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MINISTRY OF AGRICULTURE AND FOOD
PHARE PROGRAMME
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ALBANIA

LAND USE POLICY PROJECT

AL 98-05-02

TERMS OF REFERENCE

Experts: Mr. L. Maccioni
Mr. M. Weidenbach

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Albania, Land Use Policy Project

Terms of Reference

AL 98-05-02

BACKGROUND INFORMATION

1.1 - BENEFICIARY COUNTRY: ALBANIA

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Phare Programme P.M.U. Ministry Of Agriculture And Food Tirana

1.3 – RELEVANT COUNTRY BACKGROUND

1.3.1 - Country economic profile

Half of Albania's GDP is generated by agriculture. The small industrial sector is focused on consumer goods. Energy is also produced and there are chrome and copper mines. Even before the demise of the communist regime, economic activity was the lowest in Europe. After a deep economic collapse in 1991, the economy began to bottom up in 1992, thanks to reforms assisted by IMF with a standby arrangement completed in 1993 and followed by a 3-year enhanced structural adjustment facility. GDP has been constantly rising since 1993, except during the financial crisis of 1997, due to the so-called "pyramid investment" speculation. The main engine of recovery has been agriculture, which has responded to price reform and privatisation with output rises. Private sector services and construction have also grown constantly. Following the 1992 collapse (-60%), industrial output shrank by a further 10% in 1993. Enterprises operated far below capacity and unemployment reached 19 % of labour force by mid-1994. After this period, the industrial sector began recovering and has grown rapidly in the last few years, thanks to western European investment and the development of the civil construction sector.

Except 1997 when "pyramidal schemes" collapsed, Albanian economy has had at least a growth of 7 percent since 1993. For 2001, it is forecasted a growth of 7.3 percent. Considering the growth decline of 1990-1992, the Albanian economy is still generating a GDP below the pre-transition phase i.e. 1989.

Albania's monetary and fiscal policy has since early 1990s aimed at achieving macroeconomic stability. Inflation, which reached triple digit levels in the early 90s, was brought under control from 1993 and fell below 10 percent in 1995. It then rose sharply in 1996 and during the crisis of 1997. Subsequently, in response to prudent policies, inflation fell back to under 10 percent in 1998 and to zero in 1999.

Tight fiscal policy has been an important factor underlying macroeconomic stabilisation. The domestically financed budget deficit fell to 5.5 percent of GDP in 1999.

Future economic growth is likely to be driven by continuing high growth rates in construction and transport as well as other services. Future growth in industrial sector will depend on progress with the privatisation program, improvement of infrastructure, as well as structural reforms to improve the overall climate for investments. While, any sustained growth in agriculture will require an increased factor productivity and consolidation of landholdings.

1.3.2 - Agricultural sector

1.3.2.1 - Economic contribution of agriculture

Agriculture, including forestry and fisheries, provides employment to almost 45% of the national manpower. Even though the rural population is the poorest segment of the society, it has actively contributed to the economic recovery of the country. For instance, while in the year 1997 the overall GPD fell 7%, its agricultural component actually increased by 1% and thus saved the national economy from an even more disastrous decline. Hence, the agricultural sector should play a key role in any strategy for charting economic growth. In this framework, a sound land use policy should become a pillar of national development priorities

1.3.3.2 - Farming and production structure

The fast transition from 550 large agricultural co-operatives to 467,000 smallholder farms was associated with the fragmentation of land into 1.5 million smaller parcels that often have limited or no access to roads, mechanisation and water. The basic cropping structure is made of cereals, forages, dry beans, potatoes, and vegetables. Most of the farms are subsistence ones and about 75-80 percent of farm production is home consumed.

On the other hand, the Albanian farmer is facing major constraints such as lack of information, inadequate extension services, difficult access to bank credit, lack of marketing channels up to difficult access to transport. This complex and unique situation has to be taken into account when developing a realistic strategy for sustainable land management in Albania.

Current deficiencies in implementing the land use policy have resulted in widespread land degradation and disorderly development, causing the loss of best quality farmland to non-agricultural uses. The land use policy is urgently needed in view of new, large-scale infrastructure schemes, such as the planned road corridors across the country, the rehabilitation of rural roads assuring the year-round access to remote villages and the development of coastal zones.

1.3.3 - Resource base

Most of the agricultural land lies in sloppy areas of hills and mountains. Therefore, considering precipitation rate, steepness of terrain, vegetative cover, and cultivation practices, it results that Albanian soil includes high erosion potentials. On the other hand, privatisation of land and land market are creating the incentives to rapid but chaotic urbanization of agricultural land that often are associated with pollution and contamination problems.

Almost 36 percent of Albania's total land area (27,400 km2) is covered by forests that are composed of high forests (467,000 ha), low forests (303,000 ha) and Mediterranean shrubs (256,000 ha). During the last two decades the surpassing of harvesting against the biological growth has been one of the major concerns directly related with the safeguarding of the national patrimony and voidance of incremental rates of soil erosion and sedimentation of inland waters.

There are about 445,000 hectares of pastures and meadows out of which 50 percent are located in the South of the country. Historically, the area occupied by pastures has been shrinking since 1938. However, it seems that the present acreage is pretty stable despite a drastic increase in the number of sheep in the last 10 years.

Besides the major lakes of Shkodra, Ohrid and Prespa, there is a large number of artificial lakes or basins (more than 600) created for hydropower energy production or irrigation. Many of these are being utilized also for fishing purposes. However, erosion effects are high and severe sedimentation cases have been noticed.

In addition, there are 8 coastal lagoons with a total area of 10,000 hectares and located along the coast. The main risks for inland waters and lagoons are the eutrophization of waters, illegal fishing, pouring of chemicals and sewage, sedimentation, extinction of flora and fauna, urbanization.

