Ministry of Natural Resources and Tourism

Tanzania Forest Service (TFS)

NAFORMA Data Sharing Guidelines and Communication Strategy

Ref. # M07-2013

Dar es Salaam

September 2013

NAFORMA Data Sharing and Communication Strategy was prepared by Tanzania Forest Service in collaboration with:

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Chapter One: Background

Introduction

During the launching of the NAFORMA Findings in May 2013, the Minister for the Ministry of Natural Resources and Tourism emphasized:

> *NAFORMA data is not for exclusive use by the Ministry of Natural Resources and Tourism or our Tanzania Forest Service (TFS) or the organizations we work with. National Forest and Monitoring and Assessments (NAFORMA) will not be treated in that way. Rather it is a national resource to be accessed and utilized by every ministry, researcher, Local Government Authority, CSOs, Private-sector Company and all citizens. Our responsibility will be to make access to the NAFORMA information as universal and as easy as possible."*

This was a clear articulation of the foundational basis for developing a communications strategy to link potential users to NAFORMA and promote their sharing of its data-base.

In May 2011 during the Mid-Term Review Consultation, the importance of a data-sharing guide and strategy was discussed. It was agreed that NAFORMA data should be made accessible to the public through development of a web portal through which as much data as possible would be made freely accessible. At the same time it was recognized that sharing sensitive material, so called "sensitive data" that might compromise the privacy of individuals or national security will not be possible. It was also recognized that non-sensitive data in the raw format should be accessible only by institutions and only in cases where a Memorandum of Understanding (MoU) is signed between the institution and the TFS regarding extent of data to be shared, purposes, research and publication plan, capacity building element etc.

Recommendations emerging from *the final workshop on key findings of the* NAFORMA, which took place from June 10-13, 2013, signalled strong agreement that the successful completion of the initial phase of the NAFORMA initiative must be followed without delay by the launch of a comprehensive and holistic program for utilization. There was also widespread agreement that promotion of utilization must go well beyond the normal, narrow circuits of academic conferences and workshops that serve only very limited numbers of professionals – the common fate of intensive data-gathering exercises such as NAFORMA. In the end the NAFORMA exercise will be judged a "success" only if it stimulates a dynamic change process at every level within the forestry sector.

The rationale for developing a Data-Sharing Guidelines and Communication Strategy

This broad consensus provides a powerful backdrop against which to initiate an innovative strategy, which includes:

1. Broad promotion of the NAFORMA-Data Sharing Guidelines for data and dissemination and use.

2. A functional structure to develop and maintain the NAFORMA Portal.

3. A flexible framework to create awareness around and engage stakeholders to utilize the NAFORMA data.

Summary of Methodology

The approach adopted several methods to:

1. Understand the current culture of communication among state and non-state actors to ensure that any proposed action plans will suit their ways of working.

2. Identify knowledge and information in action – examples of good practices as well as barriers around information and knowledge sharing to provide some understanding of how NAFORMA Data Sharing Guidelines can be implemented.

3. Imagine what benefits communications can bring both to individuals and to the wider organisation.

To achieve the objectives, the methodology included several ways to create a comprehensive lens through which to draw out stakeholders' opinions:

1. An online questionnaire provided the opportunity for as broad a range of stakeholders as possible to participate.

2. A "knowledge café" with stakeholders that included sessions for "reverse brainstorming" which stimulated discussions around challenges and solutions for building an effective data- sharing communications strategy.

3. "Anecdote circles" provided stakeholders at district and regional levels with opportunities to consider the communication issues in familiar environments with peers they knew.

4. Through internal observations and external benchmarking, actual communication patterns within the ministry and between the ministries and other stakeholders were observed.

National level stakeholders participating in Knowledge Cafè

5. Opinions and information were solicited from Information Technology (ICT), geographic information system (GIS) and policy experts based on their experiences in web design and data management.

6. Community level oral history sessions examined what works to share knowledge in rural communities.

7. Literature reviews of various policy, strategy, and theoretical documents and reports shed light on communication designing and implementing communication strategy and sharing guidelines for full access of information.

The consultant also drew on experience with communication and knowledge management in Tanzania and elsewhere on the Continent. The work was characterized by a combination of intention and improvisation, detailed design and redesign in response to changing insights and circumstances. The experience for the client during the assignment is often more significant in its influence than the final written report. The objective was to try to make every aspect of every encounter counted and provided benefit to the client.

Often reports from consultants are shelved and leave little lasting impression, the result being that much of the work done is for naught. Thus it is important to make each report a working document that allows and encourages space to grow – an invitation to further dialogue to identify opportunities to work together; this report is a working, dynamic document that enable client and its stakeholders to shift patterns as new ideas are germinated through dialogue and discussion.

Overview of this document

- Chapter ONE provides background.

- Chapter TWO discusses broad communications-related issues that need to be kept in mind in the context of designing the NAFORMA knowledge-portal.

- Chapter THREE addresses the theoretical framework required for an effective communication strategy.

- Chapter FOUR discusses guidelines for sharing the data, emphasizing that NAFORMA data must be broadly accessible to as wide a range as possible of potential users within and outside the country including the members of the general public. At the same time there is recognition that while the guidelines must allow free and fair access over all, some data considered "sensitive" and raw data will be accessed only through special arrangements between TFS and approved organizations. To further protect data on sensitive issues, privacy of individuals and national security as defined by national legislation, some data may also be categorized as "non-shareable."

- Chapter FIVE presents some key requirements to establish and maintain an effective, user-friendly web portal and to identify actions to consider in designing and maintaining it.

- Chapter SIX proposes a portfolio of actions to disseminate NAFORMA to all stakeholders including rural communities.

- Chapter SEVEN presents critical guidelines to bring the communications strategy to reality.

What follows should be considered a working proposal — inputs to assist the technical people and stakeholders to shape a proposed portfolio of actions for effective and efficient NAFORMA data sharing and utilization. This is a starting point, which will necessarily need review, and revision as the TFS gains experience with data sharing and as the user community provides feedback. The current version is, therefore, the first attempt to define the guidelines and proposed actions needed to ensure that the NAFORMA data and information is put to optimal use with the ultimate aim of promoting more sustainable forest management in Tanzania.

Chapter Two: Patterns of Communications Practices

Introduction

In order to implement full access and sharing of NA-FORMA data, eight performance patterns are presented to help all levels of government and stakeholders begin to understand issues around managing and utilizing NAFORMA data.

Pattern Descriptions

Information Accessibility. How is information accessed and released in Tanzania? It appears that there are no clear guidelines to access the information of state and non-state institutions; what limited information is available on the websites of departments and agencies is free, and access is open to all. Unfortunately it is too often outdated. This highlights that regular review and proper maintenance must be underlying mandates for any site that wants to have a *raison d'être* for continued existence. Reviews should identify what modifications may be required to refocus in consideration of user needs.

When information that exists is unavailable on the internet, the common practice is to make an application for access to it to the department that holds it. However the approval process is slow and tedious. Generally responses to requests for information access are not adept or efficient.

Organizational context. What is the commitment to share and seek information? Evidence indicates that the success of knowledge utilization in Tanzania greatly depends on the championship of politicians. Typically, external knowledge that brings political payoffs is more likely to be shared with a larger audience. Also local authorities are the focal point through which to reach out to communities; consequently they are inundated by requests from the central government.

Some opine that the media should be doing a better job, however media people in most parts of the country claim that they are not sufficiently informed to present stories about development. They are only called on when officials want them to cover speeches or promote projects. This contributes to an overall lack of depth and the disinclination to "seek out" on the part citizens when it comes to searching for knowledge or demanding or initiating access to information.

Strategy Design. How often is communications design included during the development of a project?

There is often much "consultations" with high level stakeholders at the design stage of projects. Often when a communications strategy is included, it is more an after-thought than integral to a project, and then the strategy often relies on a campaign which too often fails to focus on the real needs of the end users of the information or actively engage them in a process for change.

