
PROPOSAL TO STUDY THE ECONOMIC AND ENVIRONMENTAL BENEFITS OF REDUCING SOIL EROSION IN ALBANIA

by

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Terra Institute, Ltd., has provided technical assistance in Albania since 1994. Under both the Land Legislation and Policy Project (LLPP) and the Land Markets in Albania Project (LMAP), the Institute has archived almost 50 reports, papers, draft legislation, and commentaries on land legislation, land registration, land tenure, and other land market-related activities in Albania.

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TABLE OF CONTENTS

Glossary		iii
1.	Introduction	1
2.	Economic and environmental benefits of reducing soil erosion in Albania	2
2.1	Background	2
2.2	Objectives	2
2.3	Approach	2
2.4	Anticipated significance and products	3
2.5	Project organization and schedule	4
2.6	Institutional capabilities	4
2.7	Budget	4
3.	Daily log of activities	6
Annex 1	Letter to Albert Dubali regarding land protection activities, 29 June 1995	10
Annex 2	List of contacts	11

GLOSSARY

CEP	Council on Environmental Protection
EU	European Union
FAO	Food and Agriculture Organization
FPRI	Forest and Pastures Research Institute
GIS	Global Information System
HI	Hydrometeorology Institute
IFDC	International Fertilizer Development Center
IPRS	Immovable Property Registration System
LIS	Land Information System
LPAP	Land Protection Action Plan
LRI	Land Research Institute
MOAF	Ministry of Agriculture and Food
NGI	National Geographic Institute
NGO	non-governmental organization
PMU	Project Management Unit
PPNEA	Preservation and Protection of the Natural Environment in Albania
SARA	Support for Agricultural Reorganization in Albania
VOCA	Volunteers for Overseas Cooperative Assistance
WG	Working Group
WWI	Institute for the Study and Design of Waterworks

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1. INTRODUCTION

In 1995, the Project Management Unit (PMU) of the Immovable Property Registration System (IPRS) decided to investigate the critical problem of soil erosion and associated nonpoint pollution and methods of control. In June 1995 the following activities were undertaken to set the parameters for this study of the economic and environmental benefits of soil erosion control in Albania:

- ◆ Work with the Working Group on Land Protection to develop the outline of a Land Protection Action Plan, determine what assessments are needed to complete the plan as well as who can check those assessments, and establish what financial and technical assistance the Working Group will need for preparation of an Action Plan.
- ◆ Verify what programs are already being implemented by national and international agencies, or are planned and approved for the next 2 to 3 years, that impact on land protection [Agency for International Development (AID) solid waste and forestry programs, World Bank environmental/forestry program, European Union (EU) extension program, EU-PHARE Environmental Programme, Support for Agricultural Reorganization in Albania (SARA) proposal for restructuring the Ministry of Agriculture and Food (MOAF), the varied nongovernmental organization (NGO) work, and the like].
- ◆ Prepare a proposal for consideration by the Land Protection Action Plan Working, emphasizing the potential opportunities it offers for important future activities and highlighting how it complements already approved programs.

This report contains a draft of the proposed study, a budget covering its suggested activities, and a daily log of the investigator's discussions with individuals and institutes that would conduct the LPAP research and prospective donor organizations. It is annexed by a summarizing letter to the head of the LPAP Working Group and a list of contacts.

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2. ECONOMIC AND ENVIRONMENTAL BENEFITS OF REDUCING SOIL EROSION IN ALBANIA

2.1 BACKGROUND

Soil erosion and associated nonpoint pollution pose critical problems affecting the economic welfare, food security, and public health of Albania. Each year nearly 60 million tons of sediment are deposited by Albanian rivers into the Adriatic Sea. This translates into a national average soil erosion rate of 27.2 tons per hectare per year, which is more than twice the level of “tolerable” erosion established by many countries. This also means that an average of 2.3 mm of valuable topsoil is lost to the ocean each year. Accompanying this topsoil are agrochemicals such as pesticides and fertilizers as well as industrial pollutants, which are transported to reservoirs, rivers, lakes, and the ocean, causing degradation in water quality.