1.4 – CURRENT STATE OF AFFAIRS IN THE SECTOR

1.4.1 - Government strategy

The Government's "Green Strategy" (January, 1999) views land use planning as the pillar of rural growth, by allocating land to uses that prevent degradation and yield high long-term returns. ([1]) Sound land use - based on socio-economic trends in and around a natural land unit - relies upon a holistic approach, whereby land users are the key actors. This ensures the long-term quality of land for human use, minimizing social conflicts and protecting the ecosystems having biodiversity value. All user categories should have enough land with an infrastructure balanced against environmental threats, at reasonable costs and endowed with a well-defined tenure.

1.4.2 – Current land use and administration practices

The Government intends to adopt a sound land use policy, but the ability to formulate and enforce it needs to be improved. Some sector authorities are unfamiliar with land use planning opportunities and techniques, as integrated resource mapping, landscape ecology and land suitability assessment. For successful land-use planning, key officers need to be trained. A diagnosis of land use problems, focused on the rural sector, should provide a fresh start, overcoming the lack of a factual basis. Land-use data sources are dispersed in many agencies that, in some cases, are unwilling to disseminate data. This is why several agencies have digitised the same topographic maps. Sometimes, joint work in data collection or sharing may be difficult even within the same agency.

1.4.3 - Land resources data

The following section provides an overview of existing land-use information, which should however undergo accurate checking to verify if it is updated and reliable. For more details, please see Tables III. A, and B in Annex 1

Topography: The *Military Geographical Institute* (MGI) is responsible. The following maps cover the whole country: 1:200.000; 1:100.000; 1:50.000; 1:25.000; 1:10.000. Various projects - as the Watershed Assessment Project, the IPRS, the Albania Forestry Project and the private firm *GIS-Albania* - have digitised some topographical maps (1:25.000 sheets). MGI is digitising the 1:50.000 map sheets. Cooperation between the projected GIS land-use planning work and MGI is required

[1] Sustainable rural development, as defined by FAO, is *"….the management of resources and the orientation of change to ensure the continued satisfaction of human needs for present and future generations. Such development in agriculture, forestry and fishery conserves land, water, plant and animal genetic resources, is environmentally non-degrading, technically appropriate, economically viable, socially acceptable."*

Climate: The responsible institute is the *Hydro-Meteorological Institute*. Digital maps do not exist, but a lot of climate data sets in digital format are available

Soils: The *Soil Research Institute* is responsible. It is now starting a national soil survey project. In October, a countrywide soil map will be edited at 1:250.000 scale. A soil map at 1:50.000 will cover the 250.000 ha of agricultural land. The soil surveys will follow the procedures set out by the document "*Georeferenced Sol Database for Europe, Manual of Procedures, Vers. 1.1. - (doc EUR 18092 EN)*. So far, the only digital maps available are those produced under the previous land use project of Komuna Preza (land use zoning, erosion risks, etc)

Land cover: forestry, vegetation, pasture, etc.: the responsible institutions are the Forest and Pasture Research Institute, the *Albania Forestry Project* (World Bank), and the *Watershed Assessment Project*. The land-cover information produced for Komuna Preza is available in digital format at the *Soil Research Institute*.

Geology: The *Geological Institute* is responsible. Besides the 1:200.000 geological map covering the entire country, other maps are also available.

Landforms: the *Geography Department* of Tirana University is the key referent. The *Centre for Geographical Studies* maintains a DEM for Albania. DEM data from the previous land use project in Komuna Preza also exist at the *Soil Research Institute*.

Water: Some data are available, from the Watershed Assessment Project
Ecosystems: The main data source is the Forestry and Pasture Research Institute.
Other data: Cadastral data from *IPRS*, livestock statistics from *MoAF*

1.4.4 - Current GIS services in Albania

Land use planning requires a wealth of information from different disciplines. A well-planned GIS infrastructure improves data integration and facilitates the dialog between stakeholders. A land-use oriented GIS is the sum of suitable methods and tools geared to effective land-use planning. GIS development requires professional training and the consideration of metadata standards, as well as the establishment of a network serving both data providers and planning officers

General features. In Albania, GIS activities are at the beginning and lack co-ordination. Existing systems stem from different projects and are used for simple tasks as digitising or map printing. Since most institutes and projects aim at producing paper maps, the use of CAD systems is common.

Private sector. Parallel to institutional services, there are GIS firms. Thanks to low labour cost, they serve western European customers. Competition imposes cost-effectiveness and state-of-the-art technology. The largest private GIS company is GIS–Albania (ArcView, PC ArcInfo, ArcCAD, AutoCAD Map). It is equipped with both GIS and CAD systems to satisfy customer needs, facilitate digitising work and be able to handle different formats. The private sector should play a role in developing a national GIS infrastructure.

Public sector. Relevant institutional GIS/CAD actors are.:
Soil Research Institute (ArcView, PC ArcInfo)
Forest and Pasture Research Institute (the use of ArcView is envisaged)
Military Geographical Institute (AutoCAD Map, Microstation, ArcView)
Geographic Centre, Academy of Science (ArcView, PC ArcInfo, ArcInfo Unix).
Geological Institute of Geology Survey (AutoCAD, Microstation, ArcView)

Relevant project-driven GIS actors are:
The Immovable Property Registration System (ArcView)
The World Bank Forestry Project (ArcView, PC ArcInfo)
The Albanian Watershed Assessment Project (ArcView)

Hardware and GI Software Systems used for managing natural resources in Albania are products of ESRI: ArcInfo (PC and Unix), ArcView. The Geographic Studies Centre and the Forestry Project are the best-equipped public GIS actors. The Soil Research Institute's GIS lab has hard-soft-ware from the previous land use project. Facilities are obsolete but can be used for routine GIS work after minor upgrades ([2]). The Geological and the Military Geographical Institute, responsible for the country's topographic surveys, uses AutoCAD and Microstations to digitise and print maps.

