

Development of Kosovo Forest Information system (KFIS)

Goal and status

1. Executive summary

The purpose of this document is to inform MAFRD (by FAO) about the goal, status and developments with regard to designing and developing the Kosovo Forestry Information System.

Through this presentation, we aim to briefly present the background, factors, relevant stakeholders, current situation and how to address the challenges in designing, developing and implementing a KFIS in months and years to come.

This presentation aims to present the scope of KFIS within the context of already drafted national strategies for forestry other similar strategies at EU level, national strategy for e-governance by addressing specific needs of forest management stakeholders, such as Kosovo Forestry agency, MAFDR and the responsible forest management authorities at the municipal level.

At the same time, as a part of e-governance general strategy, the KFIS design is required to be within the technical capabilities and basic requirements of EU and local standards, to be compatible with other similar systems developed within the MAFRD, ministry and other Kosovo agencies relevant for forest management as well as with the systems at EU level. Some of these systems, such as LPIS, Farm Registry, Civil registry, information systems in KCA, KEPA, system in EU level - IACS, will prove relevant during KFIS design and implementation.

This document aims to present achievements, status and goals related to conceptualization of KFIS design, and as such, it depicts the process insofar and serves for information and for further discussions. The data presented in this document are extracted from consultations with FAO, MAFRD, KFA, KCA, KEPA as

well as with representatives of forestry institutions of Estonia and wider.

2. Context / background

Having in mind the need for information management of Kosovo forestry sector, within the project GCP/KOS/005/FIN, "Support of Implementation of Forestry policy and strategy in Kosovo", FAO took the initiative to assist Kosovo institutions, mandated with forest management, to develop a Kosovo Forestry Information System (KFIS). Kosovo Forestry Agency has the mandate for forest management, and it is responsible for regulating forests and forestlands, administration and management of public forestlands and forests in Kosovo National Parks (except those explicitly assigned to some other governmental body by law).

In this context, FAO aims to build up an information system that will serve as an

IT tool to cover the KFA needs in carrying out its forest management mandate.

Development of KFIS aims at providing assistance to Kosovo forestry policy and strategy implementation, through enabling and/or facilitating the production, storing, processing and exchange of forestry information. Through more accurate, comprehensive, updated and converted information into statistics, the forest management will improve at all administrative levels.

3. Rationale

KFIS will be developed as an IT tool for the KFA and as such, it will be under the maintenance and responsibility of KFA in the ownership of MAFRD.

Since it is foreseen as a KFA tool for implementation of government's mandate, the system design aims to reflect the organogram under which KFA

works, namely, it will be a system that has a central database in KFA.

All the basic data will be inputted and processed from bottom up. Data quality control, processing, storing and integration is done at KFA's regional and central level.

All Kosovo municipal offices, six coordinating regional office and KFA will use this system. Other relevant institutions and Kosovo citizens will have limited use in entire Kosovo. Since the system is thought to be based on web-technology, access to system is possible from every location in the world through internet, with appropriate security measures and user access level in place.

3.1. Relation with national and international strategies

KFIS development will be done in compliance with goals and objectives of national strategies (already drafted),

with the 2010-2020 Kosovo Forestry Development Strategy and in compliance with Electronic Governance Strategy 2009-2015, for direct realization

of information management objectives and support to realization of other objectives.

At the same time, with integration of databases, KFIS aims to link with the achievement of objectives of other national strategies, such as those within the MAFRD, NSDI and other, within the technical capacities and needs for linking.

In a narrower sense - in relation to fulfilling the need for information management within the 2010-2020 Forestry Development Strategy, the KFIS will be completely in compliance with the strategic objective, which reads: "Objective of the forestry planning is providing accurate and timely information to state institutions, to public, private sector and NGOs for the forest resource condition, for intervention needs, etc. A Forestry Planning System consists of a set of modules that are developed with the purpose of ensuring the following types of information: strategic planning, forest management planning and planning of operations".

3.2. References to EU Regulation & Directive

Item 6 and 7 of 1998 EU Forestry Strategy foresees that, in principle, the development of information system should improve the quality and the accuracy / credibility of the forestry data, emphasizing the importance of cooperation with the relevant national and international institutions.

Despite the strategy goals, there is no EU comprehensive forestry system, although there were and there are some initiatives in that regard, such as Network for a European Forest Information Service (NEFIS) from 2003 until 2005, European Forest Fire Information System (EFFIS), European Forest Resource Distribution and similar.

One of the current requirements for KFIS development is the compatibility with the systems at EU level, which need to be fed with forestry data, e.g. IACS.