Innate Intelligence. How well does the mix of external and internal knowledge support the development goals, especially at local level? A truth too frequently ignored is that people typically know what will work and what will not work in their situation. There is much inherent but often tacit knowledge to be found within most communities – and considerable intelligence which is too little recognized. Perhaps one of the most common resources available in rural communities is "social capital" – a significant dimension that is largely ignored in economic and development explorations, and seldom thought of as an important resource through which knowledge held by rural people can be transferred amongst their peers. Usually it is a case of "experts" and "specialists" from outside telling community people what they should believe and what they should be doing to improve their lives. Intended beneficiaries are regarded as "targets" ripe for the selling of new ways of doing things that may or may not be appropriate, practical or sustainable culturally, economically, or socially.

Institutional memory. How are experience and lessons passed on? While much information may be being acquired through research and training there are real questions about how it is being retained for future use. In many institutions, including Government agencies, knowledge acquired remains "owned" or controlled by individuals, and so may not be easy to retrieve. If the one controlling the knowledge should not wish to share it or fails to see any benefit to doing so the most likely solution will be to accept his/her decision on the matter. There are also issues when staff members are transferred or retire; knowledge "owned" or controlled by them often goes with them and is lost to the institution. History suggests that it would be wise to have in place mechanisms to centralize and manage data and information so that organizations will be less vulnerable to losing "institutional memory" when officers retire or are transferred.

Information Infrastructure. What is the impact of advanced information technology in sharing the knowledge? Storytelling is part of the culture in many parts of Africa and this cultural feature should be more widely utilized for development and perhaps can and should be cultivated on the web. Recent experience of the most utilized development-oriented African websites (APDev and AfDB) is instructional: on both the number of African visitors has declined while, ironically, the number of visitors from outside the continent has remained constant. There are several possible reasons for this, just one of which may be the formats which could possibly benefit from inclusion of more "storytelling."

But there are no doubt also infrastructure issues. While the use of ICTs is increasing rapidly in Africa, a fact that cannot be ignored is that many internet users or would-be users experience frequent power outages and poor infrastructure. Furthermore, in many parts of Tanzania, internet services simply are not available at all. Even when they are, the cost is so high that many potential users cannot afford it. Another problem is that websites, set up with high enthusiasm, can become "white elephants" that attract fewer "hits" than expected and having little or no impact when it comes to advancing knowledge or contributing to its better management – often simply because they are not maintained.

While community radio is recognized as having very significant potential as a "local" medium, here too costs limit its wide-spread use. Furthermore technical capacity and techniques to utilize radio fully to engage audiences are recurring challenges.

Knowledge management. What are issues related to transferring knowledge? Often development initiatives invest significant resources to acquire and generate knowledge. But often at the end of the project there is little follow-up action to provide for storage of information that could be retrieved for future use by the respective agency or for use in subsequent projects. Thus it simply "disappears" – perhaps being widely dispersed or "hidden away" in storage that becomes forgotten in the enthusiasm for new initiatives and as those familiar with what was acquired take on new work. This common failure suggests that there is the need to establish centralized data storage so that knowledge generated through development initiatives can be readily found, retrieved, sustained and reused. Attention would have to be paid to ensuring that formats are widely useable and that metadata is widely shared to make potential users aware of knowledge and data-bases that are available.

Knowledge presentation. What are the challenges when it comes to content gathering and presentation for video and print production? Perhaps the most significant one is relevance and cultural appropriateness. Language and presentation styles are frequent impediments to acceptance on the part of local audiences especially when programs or print or presentations are pre-packaged and messages do not speak directly to them and they simply "tune out". In the plant world, seeds planted will not grow into ripened fruit if, partway through the growth cycle, they become ignored and left to their own devices; the chances are that they will wither and die. Likewise knowledge assets must be constantly nurtured to suite the audience interests and meet their needs.

The active participation of national level stakeholders in the Knowledge Café and through other engagement contributed significantly to the communications strategy.

Chapter Three: Theoretical Framework for a Communication Strategy

Introduction

Traditional definitions of communication may no longer be as helpful as they once were to define how well thought out communication strategies can contribute to development. However the following two statements of principles from renowned communications experts may provide background to consider: a) what an effective communications strategy can contribute to enhance data-sharing about forest resources; and b) if principles can be set down to structure a governing strategic framework which will both contain and catalyze an effective communications strategy.

> *Communication for development is the use of communication processes, techniques and media to help people towards a full awareness of their situation and their options for change, to resolve conflicts, to work towards consensus, to help people plan actions for change and sustainable development, to help people acquire the knowledge and skills they need to improve their condition and that of their society, and to improve the effectiveness of institutions.*

Fraser & Restrepo-Estrada.[1]

> *. . . Communication media (radio, video) and tools (dialogue between people) . . . can be used to help people facilitate their own discussion . . . leading to their own plan of action. This implies a much more people-centred and bottom-up approach that will not necessarily fit into an overall plan prepared by others. This, in fact, suggests another approach to development.*

Quarry and Ramirez.[2]

What can communications do for the Tanzania Forest Service?

1. It can be the most powerful strategy available to facilitate social awareness and dialogue and promote the exchange of NAFORMA knowledge among all levels of government and non-government stakeholders including rural communities, providing important knowledge tools to help them begin to initiate dialogue and responsible actions for the sustainable utilization of forest resources, contribute to the mitigation of climate change and mitigate some drivers of deforestation and forest degradation.

2. It can illustrate and present real examples of statistical analysis of NAFORMA's key findings in various forms (stories, visually, through audio and via print) to inspire stakeholders and create better understanding and shared purpose on the importance of the nation's forests and their contribution to daily life.

3. By establishing effective feedback communications mechanisms, the Tanzania Forest Service (TFS) will be provided with tools to increase understanding of the impact of the knowledge being disseminated, get a sense of which topics are more credible for users of their system, learn more about the needs of target audiences and what may frustrate them in accessing the resource, and engage with each group in a meaningful process to ensure more transparency and accountability in the management of forest resources.

4. The end objective is to create a practical, highly-useable mechanism to disseminate knowledge that will be used to transform the landscape of the forest resource management in Tanzania, involving not only traditional stakeholders of the forestry sector but also broader segments of the population who are driving forestation or degradation.

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1. (Fraser,C., & Restrepo-Estrada, S, *Communicating for Development: Human Change for Survival*, 1998 London and New York: I.B. Taurus, p. 63, cited in Quarry, W., & Ramirez, R., Communication for Another Development – Listening Before Telling ,2009 London and New York: Zed Books, p.9)

2. Wendy, Quarry and Ricardo Ramirez. 2009 *Communication for another development – Listening before telling.* London, Zed Books, 21.

Chapter Four: NAFORMA Data-Sharing Guidelines

Introduction

Evidence-based planning of biophysical and socio-economic development processes relies on quality data such as has been generated by and resides in the NAFORMA database. There is a general need to facilitate sharing and utilization of this large amount of data. Currently there is no regime of data management to enable or facilitate open sharing of Government-owned data with other arms of the government or external stakeholders; nor is there adequate provision for proactive disclosure of sharable data available with data-owners. Efficient, objective and transparent sharing of data among data-owners and inter- and intra- governmental agencies and with the public requires data standards and inter-operable systems. Hence, there is a need to establish Data Sharing Guidelines (DSGs) for NAFORMA. These will provide an objective and transparent framework to provide open access to the NAFORMA database and other information that may be included in the NAFORMA website/database portal or other mechanisms through which the NAFORMA data will be made available.

Benefits of the Data-Sharing Guidelines

The benefits of standardizing procedures and guidelines for data sharing include:

1. Maximizing use — free and equitable access to NAFORMA data will enable more extensive use of this valuable resource of forestry-related information for the benefit of Tanzanian communities and the national economy.

2. Transparency in managing data – free and transparent data sharing is aligned with the Government's commitments to transparency in administration.