Professional resources. Although GIS is still rare in Albania, public projects and private firms train people. Usually, they have an academic background without specialisation in resource management, a critical knowledge to develop GIS for land use planning. Formal GIS courses do not exist, but the firm GIS-Albania delivers some training. There is also an exchange of lecturers and students between Tirana University and the Military Geographic Institute. In the past, GIS training led to staff fluctuation, due to wage differentials for GIS staff in Albania and abroad.

Mapping. Digital maps are increasing, thanks to ongoing projects. Unfortunately, mapping is poorly co-ordinated and there is no agreed standard on digital maps, which are mainly in ESRI (shape-files and coverage) or CAD (*.dxf, *.dgn) format. The existing CAD files (e.g. of the Military Geographical Institute) must often be revised before use for analytical GIS purposes.

Geo-spatial data sets. Besides digital maps, there are other geo-spatial data sets, like tables on land tenure or geological parameters. For instance, the Geological Institute maintains an Access database with geo-referenced information (Gauss-Krueger co-ordinates) on geological sample plots. Similar databases with thematic land information are being prepared by the Immovable Property Registration System Project (IPRS). For more details please see Tables III. A, B,C (see Annex 1)

In March 2001, the Soil Research Institute will carry out a national soil survey with the *Istituto Agronomico Mediterraneo* of Italy to produce a countrywide soil map at 1:250.000 scale, and a soil map at 1:50.000 to cover 250.000 ha of farmlands.

1.4.5 - Legal framework

Most of the pre-1991 laws have been invalidated. There are many basic laws which the expatriates might consider in the inception phase. The most important ones regarding the administration of land and land related resources are:
Law 7501 of July 19, 1991 "On the land",
Law 7623 of October 13, 1992 " On forests and forest police",
Law 7664 of January 21, 1993 " On environment protection",
Law 7665 of January 21, 1993 " On the development of priority areas concerning tourism",
Law 7796 of February 17, 1994 "Mining law of Albania",
Law 7843 of July 13, 1994 " On the registration of immovable property",
Law 7917 of April 13, 1995 "On pastures and grazing land",
Law 8093 of March 21, 1996 "On water reserves",

[2] *It has 3 Pentium PCs (260 and 200 MHz), PC ArcInfo, ArcView (with Spatial and Network Analyst) on a Win NT4 server. Two Win95 PCs. DIN A0 scanner. Three desk jet printers*

Law 8337 of April 30, 1998 “On the transfer of ownership of agricultural land, meadows, pastures, and forests”,
Law 8405 of September 17, 1998 “On urban planning”,
Law 8561 of December 22, 1999 “On expropriations and temporary takings of private property for public interest”.

EU Directives to be considered under the present project:
Amended proposal for a Council Directive on the Legal Protection of Databases COM(93) 464 final – SYN 393, Brussels, October 1993
Council Directives on the Legal Protection of Computer Programmes (Software Directive) 91/250/EEC, Brussels, 14.05.91
Directives to Harmonise Copyright Protection 93/98/EEC, Brussels, 29.10.93

1.5 – RELATED PROGRAMMES AND OTHER ACTIVITIES

1.5.1 - Previous Land Use Policy project

In 1993, EU-Phare funded the first LUP Project in Albania ([3]). By that time, no coherent land use policy existed. Yet, many institutions were involved in scattered land-use planning and management services. The LUP Technical Assistance project targeted a better focus in such services and tried to develop technical tools enabling decision-makers to monitor and assess land use, as a prerequisite for environmentally sustainable management. Other international projects went on in the same or related fields. The results achieved by the EU-Phare project include:

- ?? Establishment of a GIS laboratory at the Implementation Agency.
- ?? Implementation of a GIS Pilot Project and a Land Use Zoning Map in Preza Komune, plus digitised cadastral data and risk features (erosion, flood)
- ?? Socio-economic study of Preza Komune, during Phase 2 of the project
- ?? A link with the land registration and tenure database of the Immovable Property Registration System, via the Land Information System (LIS), serving as a depository of all data and research output related to each land parcel
- ?? A legal framework for a Pilot Study of the Ministry of Agriculture and Food.
- ?? Establishment of the Inter-Agency Advisory Committee, involving governmental and non-governmental agencies

1.5.2 - Forestry Project funded by the World Bank and Italy (1995-ongoing)

In 1999 the *General Directorate of Forestry and Pastures (DGFP),* managing 1 million ha, set up a digital data IT-GIS Unit. The results are: (i) national ecologic and economic data sampling/collection/storage system (1:200k); (ii) detailed digital mapping (1:25k) for thousands of forest stands; (iii) digital communal forestry data (40 communes); (iv) data integration. Five people manage the Central Unit. Regional and District Forest Offices provide feedback, using 80 stand-alone PCs. Dial-up links with HQ starts now. DGFP has signed inter-agency agreements and out-sources data processing to IT firms. In 2000, DGFP set up a Forestry Information Centre, serving parties in forestry, pasture, ecology. In 200-02, a Forest Inventory will be ready, using Remote Sensing and field surveys. Data will be disseminated via Internet. This DGFP scheme, funded by World Bank, operates a GIS lab for digital mapping and forestry/pastureland data processing to support the Forestry and Pasture Research Institute. A web server will publish its results in late spring. The PMU Director pledged technical support in land use planning.