Natural levels of erosion are high in Albania because of steep slopes (27% average), high rates of rainfall (1,500 mm average yearly), and highly erodible soils (low levels of organic matter and high levels of silt and clay). However, the levels of soil erosion have increased historically because of terracing steep, highly erodible slopes, uncontrolled and illegal deforestation, and overgrazing of pastureland.

The economic consequences of soil erosion in Albania are great. The loss of topsoil has reduced the yields of arable crops (largely wheat, corn, and rice), forage, fruit trees, and vineyards, which are vital to Albania’s food security. Many of the country’s 630 reservoirs are becoming filled with sediment, which lowers their storage capacity, damages turbines producing hydroelectric power, and augurs catastrophic flooding. The removal of sediments from existing reservoirs or the construction of new basins are costly enterprises that Albania cannot afford. Sediment has accumulated in drainage channels of reclaimed coastal land, causing flooding, accumulation of salts in the soils, and reduced agricultural productivity.

The environmental consequences of soil erosion include not only a loss in biological sustainability and diversity but also a decline in water quality and fish and wildlife habitats. Pollutants from agricultural, municipal, and industrial activities that accompany the sediment may threaten human health.

Although most Albanian private landowners and policymakers are aware of the problem of soil erosion, there are few quantitative data on the extent and magnitude of the crisis, the most cost-effective control measures that can be applied to the diverse Albanian landscapes, and the economic consequences of the extent of soil erosion. For these reasons, a study of the economic and environmental benefits of soil erosion control in Albania should be undertaken immediately.

2.2 OBJECTIVES

The objectives of the proposed study are:

- ◆ to quantify the magnitude of soil erosion and its effects on water quality at three levels of intensity—site-specific, watershed, and nation as a whole;
- ◆ to identify high-risk areas for immediate soil erosion control using a geographic information system;
- ◆ to create a public awareness program that uses soil erosion control as an example of land protection in Albania;
- ◆ to monitor the effectiveness of soil erosion control on discharge of sediments into the Adriatic Sea using remote sensing; and
- ◆ to determine the economic benefits of soil erosion control.

2.3 APPROACH

The following methods will be used to complete the study.

Monitoring soil erosion. The magnitude of soil erosion will be determined at three scales: site-specific, watershed, and national. On a site-specific scale, soil erosion will be measured by collecting runoff and suspended sediment on a monthly basis from plots (4 replications) established at 21 sites. The sites will be selected from districts that feature moderate, significant, and critical levels of soil erosion. The sites also will be selected according to factors identified in the Universal Soil Loss Equation as contributing to soil erosion, including slope steepness (<25%, 25-40%, and >40%), broad climatic zone (Mediterranean flat, Mediterranean hilly, Mediterranean sub-mountainous, and Mediterranean mountainous), soil erodibility (very heavy clay, heavy clay, moderate clay,

light, and sandy), cropping factor (wheat, maize, improved pasture, unimproved pasture, oak forest, olive trees, grape vineyards), and management practice (cultivated and minimum tillage).

An annual soil erosion rate will be determined from the amount of suspended sediment in the runoff summed from monthly collections. The suspended sediment will be analyzed for humus content, available soil nutrients (nitrogen, phosphorus, potassium), calcium carbonate, and sand, silt, and clay concentrations. The solutions will be analyzed for turbidity, pH, and electrical conductivity (i.e., total dissolved salts). Selected samples (about 5%) will be analyzed for pesticides, biological oxygen demand, and heavy metals (copper, cadmium, zinc, and lead). This work will be done by the Forest and Pastures Research Institute (FPRI), the Institute for the Study and Design of Waterworks (WWI), the Hydrometeorology Institute (HI), and the Land Research Institute (LRI).

To measure the rate of erosion on a watershed level, 30 reservoirs will be selected from the 10 major rivers of Albania. Sediment cores will be collected to the base of the reservoir and sedimentation rate will be determined from the amount of sediment and the time of construction of the reservoir. Selected samples will be taken from different levels of the cores for analysis of heavy metals and pesticides. This work will be carried out by WWI, HI, and LRI.

The overall rate of erosion for Albania will be monitored by collecting monthly samples from the 10 major rivers, including the Drini, Fani, Mati, Ishmi, Erzeni, Shkumbini, Osumi, Devolli, Semani, and Vjosa. The particulate and dissolved constituents will be analyzed in the same way as on erosion monitoring plots. This work will be completed by the HI, WWI, and LRI.