3. Eradicating duplication — by sharing data, the need for separate bodies to collect the same data should be eliminated, resulting in significant cost savings.

4. Maximized Integration — by adopting common standards for the collection and transfer of data, integration of individual data sets among the stakeholders may be feasible.

5. Ownership information — the identification of owners for the principal datasets will provide information to users to identify those responsible for implementation of prioritized data collection programs and the development of data standards.

6. Better decision-making – reducing costs by establishing a "one stop" source for forestry-related information. Ready access to existing valuable data is essential for many decision- making tasks such as protecting the environment, development planning, managing assets, improving living conditions, national security and controlling disasters.

7. Equity of access – Data Sharing Guidelines supporting more open data transfer ensures better access to all *bona fide* users.

Objective

The objective of the Data Sharing Guidelines will be to facilitate access, sharing and utilization of NAFORMA data through various means, including a web portal.

Beneficiaries

The NAFORMA-Data Sharing Guidelines for data dissemination and utilization will facilitate free and transparent public access to all sharable information created, generated, collected and archived under the NAFORMA project 2009-2013. Beneficiaries include stakeholders such as, but not limited to, all levels of government, Development Partners, international and national research and academic institutions, CSOs, private sector and local communities, as well as all other interested individuals.

Conforming to International Standards

The underlying principle of developing a practical and enforceable NAFORMA-Data Sharing and Guides (NAFORMA-DSGs) is summed up in Principle 10 of the United Nations Declaration on Environment and Development (Rio de Janeiro, June 1992), which states:

> *. . . each individual shall have appropriate access to information concerning the environment that is held by public authorities . . . and the opportunity to participate in the decision-making process. States shall facilitate and encourage public awareness and participation by making information widely available.*

To this end the NAFORMA-DSGs will provide a framework for sharing processed non-sensitive data of the NAFORMA database and all processed data subsequently generated through utilization of the original data sets. Thus the NAFORMA-DSGs will operationalize the NAFORMA data sets so that they will be as accessible to broad a range of the public who will be able to make use of the information and data for scientific, planning, economic and developmental social welfare purposes.

Thus the NAFORMA-DSGs must ensure:

1. That the NAFORMA data sets are managed and kept updated by the Tanzania Forest Service;

2. That the general principle of full access for all to all the processed data of NAFORMA is adhered to. However it is generally agreed that there can be limitations put in place for identifying sensitive NAFORMA data and sensitive layers or maps so that these may not be made available for the public;[3]

3. That the framework clearly articulates practices for data-sharing and accessibility: Openness, flexibility, transparency, legal conformity, Protection of Intellectual Property, formal responsibility, professionalism and standards for interoperability, quality, security, efficiency, accountability, sustainability and privacy.

Copyright

Data, information and other products procured by NAFORMA Project will remain the property of the Government of Tanzania. In case a part of NAFORMA data is hosted by any TFS partner, the TFS must remain the sole owner. Access to data under this NAFORMA-DSGs must also not be in violation of any Acts and rules of the Government of Tanzania. The Legal Framework of this NAFORMA-DSGs will be aligned with various national Acts and rules covering the data.

Citation and Acknowledgement

1. All users who access the data shall acknowledge the TFS;

2. The TFS shall disclaim rights and obligations of data accessed on the portal from other sources.

Data Classification and Type

Data Classification

Within the NAFORMA data-sets there may be data generated both in geospatial and non-spatial forms that should be classified as shareable data and sensitive non-shareable data. It will therefore be important to maintain conformity and consistency of metadata, data layout and data access practices.

1.   Sensitive Data (non-sharable data) — as defined in various Acts and rules of the Government of Tanzania.

2.   Non-sensitive data (Sharable data) — everything that does not fall under category 1. Access to this data is defined in the section on types of access below.

3. **Metadata** — is detailed information that describes the data source and the time, place, and conditions under which the data were created. Metadata informs users of who, when, what, where, why, and how data were generated. Metadata allows the data to be traced to a known origin, which can indicate quality.

Types of Access

For the data that is not defined as sensitive and non-shareable according to various acts and rules of the Government of Tanzania, NAFORMA-DSGs identifies two categories of "access." See chart next page.:

1. Processed data (includes the information generated by OpenForis Cals and pdf. versions of the various map products of NAFORMA). This information is open for all users. Users will only be required to set up a one-time registration – with approval being done automatically by the system. Users should not be required to await approval for a long time. Once registered, the registration will be for a designated time-period so the user will simply use his or her user name and password to access open data.

2. Unprocessed data (includes Raw data and shape-files of maps). This is data that the TFS will share only with institutions with which they have a formal collaboration for specified purposes. For all cases of sharing of raw data or shape-files, a written Memorandum of Understanding (MoU) must be made between TFS and the institution specifying precisely what segment of the data is needed and for what purposes. The MoU must specify a research and publication plan and must state that the data is to be used only for the specified purposes after which it must be deleted. TFS must be acknowledged in each publication and all MoUs must contain a capacity-building element that will benefit Tanzania in terms of building the national capacity for further forestry research and analysis. Data in this category will not be shared with individuals. The TFS will not charge money for the raw data shared with institutions under specific MoUs, but will require that the above rules are strictly adhered to and will only share data where the research is conducted in support of promoting sustainable forest management.

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3. See a list of definitions in Appendix 1.

Chart of NAFORMA Data Sharing

Type of data		Rules for sharing
SENSITIVE DATA - As defined by National Legislation - Issues that can compromise privacy		Not shared under any circumstances
NON- SENSITIVE DATA - Everything else in the NAFORMA socioeconomic and biophysical datasets - All NAFORMA output maps - NAFORMA metadata (detailed information about the data)	PROCESSED DATA	Free public access to all **processed data** and **pdf maps** via the web portal
	RAW DATA	**Raw data** and **shapefiles of maps** will be shared only with institutions and only when a written agreement exists between TFS and a collaborating institution defining the extent of data needed, the purpose of research, a publication plan, and a capacity-building component
	META DATA	Free public access to all **meta data**

(Left vertical label spanning all rows: NAFORMA DATA)

Figure 1

Example of Data

Mean Cluster Volume,
Forests. Woodlands and DEM

Vol, m3/ha
- 0 - 10
- 10 - 30
- 30 - 50
- 50 - 100
- 101 - 150
- 151 - 200
- 201 - 300
- 300 - 1000