[3] *Project AL 93 08 03 – Albania. Formulated in 1995, started in September 1996, completed in October 1998. The Implementing Agency was the Soil Research Institute.*

1.5.3 - Watershed Assessment Project

The project started in late 1999 for 5 years, funded by *USAID* and supported by the US Forest Service. The contracted US American company is MATCOM. The project covers two watersheds (the Shkumbini and Vjosa River) totalling 6.800 km2, one fourth of Albania. A GIS technician is preparing the digital maps and spatial analysis with ArcView. The digitising of all topographical maps in 1:25.000 needed for the analysis was outsourced to the firm GIS–Albania. A DEM for the study area exists. Another foreseen project component is the use of multi-temporal Landsat imagery to assess the dynamic of the land cover from 1985 to 2000. The main future activities concern the introduction of conservation measures in two pre-selected sub-basins.

1.5.4 - The Immovable Property Registration System (IPRS)

In November 1992 the Government and the major donor agencies requested USAID to take the lead on land issues. USAID, World Bank and the EC included land market activities in their country operations programmes at that time. Consequently in 1993 USAID assisted the Government in preparing the Land Market Action Plan. The Project Management Unit for the Immovable Property Registration System (IPRS-PMU) is responsible for the implementation of this Action Plan. The IPRS-PMU commenced activities in early 1994. The Action Plan's original goals were to:

- ?? Create the property records for a new Registration of Immovable Properties;
- ?? Establish the legal framework for dynamic, accessible and environmentally sustainable immovable property markets.

Meanwhile, IPRS has acquired a good expertise in photogrammetry and mapping. The cartographic projection is based on Bessel and Krasowski Elipsoid and Gauss-Krueger co-ordination system. The transformation of old maps (Soviet and Chinese influences) is going on. The IPRS, assisted by US experts, started initiatives to co-ordinate GIS in Albania. A GIS Association statute was drafted but failed to materialize due to diverging interests. The legal advisor handles all legal issues of IPRS, taking care of translating the laws into English.

2. - PROJECT OBJECTIVES

2.1 - OVERALL OBJECTIVES

The main objective is to set up the basis to sound policy formulation capabilities of the concerned Albanian institutions, in order to improve the conservation practices toward the establishment of a sustainable management of natural resources.

2.2 - SPECIFIC OBJECTIVES

The project purpose is to establish a GIS-based Land Use Policy tool, for land-use policy formulation and planning, relying upon:

- ?? the creation of a critical mass of expertise - including decision-makers, planners, GI managers - in land use planning methods and GIS
- ?? the design of the legal framework to ensure data exchange, copyright etc..

2.3 – EXPECTED RESULTS

The project is designed to yield, at the end of its 14-month performance period, the following output:

(i) An Operational Manual to provide methods, standards, protocols and quality control procedures for integrated natural resources inventories (i.e. landscape ecology maps), mapping (scales, reliability, minimum management unit etc.), and land utilisation types (LUTs) models for crop and land use requirements, land suitability and environmental impact assessment.

(ii) A Land-Use Planning Application nation-wide, and for a pilot area at regional and local scale, featuring comprehensive thematic databases on natural resource, linked to a GIS to display and print data-combination maps.

(iii) Appointment of a permanent Technical Advisory Committee. It will be responsible for co-ordinating, maintaining, up-dating, validating and fine-tuning procedures, standards and protocols related to land use planning.

(iv) A GIS Infrastructure to process and harmonise data from different sources at a Central Node under MoAF.

(v) An International and Open Metadata Standard, containing information on Albanian present and future land data to be produced by the project.

(vi) Operation of a Web Page for the project, to publish results and on-going activities and to host the mentioned metadata base that can be queried to get up-to-date information about available spatial data in Albania.

(vii) A National Workshop to be organised in order to present, explain and discuss the set up of the GIS system, its applications in land use planning, follow-up proposal, including activities to maintain and upgrade the system.

(viii) National Staff Training Courses in land use planning procedures and GIS to maintain project facilities and implement further land use planning.

(ix) A Critical Review of the Existing Legislation on natural resource management.

(x) A Legal and Administrational Strategy to support the land use planning and use policy in general (institutionalising the process) and in detail.

(xi) A Critical Review of Legal Instruments related to data policy (copyrights, internet publication, etc.) in an international context will be produced.

2.4 - PROBLEMS TO BE ADDRESSED

2.4.1 - Policy framework formulation

Albania urgently needs to lay down the fundamentals of a land use policy geared to assist decision-makers for sustainable agricultural growth. The high concern for such policy is not fully matched by a clear knowledge of its purpose. Trained professionals are few and the brain drain negatively affects sector projects. Land-use planning entails the joint work of land users and land planners. The knowledge of land users in dealing with their environment is a resource not to be neglected.

2.4.2 – Main environmental issues

Due to fragile environment, land degradation, mostly erosion, affects large parts of Albania and is slowly destroying the regenerative capacity of vulnerable areas, where land-use is not adapted to natural conditions. Soils, plants, the soil-water balance, even the local microclimate, are affected and desert-like conditions are spreading. The so-called “man-made desert” is created. Land use methods incompatible with natural conditions are the major cause of depletion of agricultural resources. Priority should be given to land-use control, as it is much easier to reorganise the use of undamaged land than reclaim the degraded one.

2.4.3 - Land use data management constraints

Several land management agencies are planning or implementing computer databases. Spatial data providers produce digital maps, but due to poor co-ordination, there is a fear for data inconsistencies and system incompatibility. To improve spatial data production from both a geographic and an economic viewpoint, GIS/CAD actors should agree on digital mapping standards. A state-of-the-art GIS infrastructure under MoAF, is needed to upgrade Albanian standards in generating, loading, processing and exchanging geo-spatial data. Land resource and use information is dispersed in different agencies, with no obvious co-ordination with international projects. Data collected by public and private producers are not integrated into countrywide coverage and fail to satisfy users’ demand. The lack of national standards - e.g. scales to be used, quality control procedures, geographical projection, datum and co-ordination system, etc. - affects the accuracy of land surveys, hampering the integration of maps made by different people, even at the same scale. Available land evaluation and planning tools do not enable integration of data sets into maps showing land potentials, constraints and optimal use.