4. Current situation

Creation and development of KFIS is foreseen to take place in several phases, starting with:

- Designing the needs for a system in conformity with forestry law and with the national and international strategies;
- Drafting Terms of References for KFIS development;
- Selection of a capable and suitable vendor for developing such a system in special modules;
- Supervision of the development process by FAO and MAFRD / KFA;
- Implementation of a pilot project after the KFIS beta version is finished with some modules, as per agreement and as much as time allows during 2013;
- Improvement and filling out gaps and defects encountered during the pilot stage;
- Launching the finished modules;
- Continuing work with the remaining modules;
- Readdressing additional development requirements while considering budgetary capabilities and new needs - continuously.

At this phase, majority of the consultation with relevant MAFRD / KFA departments is completed, and the aim is to draft, discuss and finish the Terms of References before the end of 2012.

4.1. Consultations

FAO has initiated KFIS designing by starting consultations within FAO, MAFRD, KFA, and other relevant institutions, such as KEPA, KCA and others. The consultation initially took place in KFA and in all its departments and sectors, including a regional office and several municipal authorities. Estonian Forestry Institutions were consulted, too, and they have expressed readiness to assist Kosovo institution in this regard through exchange of experiences. Estonia has been working since more than 15 years in building databases conducive for forest management, and currently, Estonia is in the process of developing the third forest management software based on web-technology and platform.

Consultation were done with KFA's forest management department, coordination regional office in Prishtina, administration, procurement and human resource department, as well as hunting department, the executive office for pasture and rural tourism, forestry department of MAFRD and KCA, legal department and GIS, KEPA protected zone department and GIS, SP offices in MAFRD , statistic office and payment agency in this ministry.

4.2. Findings

It was found, during close and broad consultations with the aforementioned institutions, that KFA has a continuous data exchange related to, directly or indirectly, forest management. Majority of the data are processed and forwarded in MS Excel format. The periodic summarizing reports are in most of the cases in Excel. While the tendency is inputting the data in format appropriate for generating statistics, some data is stored only in hard copy and in Word format. Appropriate forms or standard forms, in agreement with KFA, regional offices and municipal authorities are used for most of the periodic data

collated in relation with the forest management.

Work processes relevant for the information management in KFA and KFIS development were captured during the consultation. The findings have been submitted and debated in a workshop, where all the active participants in this process were invited, with the focus on the KFA and the MAFRD.

The NFG project has created a FISKOS system, developed especially for creating and maintaining Kosovo forests inventory.

The MAFRD uses Farmers' Registry and LPIS systems for the purpose of agricultural land management and the farmers that work this land, including the subsidies.

The KCA maintains the orthophotos for the entire territory of Kosovo and cadastral units, required for building the KFIS' GIS platform. The KEPA maintains the geographical data for the protected zones, historical and natural monuments, and others, which can be included in KFIS.

The IT and information management skill level at the KFA is average, considering Kosovo circumstances. Number of people directly dealing with the information and IT management at

the KFA is currently small, specifically, there is only one employed person whose job description has IM / IT duties.

4.3. Conclusions

An integrated information system based on web-platform, will allow integration of all the data at municipal, regional and national level, ensuring consistence in collection, archiving and data processing.

It is believed that development of such a system, which will cover most of the KFA and MAFRD forestry sector needs, is viable, considering the today's available information technology and the existing IT infrastructure preinstalled in Kosovo institutions.

Furthermore, the professional training of the existing staff will be taken into account, as well as their skills in managing and manipulating IT equipments and products.

In order to facilitate creation of a practical system and its - as soon as

possible - launching, it is recommended to develop the system in special modules, that will be holistically integrated in KFIS, and with other modular information systems, such as FISKOS, FR, LPIS, IACS.

Implementation of the KFIS project is recommended to take place in separated phases according to modules, allowing gradual building up of the system without causing chain stagnations in development phases.

In order to overcome numerous problems appearing during the development and maintenance of systems designed for LAN, building a system based on web-technology, accessible through internet comes recommended. Web-solutions have proved to reduce the peripheral hardware and infrastructure costs, as well as the hidden costs related to maintenance of internal networks and staff training. At the same time, web-applications increase the price of central hardware, meaning, the price of data servers and necessary application for execution of application, service maintenance, data transactions, etc.

The data from the FISKOS will serve as the most basic / initiating sources for the KFIS and it will be required not to have any inventory data duplication, but exploitation of two databases and integration as per possibilities.