0   200000 m
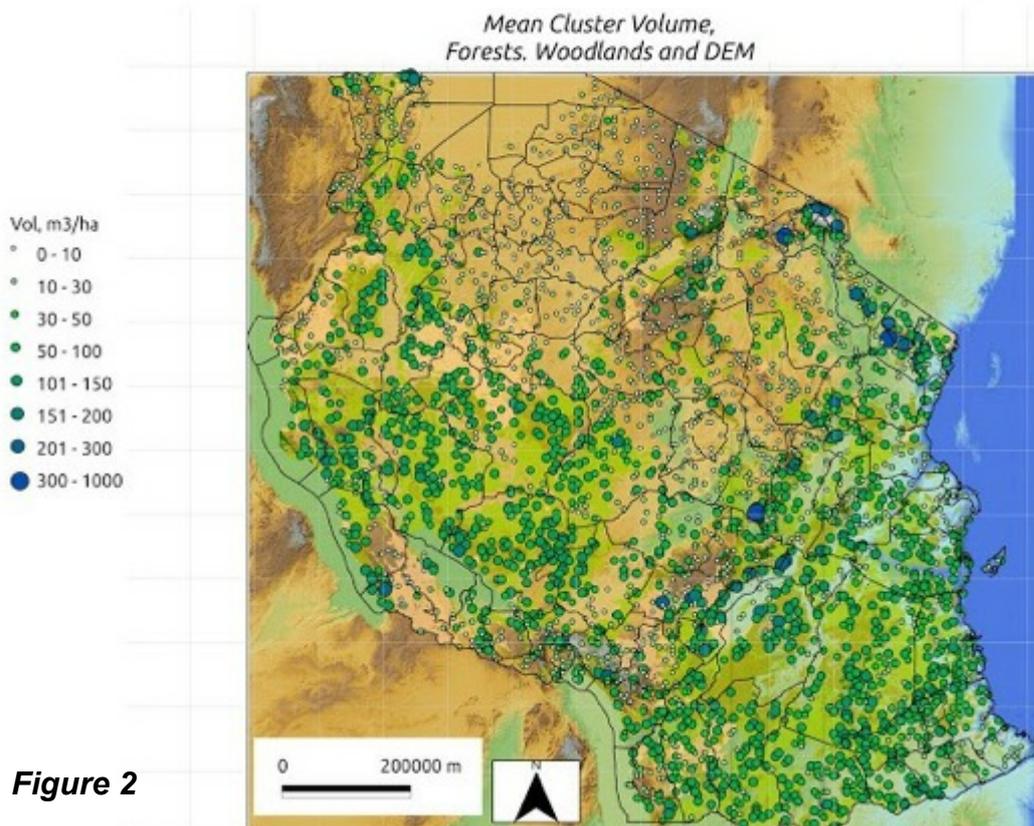
Figure 2

Chapter Five: Guidelines to Establish and Maintain NAFORMA Portal

Intended Users

According to NAFORMA the stakeholder's e-Survey Report, anticipated users include:

1. Researchers from training and research institutes and government sectors, particularly in the Forestry Sector – these are recognized as likely to be the primary users.

2. A wide range of government sectors (land, forestry, Community Development, Mineral, Water, Energy, Agriculture, Environment, Prime Minister Office- Regional Administration and Local Government, Wildlife and Livestock).

3. Researchers and Academic Institutions

4. Forestry CSOs

5. Private Sector entities and individuals

6. International Organizations

Data Type, Formats and Presentation

1. Survey respondents ranked the data of most interest to be socio-economic aspects of forests, followed by multi-sources and land-use and land-cover mapping.
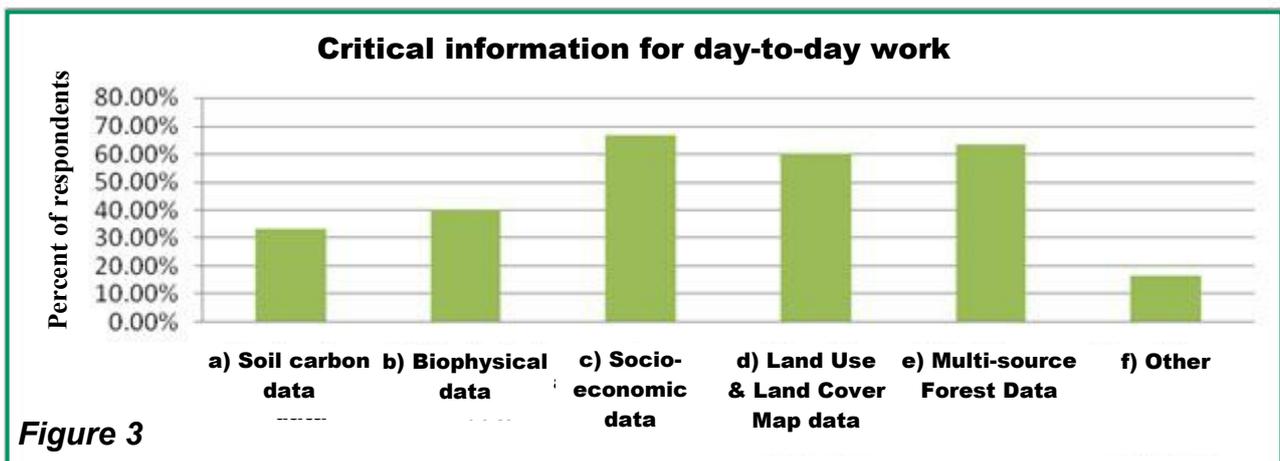
Figure 3

2. The survey also confirmed that "Excel-based" software is most commonly used for basic socio-economic and income from forest should be presented in "spread sheet" formats, including figures, charts, and tables.

Figure 4
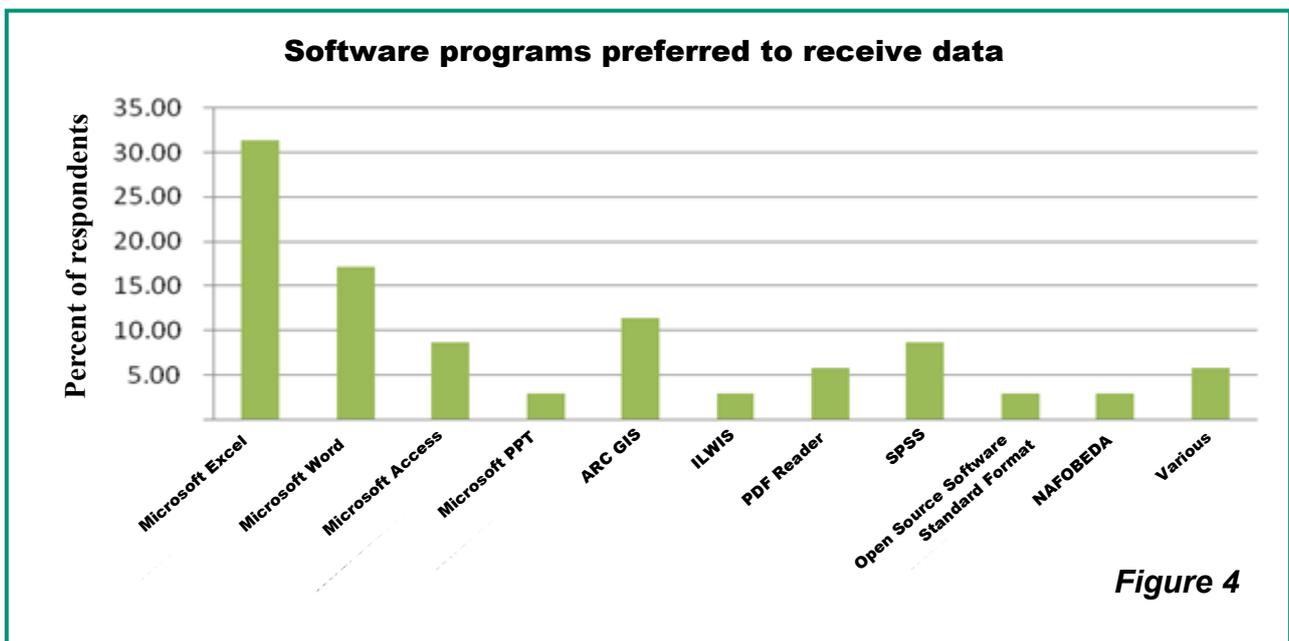
In addition stakeholders suggested that:

1. Data related to land cover/ land use mapping, soil, spatial distribution of species, volume of wood, charcoal usage, biomass etc. should be presented in the form of "maps."

2. The NAFORMA portal will warehouse and archive data to provide a full suite of online analytical processing (OLAP) capabilities. This will include, but not be limited to, providing a multi-dimensional and subject-oriented overview of the database that will be responsive to the needs of all stakeholders.

The main features of the data warehouse should include (but not be limited to/by):

- A user-friendly interface;
- Dynamic/pull down menus;
- Search-based Reporting;
- Secure web access;
- A bulletin board;
- Automated approval and a sign-up form;
- Parametric and Dynamic reporting in exportable formats.
- Complete Metadata and user guides as well as a section for FAQs.

Designing, Hosting, Maintaining, Communicating and Updating the Portal

The following are required essential considerations for designing, maintaining, updating, and communicating information about the portal:

Designing the Homepage

1. Designers <u>must</u> consider the critical issues of internet speeds and power and outages, build the entire site to ensure 24/7 accessibility and make download times as fast as possible. Consideration should be given to the possibility of incorporating low bandwidth solutions for users who want to access the information but cannot contend with sites that include overly-sophisticated features.