2.4.4 - Bottlenecks in land use data exchange

Information technology - e-mail and World Wide Web - is still at its beginning. It does not allow efficient digital-data exchange and dissemination between institutions via the Internet. However, the local IT infrastructure is evolving and now it is the appropriate time to develop applications to strengthen the use of the Internet and extend its facilities for the stakeholders of the land-use planning process.

2.4.5 - Institutional constraints

Strategies should be developed to collect such data, answering the questions of "what data are to be collected, by whom, for what purpose, and how". Furthermore, reliable data exchange networks should link public agencies and private firms. The current institutional mandates do not define clearly the responsibilities for land use planning and management. Concerns exist over roles. To curb confusion, steps should be taken to formulate a spatial data production and management policy. It is

a matter of high priority to develop a comprehensive and co-ordinated environment for the production, management, dissemination and use of geo-spatial data.

2.4.6 - Legal constraints

The existing legislation on data sharing, copyright and mandates is inadequate. As land use planning is a multi-disciplinary exercise, data from different sources are required. Data sharing among agencies of different Ministries is needed. Apart from the Ministry of Agriculture as project beneficiary, the issue is extended to other sector contributions, currently occurring only on a voluntary, personal goodwill basis. Data sharing between agencies is the exception rather than the rule.

3. – ASSUMPTIONS AND RISKS

3.1 - ASSUMPTIONS AT DIFFERENT LEVELS

External factors outside the immediate control of the project include the coordination of government services involved in land use planning. It is assumed that the MoAF will use its coordination powers to enforce data exchange between government agencies between themselves and with the projects and the private sector. A Technical Advisory Committee will be set up, representing the key agencies and the project authorities. The Team Leader of the present project will be a member of the Committee and will be in charge of reporting about progress in data sharing matters.

It is also assumed that the government authorities responsible for the reform of the legal framework will collaborate with the project to formulate a Draft Bill of Law for passing legislation on GIS and land use planning, taking into account the harmonization needs with European Directives in the matter

Government support is needed to set up a common approach to create an Albanian database and to make this generally available. A joint decision to set up, adopt and use general data exchange standards is expected to be taken. An agreement to initiate legal studies to address issues such as copyright, liability, misuse of information specifically with respect GIS is also recommended

3.2 - RISKS

The application of the land use planning process will be heavily conditioned by the availability of data to be supplied by the institutions concerned with the project and not dependent on MoAF. Due to the lack of a central responsibility in this field, collaboration will be prompted only by goodwill, unless instructions conveyed by proper coordination are given during the during the project implementation period.
The brain drain is a permanent risk that can be reduced by both economic incentives and by training a number of personnel much larger then the job positions to be covered by the project.

4 - SCOPE OF THE WORK

4.1 – GENERAL

4.1.1 - Project approach

Bearing in mind that "land use planning" means different things to different people the present project considers it as the “systematic assessment of physical and socio-economic factors to assist land users in selecting options that increase productivity and sustainability, satisfying the needs of society”.

Albania urgently needs a long-term land-use policy relying on sound information. Visible symptoms of growing land-use hazards include: migration to towns; low rural incomes; unemployment; unreliable crop yields; encroachment on forests and wildlife; rural conflicts; spreading of non-agricultural land uses; erosion; silted bottomlands; woodland degradation; irrigation water salinity; flooding. The underlying causes are population pressure on land; natural hazards; resource limitations (e.g., poor water supply); mismatch land use/suitability and related planning deficiencies.

Albania has a low ratio of arable to total land and a high rate of rural manpower. Land is scarce, labour abundant. The balance between the two factors urges for a long-term strategy targeting intensive land use and high income per land unit. The demand for arable land, pasture, forestry, tourism and urban development exceeds available land and grows with time. Land use change meets demand, yet brings conflict between individual and public interests. While land taken for urban or industrial use affects agriculture, farmers vie for forestry, wildlife and water supply areas

4.1.2 - Beneficiaries of the project

Soil Research Institute is the direct recipient of the project. However, many direct and indirect beneficiaries might result in long term from single farmers, local communities, up to urban planners and policy makers. The Contractor is expected to involve also:

- Military Geographical Institute
- *Forest and Pasture Research Institute*
- Immovable Property Registration System IPRS/PMU
- Geographic Studies Centre of the Academy of Science
- Institute for Hydrometeorology
- Geological Research Institute of the Albanian Geological Survey
- Department of Geography of the University of Tirana
- The World Bank Forestry Project
- The Albanian Watershed Assessment Project
- International Multi- and Bi-lateral Donor Agencies: EU, FAO, USAID, GTZ, etc.

4.2- SPECIFIC ACTIVITIES

To provide guidance for the proposal, a minimum set of Work Packages has been defined. The Work Packages correspond to a group of activities which form the main components of the project.

The proposal should follow the guidelines set out below and enrich the scope of work with innovative ideas based on the experience of the bidder, who is expected to clearly define the input and output of the outlined Work Packages.