Next steps

- Drafting the KFIS Terms of References and implementation timeline.
- To draft and announce the selection of a vendor through a tender for developing KFIS, in consistence with ToR.
- The tender and the ToR shall be divided in lots, allowing gradual KFIS implementation in modules. For reasons of practicality and full transparency, the engagement of more than one company will be possible.
- A KFIS beta version finished by middle of 2013.
- A pilot project of KFIS beta version application carried out during the second half of 2013.
- Addressing all the gaps and final needs for completion of KFIS or its special modules during the pilot project.

- Continuing with the supervision, monitoring and further development of KFIS.

5. The outline of the proposed system

Although the final outline, design and final structure of the KFIS is the objective of a vendor, we will here present a vision of the content, design and structure of KFIS.

5.1. Content and goals

KFIS will consist of several modules that will operate independently and integrated as follows:

- Forest management module
- Module for managing documents and administrative support
- Monitoring and Evaluation module
- Module for showing and handling of selected data with GIS
- Module for integration with other information systems

In each module we will have special interfaces and respective databases with appropriate internal and external interlinks, that will enable each sector or department to input, store, process data, create reports and analysis, and exchange data.

5.2. Design and structure

Although the design, as mentioned above, will be left to the Vendor under continuous monitoring and respective approvals, it will be required to be as much informative system, with relational databases that will allowing manipulations with usual information objects and with GIS objects.

Application and the database - together with the modules of business logic - will be built for use in internet, i.e. with web-technology.

By using the structure of the aforementioned modules, the access to the system, is thus, enabled for everyone who has internet with moderate speed for today's circumstances, that is, the

minimum recommended speed is 2 MB/s.

The hierarchy of system users will be divided in 3 groups: active users - those who input the data and manipulate with it; passive users within the institutions (internally), those who use the data but do not input nor manipulate the data; and public (external) users - citizens that can be active or passive.

Internal users will be classified in municipal, regional and KFA level, depending on destination and position. All the users will be able to see and manipulate only those data relevant to their work, as well as the data that are for public access.

Specific and details of the outline will be shown in further detail in the ToR during month of November / December 2012.

5.3. Launching KFIS

KFIS launching in use is conditioned by the necessary IT software and hardware infrastructure alike, meaning that computer equipment must be ensured

for everyone foreseen to operate with the system. To ensure their continuous access to internet; adequate training of the personnel operating the system; creating an information management sector within the KFA; specific training of the this sector on more advance fields of data maintenance and GIS and web programming.

6. Requirements

6.1. Organizational

It is required that one person or more persons from the KFA/MAFRD, with extensive knowledge of forestry and sufficient knowledge on IT and IM to play the role of project manager and the role of liaison during all the stages of development.

Establishment of a working group is required. This group would convene more frequently during project supervision and implementation for approval of various phases of the project.

6.2. Human resources

A special sector should be established at the KFA called "Forestry Information Management Sector" for overall maintenance and management of forestry information at the KFA and wider. This sector is in the proposal stage by the KFA and under review of MPS and MF. It is foreseen that in this sector there will be a position for KFIS technical maintenance, a position for KFIS operational maintenance, including support and training, a position for use and exploitation of KFIS data, and a position for quality control of KFIS inputted data. One position is foreseen for data, statistics and GIS analysis.