INTERNET ACCESS ISSUES
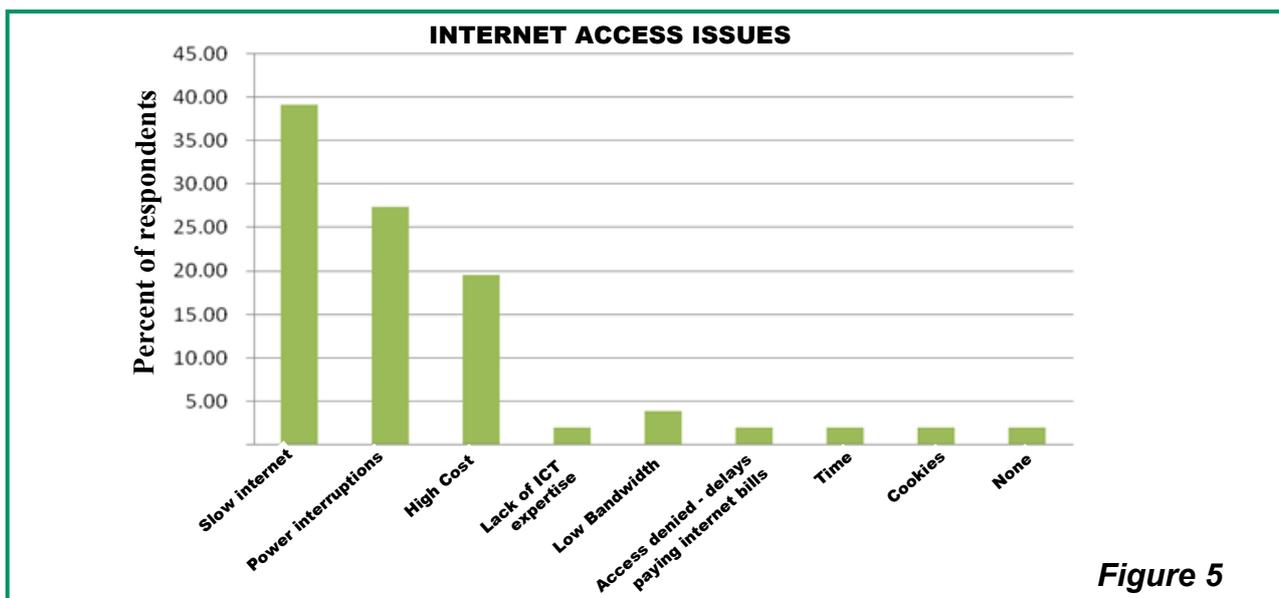
Figure 5

2. The portal must clearly display what data is available in all categories, identify any restrictions there may be and be as interactive as possible, bearing in mind the previous caveat about the limitations of users' technologies. For geospatial data there should be alternatives that include portals with static data (e.g. downloadable shape files and pre-view images), an easy-to-use interface and a GIS visualization component.

3. The site should be designed to allow for the possibility of integrating social media, video clips, news and updates to engage users. (For a proposed structure of the homepage see Appendix 2).

4. The process for setting up the site should include beta-testing with potential users and accepting

and integrating their feedback into design of the site.

4. The potential to track visitors, time spent, and content downloaded should be a component of the site. Some of this information (without revealing private information) such as numbers of people accessing the site, the averages of time spent browsing and most popular downloads together with a section for comments/feedback can be used to promote utilization by others).

5. The portal management team will establish set minimal standards on proper citation on information including methods, structure, semantics, and quality control/ assurance is expected for most data sets.

Hosting, Communicating and Updating

The TFS must put in place short and long-term commitments to provide adequate financial and human resources to ensure that there will be continuity. Should the TFS actually host the data, significant investment must be made in security, hardware (space) and personnel to sustain maintenance. For practical purposes, the TFS may seek partnerships with institutions experienced in handling portals such FAO, the E-Government service and TANBIF. It may even be possible to use their facilities as backup.

Stakeholders indicated that their preference is to receive information through email, the website itself and on social media (Twitter and Facebook). A monthly newsletter should therefore be issued on added or new features of the site, how NAFORMA data can be accessed and utilized and how it is being utilized and applied at the grassroots level. This newsletter should be made available to users through NAFORMA portal, Facebook and other social media as well as *via* e-mail for those who may not use social media. The content for each article should be no more than 250 words – enough to convey relevant information, but short enough to be read quickly.

Maintenance, updating and communication about the site will require constant attention and TSF will have to ensure that the personnel required to do this are focused and dedicated and present in the office workplace every day during business hours to handle the tasks in a professional manner.

A users' survey should be conducted at least twice annually to capture the opinions of users for updates and revisions and to give participants a feeling of "ownership" and encourage their engagement.

Crosslinking

The architecture of the NAFORMA Portal should be able to link up with other partners so as to increase access possibilities. The NAFORMA link or RSS feeds will be shared or embedded by TFS partners. The designer will create a clickable logo that others can incorporate into their websites. To begin with, the NAFORMA Portal may crosslink with:

1. National forest assessments
2. Mapping Tanzania's forest resources
3. Tanzanian forest energy
4. Tanzania – country overview

Knowledge Exchange

The NAFORMA portal will serve as a knowledge platform on the environment, the social economy of forest adjacent communities, and a wide variety of forest-related themes. It is expected that these knowledge resources will be continuously updated to make them useful and interesting to the users. The following knowledge resources will uploaded as soon as the NAFORMA portal is running:

1. Tanzania's forest inventory
2. Baseline data
3. Soil carbon monitoring using
4. Surveys and modelling
5. FAO in the 21st century- Ensuring food security in a changing world.

Roles and Responsibilities [4]

1. Web designer – System/portal administration
2. Content Manager – Web-content update
3. Technical support – ensure proper functioning of the site at all times
4. Contributors/data generators – Share data but with limited uploads
5. Head of Forest Resources Monitoring and Assessment Section – to handle all incoming requests for accessing raw data and institutional collaboration agreements
6. Public Users – use of data as per guidelines
7. Editorial committee – six professionals with communications, IT, forestry, land use and policy backgrounds to monitor all aspects of the site and its operation and guide the performance of the NAFORMA portal; they will also be asked to review and revise procedures to guide on-going content development and give their views on matters such as new uploads.

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4. Comments on roles and responsibilities: **The web designer/programmer** must have graphic skills to deal with the aesthetics and presentation of information in a form that is "easy on the eyes and mind." As well, this individual must understand how to design web sites that can be easily accessed and that function under conditions of the limited web infrastructure that many potential users have to contend with. **Content expert(s)** will be responsible for identifying and updating content to be uploaded to the site. **Web administration/designing** tasks may be outsourced, but the web manager should be a permanent employee of the TFS.

Chapter Six: Portfolio of Proposals for Communication Strategy

Introduction

This chapter outlines proposed actions for a communication strategy on NAFORMA data-sharing and use. The proposals describe key actions and tools to carry out the strategies. Chapter Seven will lay out six recommended priorities for both the long and short terms on the assumption that sufficient resources will be allocated at the TFS to carry out the tasks. The outlined actions and activities should not be seen as sequential in nature – i.e. each numbered activity does not depend on a previous one to be completed before it can be initiated; in fact most of them can be launched simultaneously. The objective is to make the NAFORMA portal the "go-to" resource for users seeking information on issues related to Tanzanian forests. What follows should also be regarded as "suggestions" rather than as "cast-in-stone" instructions. As the development process proceeds, implementers should be free to innovate creatively to advance the objectives of engaging as many potential users as possible to inform them and encourage them to begin to utilize this important resource.