High-risk areas of soil erosion. The areas of significant and critical soil erosion (i.e., that exceed a “tolerable” level) will be determined from remote sensing. The site-specific erosion measurements will provide the “ground truth.” The data will be analyzed using a geographic information system (GIS), such as ARC-INFO, and displayed on 1:50:000 district maps.

Specific kinds of soil erosion-control practices will be applied to site-specific plots in high-risk areas and their effectiveness will be determined by monitoring sediment yield. Examples of soil erosion-control practices to be employed include conservation tillage, use of grassed waterways, controlled grazing, and buffer strips between crops. This work will be done by the FPRI, the LRI, and the Agricultural Universities of Tiranë and Korçë. The remote sensing and GIS components of the project will be done by the Land and Forestry Directorates of the Ministry of Agriculture and Food.

Environmental awareness program. The level of public environmental awareness in Albania is comparatively low because environmental education has not been part of the elementary and high school curricula and printed information on the concepts of environmental science has been lacking. We will use the issue of soil erosion to demonstrate the importance of the principles of land protection to the quality of life in Albania. These efforts will be coordinated by the Public Relations section of the Committee on Environmental Protection (CEP) of the Ministry of Health. Several of the site-specific soil erosion sites will be used as demonstration studies in cooperation with the Agricultural Universities of Tiranë and Korçë, technical agriculture schools, local *komuna* and schools, and private farmers. Leaflets dealing with the issue of soil erosion will be created by the FPRI and LRI and distributed by the EC-PHARE Agricultural Development Programme. Arrangements will be made to prepare a video for showing on Albanian television.

Land information system monitoring. The effectiveness of soil erosion-control measures at the national level will be demonstrated by using remote sensing to examine the sediment discharge plume at the mouths of each of the eight major rivers draining into the Adriatic Sea. This work will be done by the cooperative efforts of the WWI, the HI, and the Land and Forestry Directorates.

Economic benefits of soil erosion control. There are many demands on Albania’s limited financial resources at this time of governmental transition. Therefore, a cost/benefit analysis will be made to illustrate the effectiveness of soil erosion control. This analysis will balance the cost of soil erosion control against the benefits of that control, including soil sustainability, reservoir and drainage channel longevity, preservation of fish and wildlife habitat, tourism, and human health. This work will be carried out by the MOAF Statistics and Agricultural Finance sections and the Ministry of Construction and Tourism.

2.4 ANTICIPATED SIGNIFICANCE AND PRODUCTS

There was little cooperation among administrative units, such as ministries or institutes, during the previous administration. For that reason, and despite the fact that the scientific personnel within these units are technically competent, there has been little “cross-fertilization” among the units. As a result, much of the administrative

planning and actual research has been conducted by foreign consultants. Accordingly, the goal of this research is to utilize the expertise of the Albanian scientists within the research institutes and universities and Albanian administrators within the directorates, coupled with advice from various national and international governmental and nongovernmental agencies. The proposed work is significant in that it complements the existing EU-PHARE program on a national water and a national waste disposal strategy for Albania. The proposed work is the first comprehensive study of the significance of soil erosion on the economic welfare and human health of Albania. The proposed study not only identifies the high-risk areas, but also assigns a soil erosion-control practice along with a state-of-the-art monitoring approach to judge its effectiveness. A land information system approach is offered to monitor the effects of these practices on soil erosion control. Finally, a cost/benefit analysis will show that soil erosion control is not only beneficial to the environment, but also significant in protecting Albania's food security and the health and welfare of its citizens.

2.5 PROJECT ORGANIZATION AND SCHEDULE

The project will be coordinated by an agency to be designated by the LPAP Working Group. Much of the research will be undertaken by institutes within the Ministry of Agriculture (LRI, FPRI, and WWI), the Academy of Science (HI), and the Agricultural Universities of Tiranë and Korçë. The public education work could be coordinated by the CEP with the assistance of the EC-PHARE Agricultural Development Programme. The research and public education components of the project could benefit from an advisory panel composed of members from the Ministry of Research, National Council of Water, Immoveable Property Registration System/Project Management Unit (IPRS/PMU), USAID Support for Agricultural Restructuring in Albania (SARA), Volunteers for Overseas Cooperative Assistance (VOCA), and International Fertilizer Development Center (IFDC).

