry checklist

Data validation checklist

Control measurement checklist

4 Weeks

NAFORMA DB
National Forest Monitoring and Assessment Data Entry System

MNRT Tanzania
FAO-Finland Technical Cooperation

DATA VALIDATION

Checking of quality on data entry is one of the aspects of **Quality assurance** activities in NAFORMA.

Data check on the entered data is done by the Team regularly - minimize amount of error.

- Data validation mechanism was developed and incorporated in the system. The Validation system give warnings if the values entered are incorrect, - check missing values;
- Using the validation system, several errors are observed in the database.

NAFORMA DB
National Forest Monitoring and Assessment Data Entry System

MNRT Tanzania
FAO-Finland Technical Cooperation

ERRORS and their Sources

There are three sources of error – Errors from field; errors from data entry and errors from the system design.

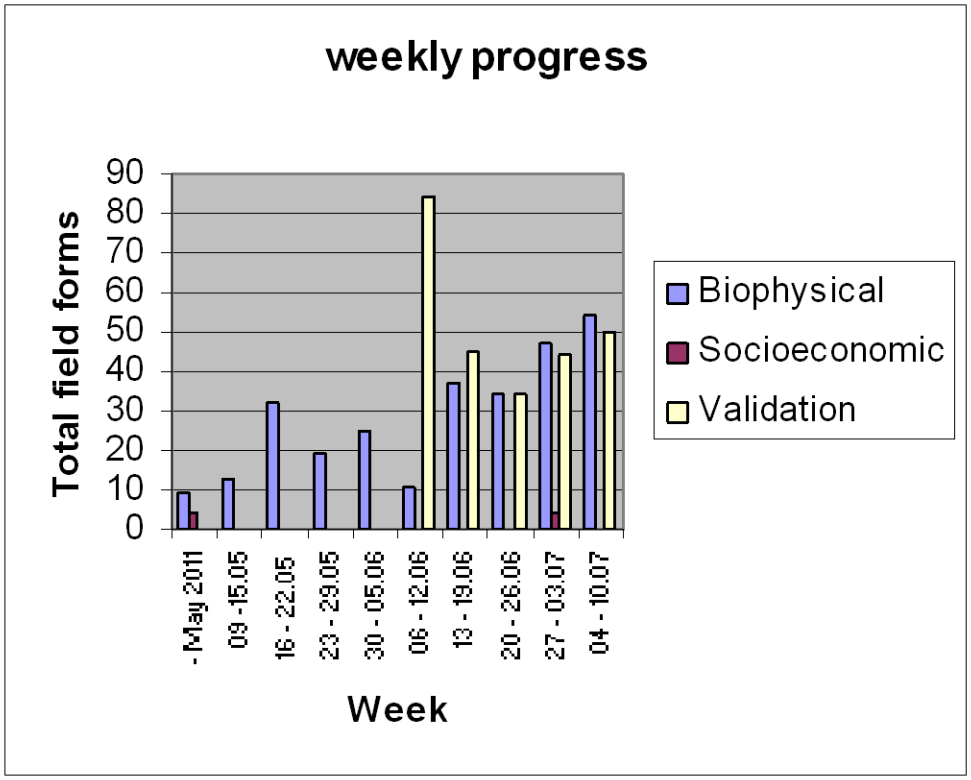
- From field errors include: unclear notations, recording more than one code, some missing data, logic of some recorded values of the parameters etc.
- From data entry errors are such as: recording some wrong information as is in the field form, skipping data, using un-expected notations, etc.
- The system design errors are such as – Limitations to some measurements/ recorded values of the parameters cf. given range in the guideline,

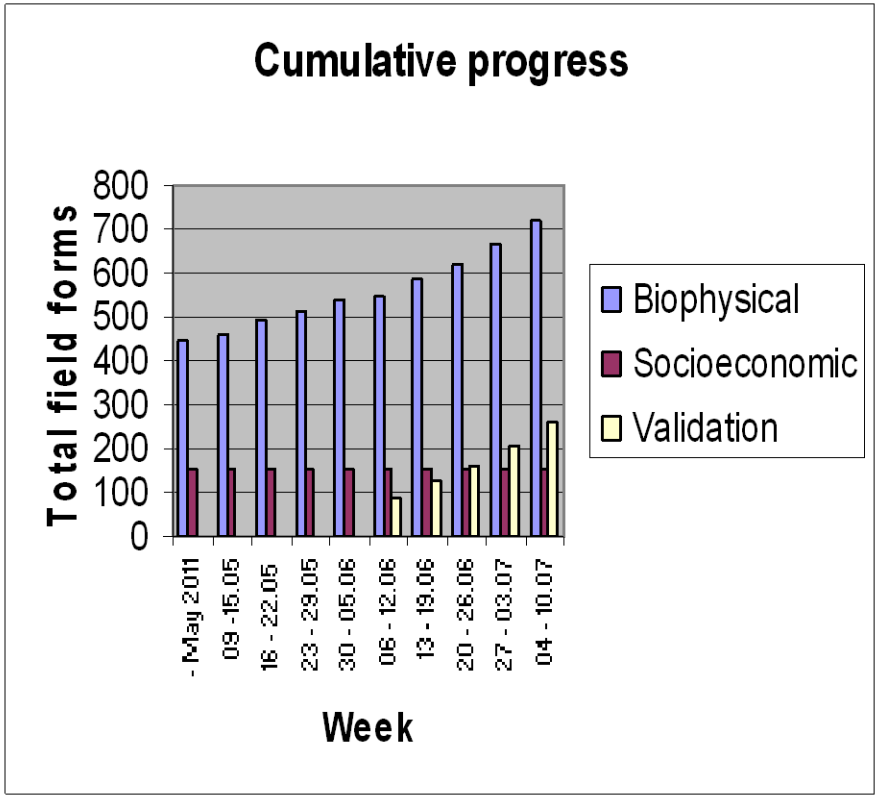
Reporting ERRORS

- Errors from Data Entry are corrected on the DB immediately when discovered,
- Errors from the Field Forms may be corrected on the DB and on the Field forms. If corrected photocopies of the particular Field forms pages are taken and filed for feedback. Continuously reported to NAFORMA field supervisors to inform the teams.
- Errors due to system design were reported to developer to make improvements into the system