Proposal for Action 1: Awareness Creation

Conduct a campaign focusing on the special themes to create a deeper understanding and utilization of NAFORMA data to increase the importance of forest resources

Proposed Key Actions	Tools
1.Develop the concept for and begin to produce radio and TV programs on topics such as: bio-diversity, socioeconomic issues related to forestry, the role of forests in providing energy, forests and climate change, and our forests and the economy and industry.	1. The most appropriate and effective radio/TV outlets for programs are on-board to carry the programs.
2.Link these directly to the interests and initiatives of forestry-related stakeholders and programs.	2. Producers and content people are in place to develop and produce programs.
3.Conduct direct discussions with producers, station owners, newspaper editors and feature writers and recruit them to participate actively to develop feature stories, create programming, and rely on it as a research resource.	3. Direct person-to-person engagement of media operators, managers, produces, editors, etc who can make this happen – i.e. get programs on air, get editorials and stories into newspapers and magazines. This approach is often the most effective way to work with media people.
4.Work with mobile companies and/or ICT institutions to explore effective ways to use mobile tools to communicate effective messages related to forest resources. Such discussions should include both creative and technical people.	4. Experimentations with ways to use the internet, mobile and social media tools to engage with audiences most effectively.

Proposal for Action 2: Inter-Ministerial Linkage

Develop staff interest and capacity in the TSF and other key ministries and motivate them to utilize NAFORMA data in their day-to-day work.

Proposed Key Actions

Encourage TSF staff members and personnel in other ministries - especially the related key ministries - to embrace the concepts and champion utilizing NAFORMA resources to begin to develop sustainable forest management at all levels.

Tools

1. Register NAFORMA as part of the National Statistics Master Plan – which will make it the official national channel for information on forest resources.

2. Hold in-house motivation and training sessions to ensure that all TSF personnel are fully aware of and "on side" to support all activities related to promotion and utilization of NAFORMA resources.

3. Seek agreement from other key ministries to attend management meetings in their departments to introduce their staff members to the portal how to access it.

4. Conduct training workshops with those TSF staff along with selected staff from other ministries/departments who will (or may) be working with potential users to ensure they have capacity to activate it.

5. Use email, social media and periodic circulars to update staff on a regular basis to maintain the profile of NAFORMA and keep all staff of all participating ministries/departments informed and encourage them to contribute stories about their practical experiences with users in their areas (e.g. through a blog).

Proposal for Action 3: Information Access

Establish an open and free accessible portal for knowledge exchange on NAFORMA as well as encourage stakeholders to share their experiences and researches.

Proposed Key Actions

1. Determine operational requirements – staffing, provider, advisory committee, management and other needs, outsourced if necessary.

2. Design and get the portal operational (including beta testing as required, as per Data Sharing Guidelines.)

3. Develop capacities of staff who will be engaged in establishing and maintaining NAFORMA data Centre and portal

4. Launch the site by doing 'an audience with' session on knowledge transfer and capacity building. Use a prominent person to draw the attention of the public.

5. Strengthen the NAFORMA Database as may be required. Make sure data is available in accessible formats.

6. Link the NAFORMA portal with other websites as well as tie in social media;

7. Use social media Twitter, Face-book, blogs, to reach broadest possible potential user base.

8. Establish a strong and well functioning data management unit under the Forest Resources Monitoring and Assessment Section of TFS to handle all daily office based operational tasks related to maintaining and sharing data.

9. Send a monthly newsletter to notify about the new uploads and topics for discussions

Tools

1. Attend management meetings in each department to introduce staff members to the portal how to access it.

2. Conduct training workshops with those staff who will be working with potential users to ensure they have capacity to activate.

3. Continually update NAFORMA Data Base Application.

4. Use regular staff meetings, email, social media and periodic circulars to update staff on regular basis to maintain the profile of NAFORMA and keep all staff in- formed. Encourage contributions from staff about their practical experiences with users in their areas (e.g. through a blog)

5. Recruit the team for the Data Management Centre.

Proposal for Action 4: Build Strong Networks

Engage with policy-makers, decision makers (at all levels of government), Members of Parliament, politicians and officials, opinion leaders, representatives of CSOs and Private Sector and activist groups including lobbyists.

Proposed Key Actions

1. Encourage members of parliament to embrace the concepts and become champions amongst their constituents to utilize NAFORMA resources to begin to develop sustainable forest management in their constituencies.

2. Develop visually strong presentations on NAFORMA findings and how the databases can be utilized - including why they should be utilized - for use with stakeholders in all sectors. Presentations should be flexible so they can be adapted for various audiences if necessary.

3. Using these presentations, engage with institutions, NGOs, CSOs, the private sector and other stakeholders in forums within which explain plans to implement and synchronize NAFORMA into existing programs.

4. Encourage and assist policy-makers to establish functional mechanisms that will implement and synchronize policies at all levels – within and between ministries and departments – to create a synergy for engagement of as many stakeholders as possible in addressing critical forestry-related issues.

Tools

1. Create introductory events in appropriate locales with policy/decision-makers at all levels of government and other key stakeholders to introduce key messages on NAFORMA findings.

2. Work to stimulate wide media coverage of all such events - engage local media as much as possible to stimulate a national debate on the seriousness of the documented degradation of the forest resources.

3. Provide policy briefs on NAFORMA to decision makers, policy-makers and others of influence across all sectors, and provide regular updates about how the resource is being utilized.

4. Senior TFS and MNRT meet with Parliamentary Committees (Environment, Energy, Land etc.) on personal level. Person-to-person engagement may be most effective – craft strong, well thought-out messages to win support for the proposed actions.

5. Use the NAFORMA data as baseline for the new National Forest Programme (NFP), which will be revised in 2014, and use the continually updated NAFORMA information to monitor the impact of the new NFP in promoting a more sustainable forest management.

6. Include people working in these forest- related programs, activists and lobbyists in TSF presentations, workshops and seminars as appropriate. Encourage them to take ownership and spread the word amongst all with whom they work.

7. Use press releases, direct personal contact, social media and the portal as it evolves to inform as wide audiences as possible and to update on progress and on how the resource is being utilized.

8. Invite politicians and decision-makers to participate in on-air TV/ radio interviews and presentations as knowledge sources or to make policy statements to the public.

Proposal for Action 5: Community of Practices

Engage academic and training institutions as well as Media and related associations such as Journalists Environmental Association of Tanzania (JET) Media Institute of Southern Africa (MISA-TAN), and Tanzania Media Women's Association (TAMWA) to exchange and expand knowledge on NAFORMA.

Proposed Key Actions

1. Identify topics to engage academic and research stakeholders – particularly institutions in dialogue. Focus on expanding awareness of NAFORMA and what is being done to make the datasets available for all researchers across all disciplines interested in forest-related issues. Encourage them to utilize NAFORMA resources in ways that will provide knowledge of and contribute to dialogue around these critical issues

2. Create fora for stakeholders to meet and explore different topics and share ideas about what impacts the Forest Sector has on society, the economy and the lives of people living near forests. Policy-Makers could attend one of these meetings.

3. Establish mechanism to share best practices, case studies, after-action reviews, and the results of pilot projects from around the country to promote the impact of Sustainable Forestry Management (SFM). National Forest Program (NFP).

4. Encourage academic institutions to establish partnerships with NAFORMA via written MoUs to conduct in-depth analysis of specific topics using the NAFORMA data.

5. Run a competition inviting young researchers and scholars to conduct researches using NAFORMA processed data.

6. Develop personal contacts with and provide relevant content for as many media outlets as possible to encourage them to cultivate an interest in the subject as a whole and to spread the word about what opportunities the NAFORMA resource offers - to whom and how it can be accessed.

Tools

1. Knowledge Exchange Workshops. Promotion (direct and through media promotion. etc.) with institutions supporting credible research.