The study will require three years to complete. This first draft of the proposal will be reviewed by the various institutes involved in the study. It will be refined during subsequent meetings of the LPAP Working Group during July and August 1995. In mid-September 1995, Dr. James Bockheim of Terra Institute and the University of Wisconsin will return to Albania to work with Dr. Albert Dubali of the IPRS/PMU on composing a final draft for submission to the PMU/IPRS and EC-PHARE (due October 1st). Projects submitted for EC-PHARE support in 1996 will not be funded until 1997, while priority activities could be supported by the PMU/IPRS in 1995/96.

Work will begin with the identification of sites for measuring runoff and soil erosion and of reservoirs for sediment accumulation with the installation of collectors on ten rivers. Monitoring of river discharge via remote sensing will begin in January 1998 and continue through 1999. The public education program will begin formally in the spring of 1998 with the establishment of demonstration sites and the distribution of leaflets on soil erosion control. During the third and final year of the project, the areas of high risk to erosion will be identified using remote sensing, and maps will be prepared using GIS. The discharge of sediments will be similarly monitored using remote sensing. The cost/benefit analysis will be conducted during the third year by a special group. A video will be prepared by Thoma Tola, an Albanian cinematographer, for showing on national television and in the elementary and high school systems.

2.6 INSTITUTIONAL CAPABILITIES

The proposed work will require some institutional strengthening. The LRI, for example, will need funding for upgrading its laboratory facilities. The Land and Forestry Directorates will need remote sensing and GIS capabilities. The LRI, FPRI, HI, and WWI will require additional computers. The CEP public relations section has limited funding to coordinate the environmental awareness and public education components of the proposed work.

2.7 BUDGET

The LPAP Working Group will develop a budget not to exceed US\$2 million over the next two months using the work sheets that follow.

2.7.1 Budget work sheet #1

Task	Time frame	Agency	Cost (leks)
Identify soil erosion plots	1/97-4/97	LRI	
	1/97-4/97	FPRI	
	1/97-4/97	WWI	
Select reservoirs for sedimentation	1/97-4/97	WWI	

1/97-4/97	HI	
Monitor site-specific soil erosion	4/97-12/99	LRI
4/97-12/99	FPRI	
Collect & analyze sediment from reservoirs	4/97-12/97	WWI
4/97-12/97	HI	
4/97-12/97	LRI	
Monitor river discharge	4/97-12/97	WWI
4/97-12/97	HI	
4/97-12/97	LRI	
4/97-12/97	LD	
Identification of high-risk areas	1/99-12/99	FRI
1/99-12/99	LRI	
1/99-12/99	AT	
1/99-12/99	AK	
1/99-12/99	LD	
1/99-12/99	FD	
Environmental assessment program	1/98-12/99	CEP-PA
1/98-12/99	FPRI	
1/98-12/99	LRI	
1/98-12/99	AT	
Environmental assessment program	1/98-12/99	AK
6/99-12/99	Video	
Land Information System	1/98-12/99	HI
1/98-12/99	LD	
1/98-12/99	FD	
Economic analysis	1/99-12/99	____, MOCT

LRI = Land Research Institute, FPRI = Forestry & Pastures Research Institute, HI = Hydrometeorology Institute, WWI = Institute for the Study and Design of Waterworks, LD = MOAF Land Directorate, AT = Agricultural University of Tiranë, AK = Agricultural University of Korçë, FD = Forestry Directorate, CEP-PA = Committee on Environmental Protection-Public Relations, MOCT = Ministry of Construction and Tourism.

2.7.2 Budget work sheet #2

Name of institute _____

Budget Item	Task 1*	Task 2	Task 3	Task 4
Salary/wages	_____	_____	_____	_____
Part-time labor	_____	_____	_____	_____
Supplies	_____	_____	_____	_____
Travel	_____	_____	_____	_____
Capital items (>US\$1,000)	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
Total budget request	_____	_____	_____	_____

* Please indicate the tasks for which you are including a budget such as establishment of soil erosion plots, selection of reservoirs, monitoring soil erosion plots, collection of sediments from reservoirs, monitoring river discharge, analysis of sediment and water samples, identification of high-risk areas, environmental assessment, land information system, economic analysis, etc.