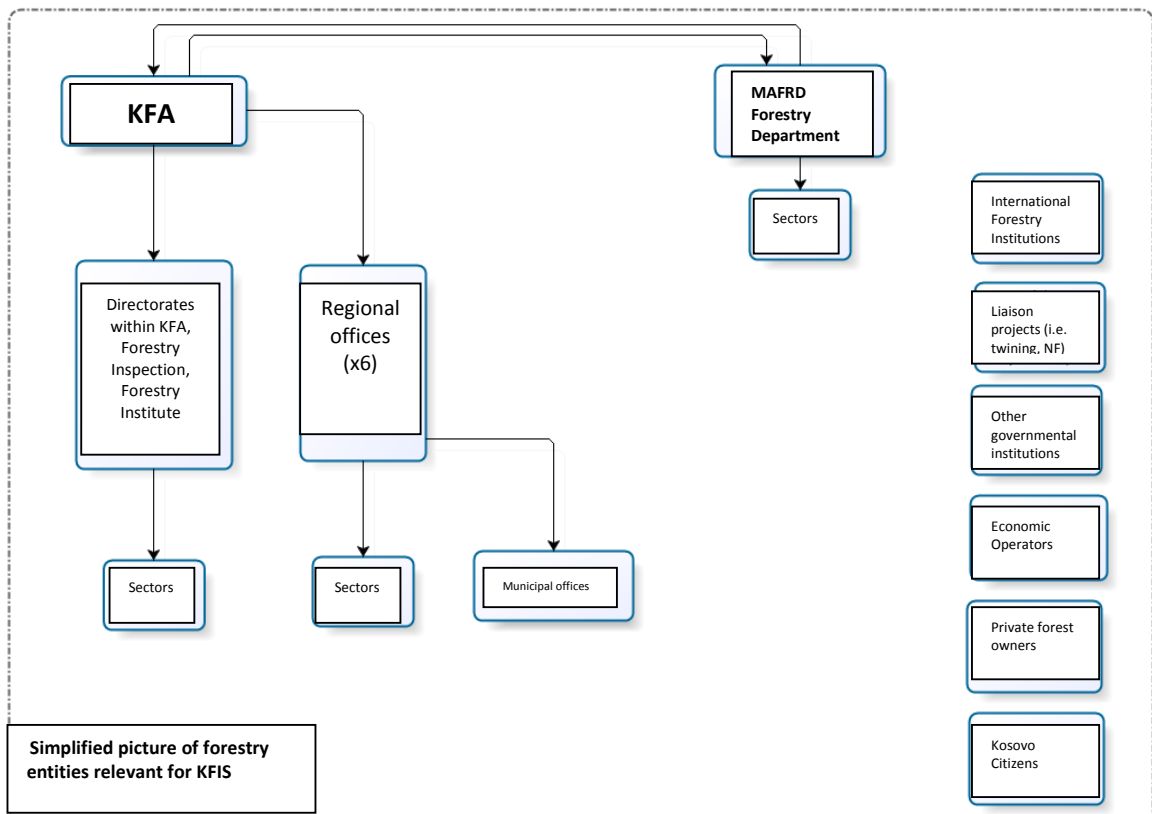
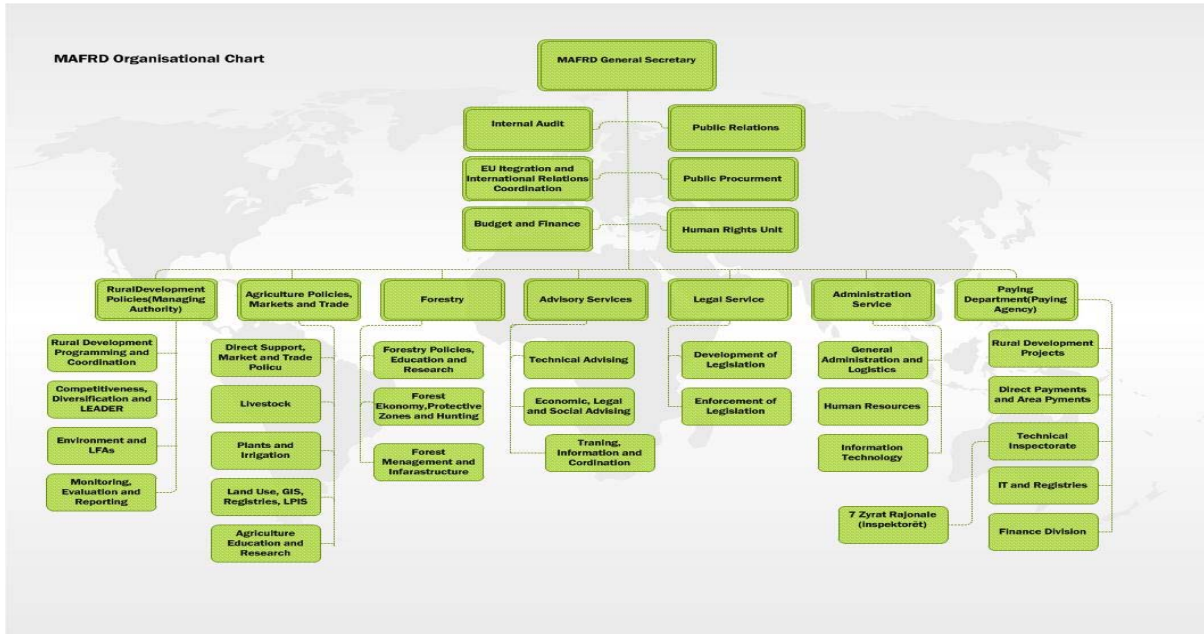
to provide maintenance of the system for one or two years from the vendor, including initial training during the maintenance, pilot phase and launching the modules in the inception phase during the lifetime of FAO project. After the FAO project is over, the operational and system maintenance cost should be covered by the MAFRD, same as the cost for staff, maintenance and updating cadastral data, orthophotos, software licenses for platforms upon which the system will be built on (for those and others, if needed).