2. Interpersonal communications; keep staff informed and engaged; foster open dialogue.

3. Use website, blogs and presentations; may prepare papers for presentation at conferences and workshops.

4. Use every opportunity to present to institutions (conferences, workshops, seminars).

5. Work to get stories and information in publications catering to learning institutions.

6. Access university radio/TV.

7. Promote NAFORMA on other websites such as FAO, TANBIF and other development-oriented and research institutional sites.

8. Cultivate personal relationships with those who can influence institutional policies, through phone calls, personal visits, press conferences, field visits, etc. Regular "cultivation" can prove invaluable.

9. As contacts and relationships evolve, demonstrate the value of the resource and how it can be accessed readily and use it to help them develop better news stories.

10. Work with all media in all formats, but learn that each has different needs that may differ (for example print media vs. radio vs. TV).

Proposal for Action 6: Bottom-up Engagement

Actively engage district and zonal extension officers to involve the citizenry at community levels in dialogue and in the implementation NAFORMA findings and engage in small and concrete actions to manage forestry resources.

Proposed Key Actions

1. Work with Local Government Extension officers - to make them aware of the potential of the NAFORMA resources particularly the tools for supporting local level forest planning and how they can work with community people to utilize it.

2. Cultivate local media to distribute and share stories as communities begin to recognize the value of the NAFORMA resources and utilize them.

3. Train extension workers of District governments and national government departments working on NAFORMA tools for supporting local level forest planning and how to engage the community people to use the tool.

4. Consider linkages with universities and other institutions that specialize in training extension workers and develop capacity to begin to provide "experiential" (as opposed to academic) training in community process implementation utilizing all available communications tools, with emphasis on innovation and creative experimentation.

5. Assist extension officer at regional and district level to access information and tools from the datasets to support he various tasks related to Forest Management. Particularly the proposed products from the NAFORMA Multi Source Forest Inventory can provide a much-needed initial overview of the resources for small areas. The NAFORMA tools for supporting local level forest planning may provides support in conducting management oriented inventories.

6. Identify other resources that can offer practical experiential training, such as *in situ* training.

Tools

1. Include people working in these forest-related programs in the presentations, workshops and seminars as appropriate. Encourage them to take ownership and spread the word amongst all with whom they work.

2. Involve the community and extension officers in on-air TV/ radio interviews and presentations.

3. Network with religious groups, women's organizations, schools as well as the public media.

4. Publish their stories and work on the web portal.

5. Launch an innovative programme of training (with special focus on local forest management) and development for those who work in "extension" throughout the country. (This could benefit not only the forestry sector but all other sectors as well.)

Chapter Seven: Summary of Specific Actions Implementation

Introduction

The following priorities for the communications and promotion component draw directly from the proposed actions. Everything outlined in the Proposals for Action is based on the assumption that fundamental management-related decisions and arrangements for the necessary infrastructure are in place for the portal to be set up have been made.

Six priority areas of outreach have been identified to create awareness and engage stakeholders at all levels and the broader community to utilize NAFORMA Data and begin to form some actions to change how the resources of the forests are managed and sustained. Depending on the availability of financial and human resources, some of priorities can take place at the same time and some may be combined. It is also important to note that the strategy is not a onetime product but a process that should be repeated within two to three years to ensure continuity and to engage new recruits into departments. This will also be important to reinforce the mind sets of targeted audiences. Also, it is important that more than one tool should be employed to channel the message.

Continuous auditing and assessment is critical, with built-in capacity to change directions as required. Avoid outcome-based frameworks (such as "critical framework analysis" with its strictly pre-defined outputs and outcomes) and use 'results-based learning' approaches that aim to attain results through learning and adapting along the way. Flexibility and listening to and responding to the voices of the intended beneficiaries are critical. Implementation of an effective process involves learning and adjustment (flexibility) all along the way.

The Importance of Institutionalization

If the TSF is to implement and maintain NAFORMA and ensure that the data is put to the optimal use with the ultimate aim of promoting a more sustainable management of the forests of Tanzania there must be significant commitment to establish a highly motivated and well-managed unit for data management with the adequate allocation of human and financial resources for as long as the service is to be available for access.

The following roles should be crisply defined and those filling them assigned responsibilities to develop the portal and operate and maintain it going forward under the overall supervision of the TFS chief:

1. Content Manager
2. Web Designer/programmer
3. Editorial/advisory committee

Priorities for Implementation

Priority 1: Setting up the Portal

The set-up of the Portal/Website is the point of entry of this strategy. The portal will be the repository for all information about the NAFORMA data and its related programs. It will become the base for knowledge exchange and access to whatever on-line data may be available – and it will be essential to provide sufficient information for potential users of the data to access it readily. The site can also host a blog or several blogs to provide sources of information about how it is being used and to draw users into dialogue on forestry issues. Sharing of information should be encouraged – perhaps through a "tell your story" format. Above all it should be set up with the full commitment to maintain and update it regularly – to ensure that all links work; to keep information fresh and current; to become a "go-to" resource for NAFORMA users.[5]

Priority 2: Promoting the Portal

Technical and content experts may be brought in to support the establishment and communicating of portal along with the TFS staff.

The core infrastructure indicated above will have to be sustained for as long as the portal operates. This is important to understand: setting up a site is one thing; maintaining it requires long-term commitments, especially if the site is to be kept up-to-date, responsive to user needs, and with expanding links.

One of the tasks of NAFORMA data sharing and communication is to support on-going programs of the TFS. Therefore, it consideration should be given to including the communication strategy as one of the activities under the revised National Forest Program.

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5. NOTE: this entire strategy is based on the assumption that issues related to structure, access, distribution policies, etc. have all been addressed. If an efficient and effective "system" has not yet been institutionalized, then this must be the first priority.

Priority 3: Engage Opinion Leaders, the Policy and Decision Makers

The following actions can begin immediately – while the work on actually creating the portal is underway. Elements of the portal as it evolves can be incorporated into presentations.

The first activity should be to create a brief, interesting presentation – probably PowerPoint would be most practical format – outlining what the NAFORMA database is and why it is important, how it will be accessed by users, who will access the data and why it will be important for them to do so – and how they will use it. The presentation should also include information on why this is so important – given the state of the forests today.

A presentation is only as good as the presenter, and some training should be provided for those who will be making presentations to promote the utilization of the NAFORMA resource.

High priority should be given to building knowledge and understanding of the NAFORMA resource, the portal and how it can be accessed and used, amongst all TFS personnel in all locations across the country. Emphasis should be placed on direct engagement through workshops, seminars, presentations as part of regular staff meetings, etc. It will be critical for the success of the initiative that all TSF personnel accept that they are part of a support "team" and where appropriate extension workers from other ministries and departments should be "recruited" to partner in the endeavour. Regular updating about the site and how it is being used can be done through e-mall, online blogs, staff meetings and other means.

High priority should also be given to beginning work on securing high-level political and other ministerial support, as this will likely be essential to protect the ongoing investment required to keep forestry agenda on top of national agenda. One way of doing it is to present specific policy messages and actions for the policy and decision makers to act upon.

Further, it is important to begin to build positive working relationships around utilization of this resource amongst key ministries – and at all levels: i.e. in head offices and also in regional and district offices. Inter-departmental collaboration is important to broaden the user base for the resource.

Priority 4: Engage Academic and Training Institutions for in-depth analysis of data

The other priority is to launch outreach initiatives directly with key potential users – including primarily researchers at academic institutions, with CSOs, private sector and in government agencies. This can be started by reaching out directly to those who are known, through direct contact with the presidents and other leaders of the institutions and departments of interest in those institutions, at conferences and in workshops and presentations, including some that can be set up specifically to engage with potential users in different regions of the country. This can begin even before the portal is functional – and will likely increase once it is online to allow for direct demonstration and promotion.

It is also important to begin the cultivation of opinion-leaders of all kinds. Who these are may vary from region to region, but local TFS field staff will be able to identify them.