3. DAILY LOG OF ACTIVITIES

Monday, June 19

Departed for Albania.

Tuesday, June 20

I arrived in Albania and was briefed by Teresa Barry. I was also briefed by Dean Massey on his visits with the EU-PHARE Extension and the World Bank forestry project personnel. Although the latter project proposes to reforest private land, it does not deal directly with soil erosion. I then met with Eve Yanda about progress with the Land Protection Action Plan Working Group.

Wednesday, June 21

Dean Massey and I met with Guiseppe Razza, team leader, and Idajet Gurabardhi, director, of EU-PHARE's Environmental Programme, which cooperates with the Albanian Committee for Environmental Protection (CEP). Razza informed me of the recently published World Bank study, "Environmental Review and Environmental Strategy Study -- Albania." [Note: I was unable to get a copy of this two-volume report from the World Bank office in Tiranë.] EU-PHARE is spending \$4 million on two environmental programs, including a national water strategy and a national waste strategy. The latter program includes a soil contamination study and the identification of sites for solid waste disposal. They are also studying the rehabilitation of soils contaminated by oil wells. According to Razza, EU-PHARE would consider supporting a comprehensive proposal on soil erosion control.

We also met briefly with Maura Schwartz of VOCA, who introduced me to ARD forestry consultants Robert Zimmerman and Steven Dennison, and Kirsten Giantris, desk officer of VOCA. I was given a copy of a report by Theo Dillaha, of Virginia Polytechnic University, on Albanian agro-environmental research methodology, with emphasis on chemical wastes. This report provides a methodology for studying chemical residues in soils and for training personnel in their detection. We scheduled an appointment with Schwartz for the following day.

We then met with Sergio Giorgi, Food and Agriculture Organization (FAO) agricultural assistance coordinator. His group promotes extension of particular agricultural products and is not involved in natural resources management.

I met again with Eve Yanda. Although she will be working on urbanization issues until her scheduled departure in October 1995, she agreed to spend a limited amount of time on LPAP activities.

In a meeting with Dean Massey, I learned that the World Bank is supporting an irrigation rehabilitation project but is not studying soil erosion.

Thursday, June 22

I received a briefing from Albert Dubali. He received four responses to our LPAP proposal of 31 March 1995, including the Forestry and Pasture Research Institute (Spiro Karadumi and Maxhun Dida), the Land Research Institute (Sulejman Sulce), the Hydrometeorology Institute (Miron Nuri, Eglantina Demiraj, and Tefik Jegeni), and the Urbanistic Institute (Gjergj Kotmila). A letter of understanding was drafted by Dubali and David Stanfield and sent to the director of the MOAF requesting that the ministries become more proactive on the issue of land protection. Dubali agreed to schedule a LPAP meeting to discuss my proposal on soil erosion control.

I met briefly with Stanfield regarding the need for a high visibility program, which took advantage of existing funding sources for soil erosion control.

I gave Sherif Lushaj of the Land Research Institute's soil fertility section some extension publications on soil testing and interpretations. If LRI chooses to become the national testing laboratory for soil, water, plant tissues, sewage, and other materials, it may wish to take advantage of the experience of Dr. Emmet Schulte or John Peters of the University of Wisconsin's Soils Department.

Dean Massey and I met with Drita Dade of the CEP's Public Relations section. She has a limited budget for a public awareness program. In her opinion the level of public environmental awareness in Albania is low because of the lack of environmental education in the schools and the lack of printed material on environmental issues in the country. She has developed a handbook for educating children on the environment and in October 1995 will host a seminar on environmental education for elementary teachers. She viewed soil erosion as a key issue and suggested that leaflets and television programs be the primary methods of outreach.

We also met briefly with Arben Pustina of the CEP Directorate of Natural Conservation; he concurred that soil erosion is a key conservation issue.

