

GREEK NATIONAL COMMITTEE FOR COMBATING DESERTIFICATION

**SECOND NATIONAL REPORT OF GREECE ON THE
IMPLEMENTATION OF THE UNITED NATIONS CONVENTION
TO COMBAT DESERTIFICATION**

Athens April 2002

1.TABLE OF CONTENTS

2.SUMMARY	4
3. STRATEGIES AND PRIORITIES ESTABLISHED WITHIN THE FRAMEWORK OF SUSTAINABLE DEVELOPMENT PLANS AND POLICIES	8
3.1.NATIONAL PLANS AND STRATEGIES AVAILABLE IN OTHER SOCIAL AND ECONOMIC AREAS	8
3.2. NATIONAL PLANS OR STRATEGIES IN THE FIELD OF COMBATING DESERTIFICATION	10
3.3. SCIENTIFIC AND TECHNICAL DESERTIFICATION CONTROL ACTIVITIES.	13
3.3.1. Small scale mapping	13
3.3.2. Medium scale mapping (The MEDALUS Project)	13
3.3.3. The PESERA project	17
3.3.4. Sea water intrusion in ground water aquifers	18
3.3.5. Activities of the National Agricultural Research Foundation (N.AG.RE.F.)	18
3.4. IMPLEMENTATION OF THE RECOMMENDATIONS OF THE COMMITTEE ON SCIENCE AND TECHNOLOGY.	18
4. INSTITUTIONAL MEASURES TAKEN TO IMPLEMENT THE CONVENTION	20
4.1. ESTABLISHED AND FUNCTIONAL NATIONAL COORDINATING BODY (NCB)	20
4.2. INSTITUTIONAL FRAMEWORK FOR COHERENT AND FUNCTIONAL DESERTIFICATION CONTROL	20
4.3. NAP AS PART OF THE NATIONAL ECONOMIC AND SOCIAL DEVELOPMENT PLANS	21
4.4. COHERENT AND FUNCTIONAL LEGAL AND REGULATORY FRAMEWORK	21
5. PARTICIPATORY PROCESS IN SUPPORT OF PREPARATION AND IMPLEMENTATION OF ACTION PROGRAMMES.	21
5.1. EFFECTIVE PARTICIPATION OF ACTORS IN DEFINING NAP PRIORITIES.	21
6. CONSULTATIVE PROGRESS IN SUPPORT OF THE PREPARATION AND IMPLEMENTATION OF NATIONAL ACTION PROGRAMMES AND PARTNERSHIP AGREEMENTS WITH DEVELOPED COUNTRY PARTIES AND OTHER INTERESTED ENTITIES.	22
6.1 COOPERATION WITH INTERNATIONAL PARTNERS	22
6.2. SUPPORT PROVIDED TO DEVELOPING COUNTRIES	23

7. MEASURES TAKEN OR PLANNED WITHIN THE FRAMEWORK OF NATIONAL ACTION PROGRAMMES	24
8. FINANCIAL ALLOCATIONS	26
8.1. ADOPTED FINANCIAL MECHANISMS.	26
9. REVIEW OF BENCHMARKS AND INDICATORS UTILIZED TO MEASURE PROGRESS AND AN ASSESSMENT THEREOF	28
9.1. OPERATIONAL MECHANISMS FOR MONITORING AND EVALUATION	28
SOURCES USED	29
 <u>FIGURES AND TABLES</u>	
Figure 3.1. Map of potential desertification risk in Greece	14
Figure 3.2. Mapping symbol used for the description of land parameters	15
Figure 3.4. Parameters used for the definition and mapping of the ESAs to desertification	16
Figure 3.5. Map of environmentally sensitive areas to desertification of the island of Lesbos	17
Table 6.1. Funds spent on support provided to developing countries	23
Table 8.1. Funds spent by the Forest sector during 2000	27

2. SUMMARY

During this reporting period, Greece continued implementing the UNCCD through the acceptance of the National Action Plan (NAP) for combating desertification by the Government and the publication in the Government's Gazette of the Common Ministerial Decision (CMD), which instructs the public services and the stakeholders to implement it. The CMD contains guidelines for the creation of the required agencies and the application of policies and measures described in the NAP.