Work Package 1: Development of Prototypical Land-Use Planning Procedure

The activities aimed at fulfilling the specific objective will bear upon these items:

- Analysis of the existing status quo referred to land use planning and to address problems of data availability, data accuracy, data reliability, data procurement, data exchange and data policy and publication.
- Appointment of a Technical Advisory Committee (staffed by the representative of major institutions in the Land Use sector) entrusted to maintain, up-date, validate and fine-tune the standards and models developed during project implementation.
- Preparation of an operational manual for a preferred model of land use planning with prescribed methods, standards and protocols for each level of planning.
- Land use planning at national level (i.e. 1:200.000 scale).
- Selection of a pilot area representing relevant environmental issues where to test land-use planning at regional and local level.

Under Work Package 1, the bidder is expected to carry out the following activities:

(i) define and test the most appropriate methodological approaches to identify *land units* (i.e. specimen of legend, minimum mapping unit, nature and reliability according to descending order of scale, etc.); **(ii)** determine the relevant *land characteristics* and *qualities* to describe the land units; **(iii)** identify the more common *land-use systems* (i.e. these may be farming systems or systems based on forestry, or dominant crops, etc.) as well as their land requirements; **(iv)** train land use planners on the job; **(v)** test the implemented GIS infrastructure both from the technological point of view and from its capability to involve the stakeholders in the process of data exchange and analysis; **(vi)** produce an integrated database system capable of storing and managing geographic information for all levels of planning; vi) carry out land suitability classification essentially in physical terms; vii) tackle land erosion and land fragmentation problems.

Work Package 2: Implementation of a Centralised GIS Infrastructure to Manage Natural Resources and Support Land Use Policy

Under Work Package 2, the bidder is expected to fulfil the following tasks:

(i) Select and install the best technical option for the central GIS node under MoAF, so as to retrieve and process spatial data from other providers.
(ii) Install the best technical option to complete the existing or establish new secondary GIS nodes under MoAF, at the Soil Research Institute and Forestry and Pasture Research Institute, digitising and processing spatial data.
(iii) Procure or update the needed hard- and software as per EC procurement
(iv) Define digital mapping standards for the MoAF according to the different planning levels (national, regional and local).
(v) Collection, harmonisation and input of relevant land resource data.

(vi) develop a procedure for incorporating cadastral data of IPRS in land use GIS
(vii) Evaluate the opportunity to adopt the 1:50.000 scale paper maps recently produced by the Military Geographical Institute.
(viii) Install a web page with general information about the project, on-going and final results, in order to gain an optimal public visibility.
(ix) Define an international open Metadata Standard - like Dublin Core, ISO/TC211 or FGDC - to describe the spatial data generated and used by the project. To achieve best compatibility with European standards, the on-going standardisation of the relevant technical EC panels shall be considered.
(x) Set up an open metadata base, accessible via Internet (distributed database management) to enter/update all records used or results yielded by the project
(xi) Establish a technical advisory group to support GIS activities and digital data harmonisation, and to maintain, up-date, validate and fine-tune the standards and the models developed during the project implementation.
(xii) Hold a workshop at an early project stage to present the objectives of the land-use GIS, debating and promoting optimal standards with other GIS actors

Work Package 3 : Prototypical Testing and Evaluation of the Land Use GIS

Activities under Work Package 3 are conceived to fulfil the specific objective by testing the functionality of the web-extended GI System and report shortcomings and improvements.

(i) Provide Input and retrieve a set of prototypical and relevant data to accomplish a land use plan on a regional and local level.
(ii) Compile a pilot database from data suitable for land use planning. This will include geo-referenced data sets from MoAF and external data providers, with statistics, vector and raster data (e.g. aerial photos or satellite imagery).
(iii) Query and retrieve data from existing databases using the metadata set developed within the previous Work Package.
(iv) Query mapped and statistical data from different sources with the option to process the information and produce new mapped or statistical products
(v) Ensure that the original data sources can be traced to maintain maximum transparency in data quality control.
(vi) Assess information system capabilities, its networking and other functionalities
(vii) Address the issue of data quality control.
(viii) Report problems occurred and possible improvements
(ix) Recommend how to maintain up-date and improve the functionality of the GIS.

Work Package 4: Human Resources Development, including training of land use planners, decision-makers and GIS experts

It is crucial to have a planning vision for professional skills development. Seminars, workshops and short training courses will enhance awareness of the need for a proactive land-use approach, attracting a wide spectrum of politicians, policy-makers and civil servants in the sector. In the short run, time is unlikely to be enough to train people to such levels as to fully perform management approaches required by state-of-the-art land-use planning methodologies. Nevertheless, a mix of technical training, combined with management and organisational training would be beneficial

for nationals to acquire basic knowledge related with techniques such integrated resources mapping, landscape ecological surveys and land suitability assessment.

Under Work Package 4, the bidder is expected to bear in mind the following actions:

(i) Train a critical mass of experts for GIS-oriented land use planning
(ii) Train a critical mass of experts able to operate/maintain a GIS, performing multi-dimensional (tabular, planimetric, volumetric, chronologic) GIS analysis and developing specific databases and applications for land use planning.
(iii) Address brain-drain issues and the turnover of qualified staff.
(iv) Introduce sustainable education and training methods and facilities for national land use planners and GIS experts (university, private sector, institutions).

Work package 5 : Legal framework

Under Work Package 5, the bidder is expected to bear in mind the following:

(i) Critically review the legislation on the management of natural resources.
(ii) Develop a legal and administrational strategy to support the land use planning process in detail and land use policy in general (institutionalising the process).
(iii) Address data policy issues (copyrights, data warranty, internet space, etc.) in an international perspective, conceiving of legal tools to address the issue.
(iv) Harmonise the national sector legislations with the European Directives.
(v) Elaborate a Draft Bill of Law to provide the Parliament with a consistent and comprehensive basis for the enactment of the legislative framework required to enforce the new land-use planning policy.
(vi) Develop the institutional and regulatory framework and management procedures, based on the revised legislation.