We met with Jan Veeken of the Dutch consulting firm, Environmental Resources Management, which was providing a six-day workshop for CEP personnel on writing and reviewing environmental impact statements.

We met with VOCA's Maura Schwartz. She could provide volunteers to work on soil erosion, preferably directly with farmers, if funding were available to cover overhead costs. She stressed the importance of television and leaflets for distribution in schools as major components of an environmental awareness program in Albania.

We met briefly with Steven Haynes of USAID and learned that the request for proposals for the agroforestry program had been posted but that it does not directly address land protection or soil erosion.

Elvis Pellumbi orally translated the responses of the four institutes to the LPAP proposal while I took notes.

Friday, June 23

I spent the entire day preparing a draft of a proposal on soil erosion and its control in Albania.

Saturday, June 24

We (Herman Felstehausen, Eve Yanda, Elvis Pellumbi, and Dean and Pat Massey) rode with Stefan up Mt. Dajti and photographed revegetation of terraced foothills, changes in vegetational zones with elevation, and geomorphic processes in a Mediterranean-mountain environment. The restaurant and former youth camp on Mt. Dajti occupies an uplifted marine platform as fossils and solution holes are readily observable in the limestone bedrock. Mt. Dajti was never glaciated. Tiranë occupies the head of a valley that resulted from faulting. The streams that drain this valley have been "beheaded" and angle sharply from the west to the north.

Sunday, June 25

We (Herman, Eve, Stefan, and Rachel Wheeler) went to the Durrës beach. The beaches have considerable municipal solid waste, especially paper and plastic products, and lack toilet facilities. The beaches are frequented by thousands of persons, many of whom come from Tiranë, creating massive traffic jams.

In the late afternoon, I discussed revisions of the soil erosion proposal with Stanfield.

Monday, June 26

I made corrections in the soil erosion proposal and worked with Elvis Pellumbi on translating the proposal into Albanian. I spent the afternoon updating my daily log.

Tuesday, June 27

Herman and I met with Stewart Campbell, team leader, and Grigor Gjeci, director of the EU-PHARE agricultural group. They have 0.5 million Ecu immediately available for remote sensing work. I mentioned our proposal and interest in using remote sensing for monitoring denudation by erosion and sediment delivery into the Adriatic by Albanian rivers. Mr. Campbell advised that any proposal submitted to EC-PHARE must show cooperation among institutions.

I then met with Fioreta Luli and Valentina Suljoti of the Land Research Institute. They are testing irrigation water quality and need guidelines for limits.

Eve Yanda and I once again discussed her role in the LPAP Working Group and a course of action for working with LRI scientists in producing a map of the peri-urban areas of Tiranë.

Eve and I visited with Shpetim Bimo and Altin Gjika of the IFDC. IFDC has finished digitizing the 1:50,000 district soil maps and is converting the Albanian soil classification into the FAO/UNESCO system. We learned that the National Geographic Institute (NGI), the IFDC, and the military have the only GIS capabilities in Albania. The NGI has produced administrative and natural resource maps for Albania at a scale of 1:100,000.

Wednesday, June 28

I had an aborted meeting with Leke Gjikhuri. I met instead with Vladimir Suljoti of the University of Tiranë Geology Department and Elmas Shehu of the Chemistry Department. They informed me of the many environmental organizations in Albania. The Regional Environmental Center for Central and Eastern Europe, headquartered in Budapest, Hungary, is active in Albania. Leke Gjikhuri founded the Committee for the Protection and Preservation of Natural Environments in Albania, which is primarily a public environmental awareness program and does not conduct research. Their primary modes of outreach are television and newspapers. No one at the University of Tiranë is doing work on soil erosion, but the logical departments with which to cooperate on research of this kind would be the departments of biology (ecology section) and chemistry (technical chemistry section). I was told that the Polytechnic University of Tiranë is establishing a new department of environmental studies.

I typed a letter of recommendations to Albert Dubali (see Annex 1) regarding the LPAP Working Group and the soil erosion-control proposal.