Due to the multi-sectorial nature of desertification, the actors and the action taken are not assigned to a specific programme under the title of "desertification", but they are distributed to the relevant central and local agencies in the frame of national and regional development projects.

The Greek National Committee for Combating Desertification (GNCCD) has officially published the National Action Plan (NAP) in its final form. The NAP was distributed to stakeholders, relevant, governmental, non-governmental and local ental agencies and authorities.

The Common Ministerial Decision (CMD) instructs all the related governmental and non-governmental agencies to:

- a) apply the measures described in the Action Plan,
- b) incorporate the policies and measures into the local development plans,
- c) apply the plan through coordinated and integrated local projects securing the consent and participation of the involved stake holders
- d) develop the local agencies, which will undertake the application and coordination of all the policies and measures at local level
- e) develop and apply projects, studies and strategies required additionally to those described in the NAP for combating desertification at local level
- f) apply the NAP starting from six pilot areas, where the main targets are set for sectors: of the operations of responsible agencies, agriculture, forests, pastures, wild life, water resources and socio-economics.

The relevant Ministries are planning the following tasks:

Agricultural Sector

In the Agricultural sector, the Agro- Environmental Measure of Rural Development Planning for the period 2000- 2006, has been approved and is being implemented. The measures includes the following actionss:

- Biological agriculture
- Biological animal production
- Long period set- aside of agricultural lands
- Reduction of ground water- pollution by nitrogen of agricultural origin
- Conservation and reconstruction of terraces on inclined lands for the protection from erosion.
- Formulation of Codes of Good Agricultural Practice, which constitutes the regulatory frame in which agricultural activities will be applied.

Forest Sector

- The Forest Functional Plan,
- Plans financed by the E.U.
- Research. Projects financed by the Greek Government and realized by the National Agriculture Research Foundation (N.AG.RE.F.) and the University of Thessaloniki (Forestry Department).
- Clarification of the land ownership status in forests is continued, according to the national cadastral plan.
- Soil classification
- Mapping of forest lands
- Forest protection
- Forest management
- Forest plant nurseries
- Protection of mountainous water sheds.

Water Resources

In the field of water resources the relevant governmental agencies are planning:

- Institutional measures for the implementation of the EU. Directive 2000/60
- Preparation of integrated water resources management plans for every water district.
- The provision of institutional tools for better co-ordination of water resources management.
- The extension of the water storage facilities (dams, reservoirs and artificial water recharging).
- Development of coastal and inland karstic water resources.

Socio economic sector

The Plans approved and applied by the Ministry of Agriculture in this sector are aiming to keeping the population in the agrarian areas, the provision of technical support and information of the countryside population. They are including plans of early retirement for farmers of advanced age and the promotion of developing Agro tourism in mountainous and other marginal lands. The plans are implemented with apriority to areas with demographic problems, many of which are located in desertification threaten territories.

National plans and strategies in other social and economic areas are applied in the fields following:

Infrastructure

A network of major public works like motorways, bridges, schools and hospitals are being constructed and/or planned, which are targeted towards the improvement of the economical basis of the country and the population and which will improve the capacity and the efficiency of the government and the public in combating desertification.

Countryside Development

The main aims of the general countryside development for the period 2000-2006 are:

- The improvement of the competitiveness of the Greek Agriculture.
- The viable and integrated development of the countryside.
- The ensuring of the social cohesion and the security for the entire agrarian population.
- The subsidizing of young farmers.
- The encouragement of biological farming.
- The provision of medical assistance to the population of agricultural areas.

Research Related to Desertification

The Greek National Committee for Combating Desertification (GNNCD)) and the Agricultural University of Athens have recently developed systems for small and large scale mapping of desertification sensitive areas and produced respective maps. The systems are empirical and they have been incorporated in the National Action Plan Against Desertification

The GNNCCD and the Agricultural University of Athens are co-operating in the EU supported multinational project PESERA for the development of a regional diagnostic tool for predicting soil erosion rates under various types of land use, soil, and landscape characteristics.

Ground water aquifers subjected to seawater intrusion due to their geological structure or to their over-pumping have been investigated and mapped by P.Pergialiotis and Sp. Papadakos.