5 - LOGISTIC AND TIMING

5.1 – PROJECT LOCATION

The project will be located at the Soil Research Institute in Tirana that must provide office and working space for the expatriate and local personnel.

5.2 – PROJECT PERIOD

The project should last about from 14 to 15 months as depending from the starting date and closing date as of 30 November 2002 unless an addendum is granted following the extension of the program AL 9805 and availability of funds.

6 - REQUIREMENTS

6.1 - CONTRACTOR'S DUTIES

The Contractor's shall provide:
- Deployment of skilled personnel for administrative and financial management;
- Technical support;
- Training of local staff;
- Procurement of goods and services, in accordance with Phare procedures liasing, as necessary, with the Phare PMU, MoAF.

The Contractor will be responsible for co-ordination between the recipient and any other donors operating in the disciplines related to land use planning. The Contractor will report to the PMU about such co-ordination. The Contractor is asked to contribute to enhance the image of the Phare programme in Albania.

6.2 - CONTRACTOR'S PROFILE

The Contractor should demonstrate a positive background in:
- Project management of Land use planning projects.
- General and specific experience in the fields of the programme, either in Albania or regions with similar environmental features in EU or EE countries.
- Provide specialists experienced in the development and implementation of land use policy, including the inter-related institutional/organisational aspects.

6.3 – CONTRACTOR'S RESPONSIBILITIES

The Contractor will be responsible for the overall contract performance, finance and expenditure, in particular to:
- Provide for lodging, housing, international and local transport, field trips and freight expenditures of all staff;
- Hire local support staff and provide for cover expenses for translation of land use planning guidelines and all relevant documents and reports into Albanian;
- Define the profiles and collaborate to select the people to be trained;
- Provide for office running costs;
- Prepare terms of reference and technical specifications;
- Undertake tendering, contracting and financial responsibilities linked to sub-contracting of services and procurement of goods for project implementation;
- Provide, if necessary, for international, local transport, accommodation costs, per diems etc. for overseas travel by Albanian professionals.

6.4 – CONTRACTOR'S PERSONNEL

As regards the staff development, a multidisciplinary team will be preferred, consisting of professionals with many years of relevant experience in their own country and at international level. All the international experts will pay particular attention to the need to ensure that local staff fully understand the concepts, methods and procedures proposed and the structure of the system being installed by the project, and that by the end of the project they are fully capable of maintaining and further developing to the need of the country. The following team will be made available to the programme.

6.4.1 - Long-term experts

There are needed two residents, one as Land Use Planner/Team Leader, and the other as GIS Operator. A local counterpart, designed by the Ministry of Agriculture in

collaboration with the Team Leader, will support each resident expert of the EU team

It is required that long term experts demonstrate strong experience in technical assistance to the relevant sectors in developing and EC countries, with a sound background in agricultural management projects. Past experience in land use planning programmes is highly desirable as well as confidence with the technical-economical sector of Phare or Eastern countries. Sound English knowledge is requested; Albanian and Italian will be an asset.

Land use planner / Team Leader (13 months) - The expert has an academic degree as agronomist or earth sciences with specialisation on Land Evaluation and Land Use Planning. He will have at least 15 years of working experience as international expert. He/she will have a practical background at international level on integrated surveys at all intensities, both for general and specific purposes. His own field experience should cover a sound knowledge of aerial photo-interpretation, surveys methodologies (including costs and timing) and land evaluation as well as management of the activities. Adaptability is proven by a diversified experience, preferably developed in countries belonging to Europe (Western and Eastern) or to Mediterranean area. He should have study and analysis skills, as well as management and decision capacity. The ideal candidate will be also experienced in training of the personnel.

GIS operator (13 months) -The GIS operator must have more than 5 years of working experience in advanced GIS applications for the management of natural resources, land use planning, forestry, agriculture or related fields. He/she must demonstrate sound experience in analysing multi-dimensional spatial data sets (tabular, planimetric, volumetric and multi-temporal) using raster and vector based approaches. He/she must have good experience in developing GIS models to describe and analyse natural processes. Technical skills concerning the handling of relational databases are required. The ability to teach basic GIS functions (data input, procession and output) in English language is expected, whereas knowledge in Albanian and Italian is an asset.

6.4.2 - Short-term experts (500 man/days)

Qualified short-term experts will carry out specific tasks related to land use planning concerning Land Evaluation, natural resources surveys, GIS infrastructure development, and legal advisory. It is up to the tendering company to propose the respective duration of the assignment for each one of the short-term experts as related to the required results.

Agronomist/Land Evaluation expert - The expert will have an academic degree in agronomy, agricultural economics or business with specialisation on Land Evaluation for agriculture and Land Use Planning and at least 10 years of working experience. A comprehensive background in land utilisation types, land and crop requirements, selection of land qualities and characteristics, and land suitability classification, are required. Experience in countries belonging to Europe (Western and Eastern) or to Mediterranean area is requested. He should have study and analysis skills, as well as management and decision capacity. The ideal candidate will be also experienced in training of the personnel. Sound English knowledge is requested; Albanian and Italian will be an asset.

Forester/Land Evaluation expert-The expert has an academic degree as forester with specialisation on Land Evaluation and Land Use Planning for forestry, with at

least 10 years of working experience. A strong experience is required in forest land utilisation types, land use requirements, selection of land qualities and land suitability classification for forestry. Experience in European countries belonging to (Western and Eastern) or to Mediterranean area is requested. He should have study and analysis skills, as well as management and decision capacity. The ideal candidate will be also experienced in training of the personnel. Sound English knowledge is requested; Albanian and Italian will be an asset.