Along with Herman Felstehausen and Dean Massey, I visited with David Kunkle and Willie McCuiston of the SARA project. The plan to restructure the MOAF has been approved orally by the Minister of Agriculture. Under the plan the Land Research Institute would be combined with parts of the Institute for the Study and Design of Waterworks and moved to Fush-Kruje. Four (or possibly 5) research stations would be set up in various parts of the country. An ad hoc board set up by the MOAF recently approved 58 of 67 research proposals, which were submitted by researchers from the various institutes, in the amount of \$1 million. However, most of the money will be used for salaries.

Thursday, June 29

Dean Massey and I met with Albert Dubali. Albert stated that there was insufficient time for him to schedule a LPAP meeting and that he had arranged for us to visit each of five institutes involved in LPAP activities. Our first meeting was with Eglantina Demiraj, director of the Hydrometeorology Institute, which is in the Academy of Sciences. She received a translated version of the soil erosion proposal, emphasized her institute's interest in the issue, and agreed to forward comments to Dubali.

At the Institute for the Study and Design of Waterworks, we met with Nexhat Gjinali, head of water resources, and engineers Jorgo Deska and Bekim Lila. They reiterated their concern about Albania's 630 reservoirs receiving sediment from soil erosion and mass wasting at an alarming rate. The average rate of sedimentation in reservoirs is 5 to 6 mm per year. The WWI is very interested in participating in the soil erosion-research project, particularly since it receives no salary from MOAF and relies on consulting activities for support.

Spiro Karadumi of the Forest and Pasture Research Institute agreed that soil erosion is a key environmental problem in Albania and expressed his willingness to contribute to a revision of the proposal. An FAO project is mapping the forest vegetation of Albania, which may be useful in identifying areas of high risk to erosion. The EC-funded "Mediterranean Project" is studying the problems of desertification and erosion along the Karaburun Peninsula near Vlorë. The USAID agroforestry project deals only with private land. The National Geographic Institute has prepared a soil erosion map for the Tiranë district that may be of interest to the PMU urban planning group. The two most critical areas in the country regarding soil erosion are the Plashnik mountains in the Berati district and the drainage of the Tomorica River, a tributary of the Devolli. Most of the erosion in Albania is occurring on deforested land and degraded or over-grazed pastures.

I met with Arqile Cullaj and Leke Gjikhuri of Tiranë University and the Preservation and Protection of the Natural Environment in Albania association. PPNEA is an environmental nongovernmental organization with the primary goals of increasing public awareness of environmental problems, promoting environmental education in schools, and lobbying for governmental protection of the environment. The organization is located in an office complex with an international NGO, the Regional Environment Centre for Central and Eastern Europe. These two organizations use the following methods of outreach: campaigns, mass media (newspapers, television, and radio), scientific activities (conferences, seminars, and symposia), and special education programs for schools (e.g., Environmental Education Kit). PPNEA publishes a quarterly magazine, *We and the Environment*, and cooperates with other environmental NGOs. I purchased a copy of their most recent report of the state of Albania's environment, "The Environmental Situation in Albania and the Strategy of the Non-Governmental Organizations" (1994, Regional Environment Centre Proj. No. 897, Tiranë, by A. Cullaj, L. Gjikhuri, P. Qiriazhi, and L. Kashta).

Friday, June 30

Dean Massey and I met with the Land Research Institute's Land Protection Section, including Perperim Laze (Director of LRI), Petrit Harasani (LRI- appointed member of LPAP), Justina Borici, and Vangjo Kovaci (Chief of Land Protection).

We visited the Council of Environmental Protection, but staff members were unavailable for discussion. I left a draft copy of the soil erosion proposal for Ermal Hamili, LPAP member.

I spent the rest of the day completing my reports.

Saturday, July 1

Dean Massey and I left Albania for the United States.

ANNEX 1

LETTER TO ALBERT DUBALI REGARDING LAND PROTECTION ACTIVITIES 29 JUNE 1995

Dear Albert:

Because of our busy schedules and the fact that I will leave Albania soon, I am offering some suggestions about future activities of the Land Protection Action Plan (LPAP) Working Group (WG).