The National Agricultural Research Foundation (N.AG.RE.F) is conducting research on several themes directly or indirectly related to desertification.

A list of Benchmarks and indicators used in evaluating the degree of implementation of the Convention for combating desertification in Greece are reported.

Institutional measures taken to implement the Convention are including the establishing of the GNCCD as a national coordinating body by decision of the Minister of Agriculture. The National Action plan provides that the central coordination and monitoring of its implementation is undertaken by the National Committee. It also provides that Local Committees for Combating Desertification should be created and function, according to NAP and CMD in each region and prefecture. These committees have not yet been created.

The NAP is implemented through the general development plans at national and regional included to the budgets of all these services. On the regional level, the local authorities may refer to the GNCCD for scientific guidance and information. Their programmes are financed by their own budgets.

In the field of awareness satisfactory campaign through the mass media, meetings conference and workshops have been organized. Copies of the NAP have been sent

to all competent departments of Universities in order to include the principles and measure suggestions in the courses taught to the students.

Within the frame of cooperation with international partners, Greece is participating in all actions of the Annex IV group, by being in close collaboration with members. Especially the Subgroup of the Annex, apart from Greece includes Italy, Spain, Portugal and Turkey. For the period 2001-2002, Greece has the Presidency of the Annex.

Additionally, according to data provided by the Service for International Development Cooperation of the Ministry of Foreign Affairs, the Greek state has participated in programmes of rural development applied in developing countries of Africa. These programmes aim at the rural development and contribute directly and indirectly to combating desertification.

Codes of Good Agricultural Practice have been prepared and started being applied to desertification sensitive areas. They include: strip rotation along contour lines (with legumes alternating with other annual crops), the minimum plowing, the plowing along contour lines, the alternating cultivated and fallow strips, the use of non soil eroding irrigation systems on sloping land and the prohibition of the burning of crop residues in soils with slope over 6%. The subsidies to those exercising biological agriculture are given on the condition they apply the above measures.

A plan has been approved for the recovery and reconstruction of terraces on sloping lands is targeting towards soil erosion control enhanced rain-water storage, promotion of traditional farming and reducing tendencies of population desertion.

The clarification of the forest-land ownership by the cadastral plan, which is being prepared, is a basic target of the NAP, since it contributes to preservation of natural vegetation and pre-fire land use in areas highly sensitive to desertification..

The reforestation in burned forest lands, the management of forest ecosystems to prevent forest fires, the forest thinning and maintenance of the appropriate forest structure, pre-fire land use management procedures, rapid fire detection, control and the fire damage limitation are planned and applied according to the Forest Functional Plan.

The implementation of the plans for developing water resources at all levels, the establishment and operation of the regional water management services, the issue of regulation decisions by prefectures to protect water resources per water basin and the exertion of effective checking on infringement of the law and infliction of the respective penalties are ensured by the respective laws. A water database is being prepared.

Local agencies were engaged in repairing and renovating the irrigation networks and in developing integrated irrigation systems. Water recycling and re-usage is implemented through the plans of the Land Reclamation Directorate for facing drought as well as the Local Land reclamation Organizations.

The actions for combating draught are being realised by the construction of dams and water deposits. The Ministry of Agriculture has continued an activity initiated in 1994 for facing the draught problem, by funding works like drilling (where the ground water table permits), harvesting of spring waters, repairing the irrigation networks and other land reclamation projects. The refilling of artificially drained lakes and the planned diversion of the Acheloos River will contribute toward the desertification threatened plains of Central Greece.

Financial support has not been explicitly allocated for combating desertification. Funds allocated as well as measures taken are incorporated in the development programmes of the respective Ministries and of the local government agencies. Thus is not easy to exactly separate and estimate the budget available for the implementation of the Convention in the country. The total amount spent in 2001 is estimated to 695,200,000 €.