Performance Reporting

- Input – output recording -regularly





DATA MANAGEMENT PROGRESS

- There is backlog of field forms

(All 3349),

(1255 field done),

(entered in DB – *700*)

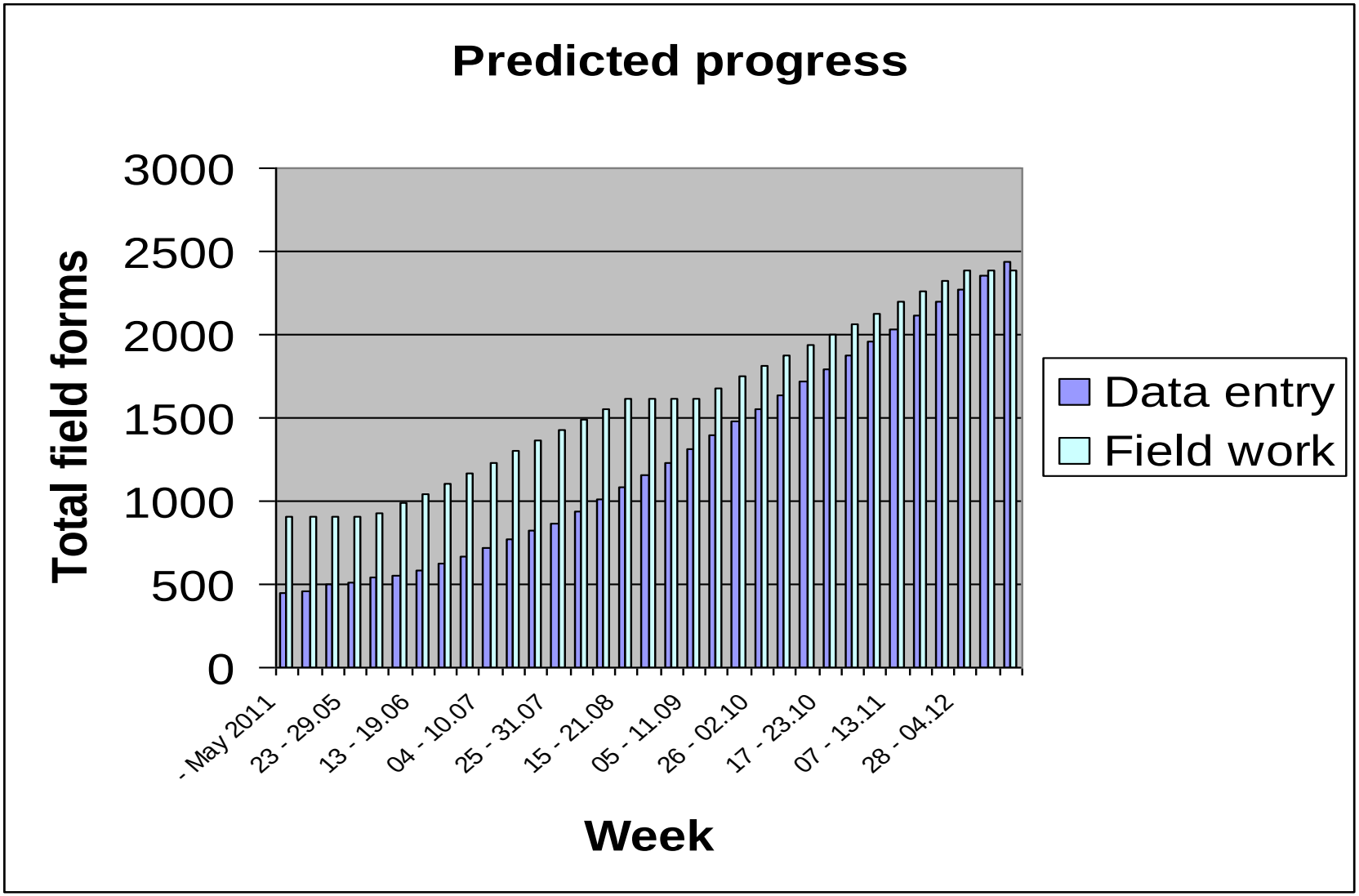
Data entry activities depends much on field inventory activities –

NB: the data should not be old**.**

Way-forward

- Continue with data entry work + associated aspects
- **Plan for data analysis,**
- **Integration of inventory information with mapping**
- Plan for NAFORMA reports writing,
- Plan for dissemination,

Progress:


Predicted progress
Total field forms
3000
2500
2000
1500
1000
500
0
- May 2011
23 - 29.05
13 - 19.06
04 - 10.07
25 - 31.07
15 - 21.08
05 - 11.09
26 - 02.10
17 - 23.10
07 - 13.11
28 - 04.12
Week
Data entry
Field work