Priority 5: Engage Media to promote key themes of NAFORMA findings

The objective for this stage is to create awareness so that at the end of each period one key finding of the themes considered in the key findings will be broadly disseminated to the appropriately targeted stakeholders so that utilization of the findings has been well and truly launched. The key findings include (in non-prioritized order): Biodiversity, Socioeconomic, Energy, chromate change, and Economy and Industry. The plan should include the following:

Print media - journalists, columnists, feature writers; newspapers and (to a lesser extent) magazines are still widely read and important to Tanzanians, therefore close attention should be paid to getting information about these themes – what it is, why it is important, how it can protect forests as well as the life of people – into various publications. As indicated in the Proposals for Action, person-to-person contacts may be the most effective way of cultivating the key people who can make it happen. As well important issues related to forests and forest management can be discussed – with the purpose of encouraging the print media to write stories about them.

1. Radio broadcasters - Similar efforts should be made to identify and reach out through personal contacts to those who are potentially most influential in setting programme priorities within stations and on networks. Also cultivate independent producers who may produce programmes for stations.

2. TV broadcasters. The same applies here. While TV may not be as widely received outside of the main centres, often it is those who have influence with elected and non-elected officials who do have television access and so it can make a difference if opinion-leaders can be influenced through any and all programming media.

3. Work with Local Government Extension officers - to make them aware of the implication of the NAFORMA findings and the potential of the NAFORMA resources and how they can work with community people to utilize it.

Priority 6: Engage local communities to utilize NAFORMA data

Community-level work should be initiated by bringing extension workers (in various sectors and with various disciplines) into the loop so they begin to understand the potential to be found and what they will be expected to do with the resource. They should be fully "ready to go" by the time the portal comes online. Hands-on demonstrations may be required to build capacity of local people to understand proper of ways to utilize and manage forest resources. In this case the extension workers should be trained to show local community people how to utilize NAFORMA resources to help them gain knowledge essential for forest management. During this build up it will be important to engage patiently with potential CSO and community level users (who may not immediately "see value" in the NAFORMA resource) to help them understand how they can use it to begin to utilize their forests in better ways so that the environment will serve them and their progeny into the future. Also at this stage TFS staff can begin to cultivate local media to use the knowledge resource to develop and share stories both about the forests and about how communities are beginning to recognize the value of the NAFORMA resources and utilize them.

It is critical for all citizens of Tanzania to learn about the importance of protecting the forests so that this important resource can be passed on to future generations.

The NAFORMA initiative is an important starting point.

Appendices

Appendix 1: Definition of the Terms

1. **Data** — means a representation of information, numerical compilations and observations, documents, facts, maps, images, charts, tables and figures, concepts in digital and/or analog form.

2. **Data Archive** — a place where machine-readable data are acquired, manipulated, documented, and distributed to others for further analysis and consumption.

3. **Data Generation** — refers to initial generation/collection of data or subsequent addition of data to the same specification.

4. **Dataset** — a named collection of logically-related features including processed data or information.

5. **Geospatial Data** — means all data that is geographically referenced.

6. **Information** — refers to processed data.

7. **Metadata** — is the information that describes the data source and the time, place, and conditions under which the data were created. Metadata informs the user of who, when, what, where, why, and how data were generated. Metadata allows the data to be traced to a known origin which can indicate quality. All metadata will adhere to standards set down by the Portal management Team and will minimally contain sufficient information on proper citation, access, contact information, and discovery. Complete information including methods, structure, semantics, and quality control/ assurance is expected for most data sets.

8. **Unprocessed Data** — Raw data that can only be accessed through prescribed agreements between TFS and given institutions.

9. **Sensitive Data** — Sensitive data as defined in various Acts and rules of the Government of Tanzania.
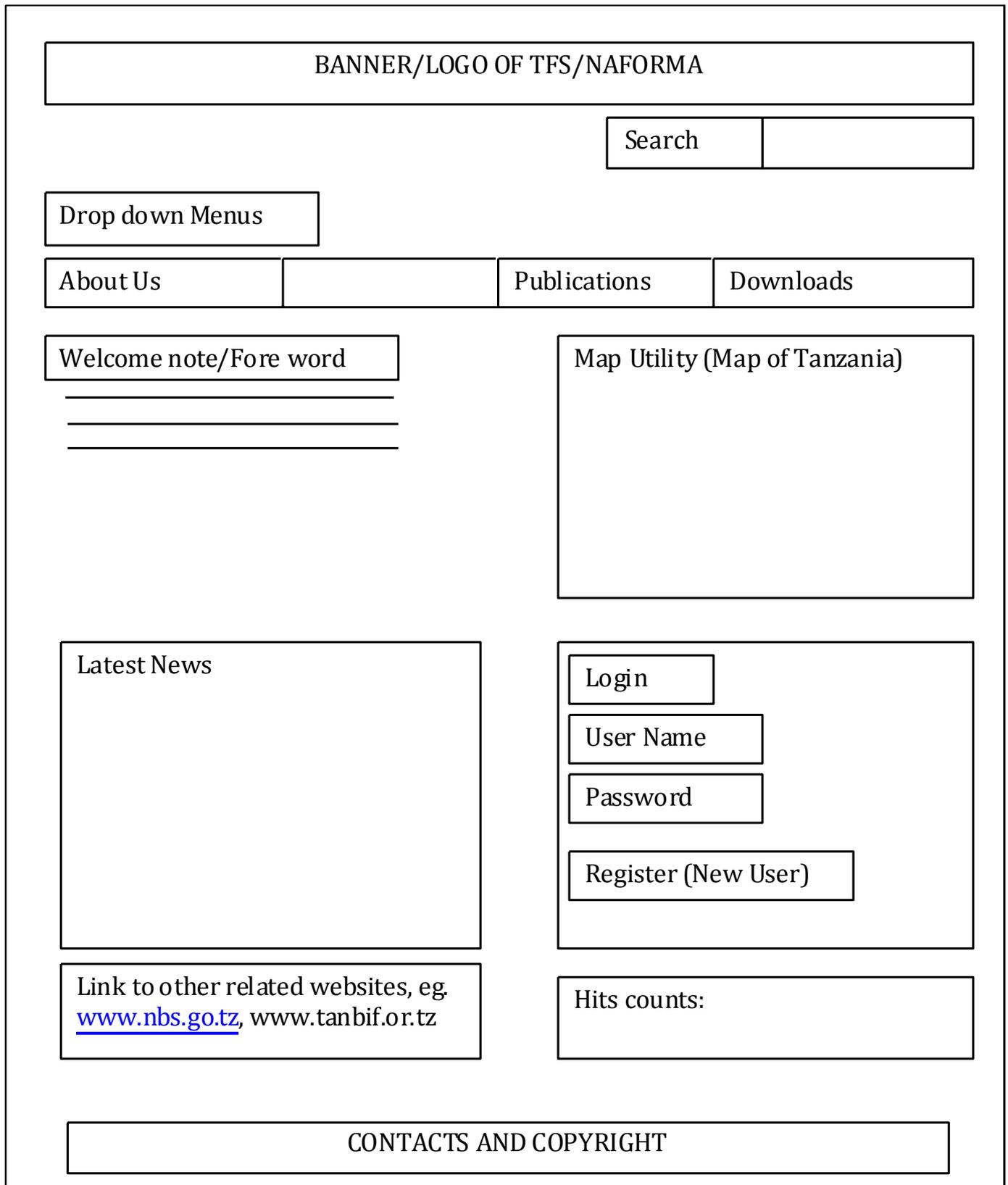
Appendix 2: Proposed NAFORMA Portal Structure

BANNER/LOGO OF TFS/NAFORMA

Search

Drop down Menus

About Us		Publications	Downloads

Welcome note/Fore word

Map Utility (Map of Tanzania)

Latest News

Login

User Name

Password

Register (New User)

Link to other related websites, eg. www.nbs.go.tz, www.tanbif.or.tz

Hits counts:

CONTACTS AND COPYRIGHT

Figure 6