3. STRATEGIES AND PRIORITIES ESTABLISHED WITHIN THE FRAMEWORK OF SUSTAINABLE DEVELOPMENT PLANS AND POLICIES

3.1. NATIONAL PLANS AND STRATEGIES AVAILABLE IN OTHER SOCIAL AND ECONOMIC AREAS

Infrastructure

A network of major public works are being constructed and planned, which are targeted towards the improvement of the economical basis of the country and the population and which will improve the capacity and the efficiency of the government and the public in combating desertification. The main of these works are:

- A modern motorway 680 kilometers long and 24.5 meters wide over the greatest part of its length running across Northern Greece from Igoumenitsa to the Evros, the Egnatia Motorway is one of the Largest road construction projects in Europe. Nine major vertical axes will connect the motorway with Albania, FYROM, Bulgaria and Turkey. The project invests over 7% of its total budget in environmental protection and applies, in its implementation, an Environmental Management System.
- The main routing axis of the country is being re-organized and improved. It is planned to connect the mainland from the south to its northern borders. It is modernized according European specifications for motorways. This axis is an important infrastructure in areas particularly threatened by desertification.
- A long bridge over the Corinthian Gulf is being constructed. It is planned to connect the western part of the mainland from the Albanian border with Peloponnese and the main south to north routing axis. This bridge will contribute significantly to the infrastructure of areas with severe land degradation problems.

- The Ministry of Education is upgrading the educational programme in all its levels with particular emphasis in the construction of new schools, filling personnel gaps and improving tertiary education and enhancing environmental programmes
- The Ministry of Public Health is planning to modernize the National Health System by constructing new hospitals, improving health centers and satisfying personnel needs in the periphery. Public Health improvement will contribute directly to the living standards and indirectly in combating desertification in areas sensitive to desertification.

Countryside Development

The main aims of the general countryside development for the period 2000-2006 are:

- a. The improvement of the competitiveness of the Greek Agriculture in the view of the challenges of a constantly competitive international environment. The effort is directed towards providing better income to the producers and better products to the consumers in the frame of the United Common Market. It aims at creating a strong Primary Sector, such as to achieve a more cost effective result to the development of the economy.
- b. The "viable and **integrated** development of the countryside for the restitution of the upset social and environmental balance. It intends to revive areas, which suffer from economic and social decline. It involves the sustainable management of natural resources and the reinforcement of social structure.
- c. The "ensuring the social cohesion and the security for the entire agrarian population". The aim is to combat social isolation, to develop social security, to confront natural calamities such e.g. extreme droughts, floods and frosts and to increase attractiveness of the agrarian sector.
- d. The subsidizing of young farmers, as an effort to decrease the average age of agricultural population. The plan aims to create farmers more adaptable to new techniques, with awareness of sustainable agriculture methods and respect to the environment. Thus, every young farmer subsidized by the State, is bound to act according to the principles found in the Code of Good Agricultural Practice.
- e. The encouragement of biological farming. It directly contributes to combating desertification by employing sustainable management of natural resources, preserving and enhancing biodiversity and applying traditional knowledge.
- f. The encouragement of young doctors to spend one year of service in agricultural areas, providing medical assistance to the local population. The doctors are paid by the State, which provides special economic motives for serving in isolated areas. This is obligatory for every young doctor who wishes to practice his specialization in a State University Hospital. The medical support system additionally includes, a special air service for transportation of serious cases, from isolated areas (like islands) to properly equipped hospitals.

3.2. NATIONAL PLANS OR STRATEGIES IN THE FIELD OF COMBATING DESERTIFICATION

The National Action Plan for Combating Desertification was officially published in its final form in January 2001 and was widely distributed to the state holders and to the related governmental, non-governmental and local governmental agencies.

The plan in its final form has incorporated the suggestions and improvement proposals by the state holders public authorities and non-governmental organizations, in the text of the Provisional Action Plan, which was sent to them.

The Greek Government accepted officially the National Action Plan in July 2001, through a Common Ministerial Decision (C. M. D.) of six involved Ministers. The C.M.D. was published in the official Gazette no 99605/3719.

The Government, through the Common Ministerial Decision has instructed all the related governmental and non-governmental agencies to:

- a) apply the measures described in the Action Plan,
- b) incorporate the policies and measures into the local development plans,
- c) apply the plan through coordinated and integrated local projects securing the consent and participation of the involved stake holders
- d) develop the local agencies, which will undertake the application and coordination of all the policies and measures at local level
- e) develop and apply projects, studies and strategies required additionally to those described in the NAP for combating desertification at local level
- f) apply the NAP starting from six pilot areas, where the main targets are set for sectors: of the operations of responsible agencies, agriculture, forests, pastures, wild life, water resources and socio-economics.