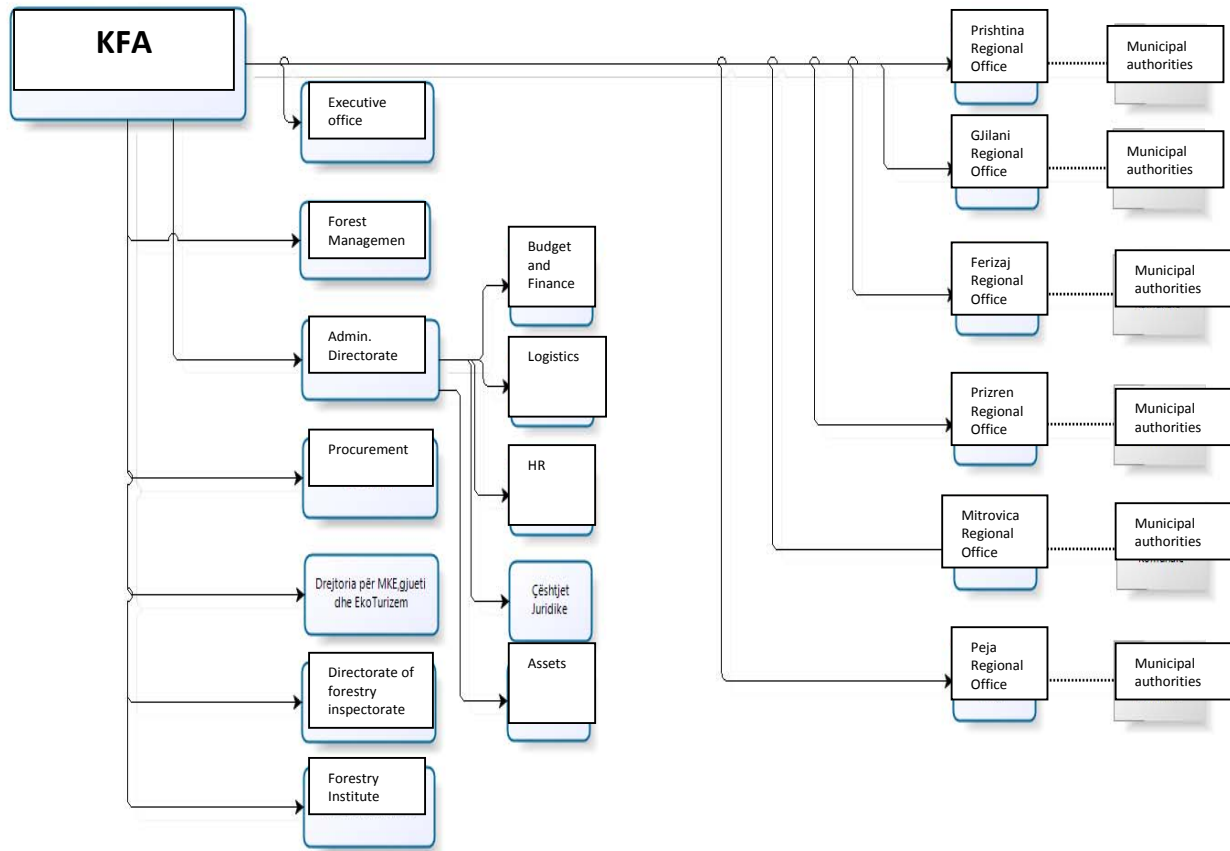
6.3. Financial implications

The goal for FAO is to serve as a donor for the described phases in this document, not including here purchasing of orthophotos or any other data deemed necessary for the system to function. The attempt is to initiate, through the FAO project support, the building of aforementioned system, and

7. System compatibility

7.1. Organizational chart





Active KFIS users

List of acronyms:

FAO - Food and Agricultural Organization,

MAFRD - Ministry of Agriculture, Forestry and Rural Development

KFIS - Kosovo Forestry Information System

ACA - Kosovo Cadastral Agency

KEPA - Kosovo Environment Protection Agency

LPIS - Land Parcelization Information System

IACS - Integrated Administration and Control System

IT - Information Technology

IM - Information Management

EU - European Union

GIS - Geographical Information System

NFG - Norwegian Forestry Group

FISKOS - Forestry Inventory Information System of Kosovo

NEFIS - Network for a European Forest Information Service

EFFIS - European Forest Fire Information System