On Tuesday June 27 I gave you a copy of my proposal "The Economic and Environmental Benefits of Reducing Soil Erosion in Albania." The EC-PHARE-Environmental Programme has indicated an interest in funding a proposal on soil erosion. We could request US\$2 million for such a proposal. The EC-PHARE-Extension Programme has 0.5 million ECU immediately available for remote sensing applications that could be used to monitor deforestation and the sediment plumes at the ocean discharge points of Albania's major rivers. The PMU has funds which could be used to strengthen the Land Research Institute and to begin the soil erosion research. EC-PHARE team leader, Stewart Campbell, told me that their support of research of this kind is contingent on a demonstrated cooperation among institutions. Therefore, it is essential that we act soon to take advantage of these opportunities.

I would recommend that you have an LPAP WG meeting as soon as possible. You may wish to use the agenda on the first page of the proposal to guide the meeting. The WG could discuss the (1) objectives, (2) methods (for measuring soil erosion, identifying high-risk areas, developing an environmental awareness program and a land information system monitoring program, and determining the economic benefits of controlling soil erosion), (3) project organization and schedule, and (4) budget.

The budget discussion could become difficult. The WG could use the budget work sheets (attached as the last two pages of the proposal) as a guide. The WG will eventually need to specify the cost of each task in which a particular institute is involved according to EC-PHARE budget categories (salary, supplies, travel, etc.). It may be advisable to hold LPAP WG meetings regularly until early September to revise the proposal.

I am convinced that the soil erosion proposal accomplishes the following: (1) addresses a key land protection issue in Albania, (2) has the potential to unify scientists and administrators across institutional boundaries, (3) could provide financial support not only for institutional strengthening but also for research, (4) could initiate a public awareness program that ultimately will lead to the protection of land in Albania, and (5) will identify the Land Research Institute as the lead organization in natural resources in research in Albania.

I would be willing to return to Albania in the middle of September to work with you in completing the proposal and to take it to each of the donor agencies to enlist their support. However, my return to Albania is contingent on the WG's meeting regularly to refine the proposal and your getting their comments translated before my arrival so that I can incorporate them into the final draft of the proposal. We should also include literature citations for previous work on soil erosion in Albania. Eve Yanda is willing to attend LPAP WG meetings and could work with you in following through on the soil erosion proposal.

Best wishes to you in your Land Policy work.

Sincerely,

James G. Bockheim

Regional Planning Consultant, Terra Institute, Ltd., and Professor, Department of Soil Science and Institute for Environmental Studies, University of Wisconsin

cc: David Stanfield

ANNEX 2

LIST OF CONTACTS

IPRS/PMU

Albert Dubali - chief of land Policy
David Stanfield - Wisconsin advisor
Dean Massey - legal consultant, Terra Institute
Herman Felstehausen – UW/ LTC
Norman Singer - legal consultant, University of Alabama
Eve Yanda - specialist
Rachel Wheeler - specialist
Teresa Barry - specialist

EC-PHARE Environmental Programme

Guisepe Razza - team leader
Idajet Gurabardhi - director

VOCA

Maura Schwartz - Albania director

FAO

Sergio Giorgi - agricultural assistance coordinator

USAID

Steven Haynes - Albania director

MOAF Soil Research Institute

Perperim Laze - director
Sherif Lushaj - scientist, soil fertility
Fioreta Luli - scientist, soil geology
Valentina Suljoti - scientist, soil chemistry
Patrit Harasani - scientist, land protection
Justina Borici - scientist, land protection
Vangjo Kovaci - chief, land protection

Council on Environmental Protection

Drita Dade - Public Relations coordinator
Arben Pustina - Directorate of Natural Conservation

Environmental Resources Management, Inc.

Jan Veeken - consultant

International Fertilizer Development Center

Shpetim Bimo
Altin Gjika

EC-PHARE Agricultural Programme

Stewart Campbell - team leader
Grigor Gjeci - director

University of Tiranë

Vladimir Suljoit - Geology
Elmas Shehu - chemistry

MOAF Support for Agricultural Reorganization in Albania (SARA)

David Kunkle
Willie McCuistion

Academy of Sciences, Hydrometeorology Institute

Englantina Demiraj - director

MOAF, Institute for the Study and Design of Waterworks

Nexhat Gjinali - head, water resources
Jorgo Deska - engineer
Bekim Lila - engineer

MOAF, Forest and Pastures Research Institute

Spiro Karadumi – director