Land resources expert- He/she must have an academic degree in earth sciences or related fields. He/she must have an outstanding experience, at least 10 years in countries belonging to Europe (Western and Eastern) or to Mediterranean area, in the following fields: integrated land resources surveys; geomorphologic surveys and remote sensing. The ideal candidate will also be experienced in land use planning and in training people. Sound English knowledge is requested; Albanian and Italian will be an asset.

GIS Manager- He/she must have an academic degree, with at least 10 years of working experience in the field of Geographic Information Management. He/she should demonstrate sound experience in developing and implementing an operational GIS infrastructure for the management of natural resources in an international environment. A sound knowledge of practised international standards to collate, describe and exchange spatial data is required. A comprehensive understanding of ecological processes and methods of land resource management is essential. A good insight into the latest Information Technology developments is an asset. The ideal candidate will be also experienced in training of the personnel. Sound English knowledge is requested; Albanian and Italian will be an asset.

Web Expert- The Web Expert must have good technical computer skills and experience in setting up and maintaining a network infrastructure (LAN, Intranet, Internet) within a WindowsNT/2000 or Unix/Linux environment. He/she must be able to design and program an interactive web page using a common Markup Language (e.g. HTML or XML) and Scripting Codes (e.g. PHP, VBScripts or Java Scripts). He/she should be familiar with the concepts of a distributed database management. Sound English knowledge is requested; Albanian and Italian will be an asset.

Legal Advisor- The candidate will have an academic background in legal sciences, with an experience of at least 10 years. A specific knowledge of western laws concerning issues related to land use policies, copyright, procedures of data exchange, administrative links among different institutions is requested: previous experiences in the same field in eastern countries represent an advantage.
Sound English knowledge is requested; Albanian and Italian will be an asset.

Backstopping- The complexity of the project, the number of experts involved and their high turn over require a sound backstopping activity. The responsible of backstopping should demonstrate an area of activity with extensive (15 years at least) experience in development and institution building in developing countries. He/she is a project co-ordinator, has physical experience of working in EU and Eastern Europe countries and he is aware of EC PHARE procedures.

6.4.3 - Local staff

The project team will be supported by Albanian homologues. Local experts will be selected and hired according to the criteria established by the Technical Advisory Committee. The way the expatriate team thinks to utilize local human resources is a

part of the methodology proposal. They will be placed under the supervision of the Technical Co-ordinator for the duration of the project.

6.5 - EQUIPMENT

The Contractor will provide equipment, mainly hardware and software, required to develop the system, in addition to that already available at the Soil Research Institute. In addition, a 4-wheel drive car is required, as well as office equipment.

6.6 - COSTS

The contractor should bear all the costs except that for office space, GIS lab, and reports, maps, and other hard copy that are property of the institutions under the authority of Ministry of Agriculture and serve to the project purpose. The provision of other documents should be made with regard to the existing laws.

6.7 - COMMITMENT OF THE BENEFICIARY

Accompanying measures that the Ministry of Agriculture and Food is expected to undertake during and after implementation of the project will bear upon the following:

- Establishment of a permanent, adequately staffed unit to develop, maintain, and administer the system developed by the project; and allocate the financial resources necessary to maintain and further develop the system beyond the end of the project into a full-fledged comprehensive GIS.
- Establishment of a Technical Advisory Committee for the project, composed by representatives expertise from institutions generating land resources and land use information, and users of such information.

The beneficiary will make available, to the project, office and working space, the necessary background documentation, and will facilitate the project team's work with all the means at its disposal.

The beneficiary will facilitate the holding of workshops, by designating and grouping the participants and by providing adequate meeting rooms.

7 - REPORTING

The Contractor shall submit the following reports to: PMU and EU delegation in English, and MoAF and Soils Research Institute in Albanian.

7.1 - INCEPTION REPORT

It shall be submitted to the Contracting Officer, with copy to the PMU, two months after the starting up of the project; the report will:

- detail the aims of the technical assistance and the studies to be approved
- set out a detailed work plan for the rest of the project;
- identify the counterpart staff;
- illustrate the achievements obtained.

7.2 - PERIODICAL REPORTS

This will cover all works undertaken in the various phases. The Contractor shall submit to the PMU quarterly reports as per Phare formats and procedures. All reports will include the survey/strategy design and implementation, covering:

- General Progress: (actions, meetings with Recipient Institutions etc.)
- Problems encountered (and the solution found or not found)
- Short- and long-term recommendations, respectively within the life of the programmes and beyond
- Requests.

The reports should distinguish between activities achieved and considered finished and activities currently under way so that the evolution of the programme is clear.

8.- MONITORING AND EVALUATION

8.1 - INDICATORS

The Soil Research Institute and the Ministry of Agriculture and Food, as direct beneficiary institutions, will monitor the project. The monitoring system will be installed and implemented complying with EU standards and reporting formats. The key indicators to be utilised to evaluate the intermediate results in relation to the objectivs are the following ones:

- A Land-Use Planning Application nation-wide, and for a pilot area at regional and local scale
- A GIS Infrastructure to process and harmonise data from different sources at a Central Node under MoAF.
- An International and Open Metadata Standard, containing information on Albanian present and future land data to be produced by the project.
- A National Workshop to be organised in order to present, explain and discuss the set up of the GIS system, its applications in land use planning and the follow-up proposal, including activities to maintain and upgrade the system.
- National Staff Training Courses in land use planning methods and GIS techniques to maintain project facilities and implement further land use planning schemes
- A Legal and Administrational Strategy to support the land use planning and use policy in general (institutionalising the process) and in detail.

8.2 – REVIEWS/EVALUATION

The EC will carry an ex-post evaluation mission within six month after project completion. In the event that the monitoring system points out the need to take strategic decisions on the course of action at some critical points of the project performance period, the EC will consider whether a mid-term evaluation mission is required.