The Ministry of Agriculture has recommended to the National Agricultural Policy Committee to apply the policies and measures of the Action Plan in developing the respective policies.

The implementation of the NAP was first initiated by the Ministry of Agriculture in 2001 in developing policies and practices for combating drought.

National Plans and strategies developed and applied in each sector for combating desertification during the reporting period include:

Agricultural Sector

In the Agricultural sector, the Agro- Environmental Measure of Rural Development Planning for the period 2000- 2006, has been approved and is being implemented. The measures includes the following plans:

- Biological agriculture
- The plan aims to the reduction of pollution of agricultural origin, the protection of wild flora and fauna, the preservation of biodiversity of agricultural ecosystems and landscapes, the sustainable management of soils, the protection of public health and the creation of solid areas biologically cultivated in small scale economies.
- Biological animal production
- The plan aims to the production of biologic products respectfully to the relevant regulations and standards, the environmental protection, the preservation of biodiversity of agricultural ecosystems and landscape and the sustainable management of soils.
- Long period set- aside of agricultural lands
- The plan aims at reducing surplus agricultural production and at the same time conserves soil and water resources.
- Reduction of ground water- pollution by nitrogen of agricultural origin
- Action plans are being implemented aiming at the reduction of nitrogen pollution, the protection of water resources and the protection of soils from erosion.
- Conservation and reconstruction of terraces on inclined lands for the protection from erosion.
- The plan aims to the protection of soils from erosion, the increase of sub terrestrial water storage (especially in arid areas) and the preservation of agricultural landscape.

All of the above are in process except the last one, which has just been formulated. In addition to these, every agricultural activity subsidized by the state, binds farmers to follow the regulations announced in the Code of Good Agricultural Practice. According to it, land uses and changes practiced are these, which ensure sustainability and do not degrade biomass productivity.

All of the above plans and actions follow the guidelines of the Greek National Action Plan (GNAP), as it has been composed and published by the GNCCD.

Forest Sector

- A Forest Functional Plan has been prepared, including the restoration of burned forests, nurseries, forest fire protection, national parks, forest pastures, improvement of degraded forests, mapping and cadastral plan of forest land, studies and research.
- Plans financed by EU within the framework of regulation EEC 3529/86 modified by the regulations 2158/92 and 2157/92. The financed activities included forest protection, improvement of degraded forests, databases- forest information.
- Plan financed by EU within the framework of regulation EEC 2080/92 to be implemented by the private sector include agricultural lands afforestation and improvement of forest private lands.
- Research. Projects financed by the Greek Government and realized by the National Agriculture Research Foundation (N.AG.RE.F.) and the University of Thessalonica (Forestry Department).\
- Clarification of the land ownership status in forests is continued, according to the national cadastral plan.
- Soil classification

- Mapping of forest lands
- Forest protection
- Forest management
- Forest plant nurseries produced 13.200.000 seedlings for the year 2000. Reforestation of 14.916 acres by seeding and replant.
- Protection of mountainous water sheds.

Water Resources

In the field of water resources the relevant governmental agencies are planning:

- Institutional measures for the implementation of the EU. Directive 2000/60
- Preparation of integrated water resources management plans for every water district.
- The provision of institutional tools for better co-ordination of water resources management.
- The extension of the water storage facilities (dams, reservoirs and artificial water recharging).
- Development of coastal and inland karstic water resources.

Socio economic sector

Within the frame of socio-economic sector, the Ministry of Agriculture is aiming to keeping the population in the agrarian areas, the provision of technical support and information of the countryside population. It also encourages investments targeting to the development of additional or alternative economic activities within both the agrarian and non-agrarian sectors. These activities are conducted in the frame of integrated local development interventions.

More specifically the Ministry of Agriculture is implementing the plan of early retirement for farmers of advanced age. The plan is aiming to replace old aged farmers with younger ones, so that the average age of agricultural population will be decreased. This is expected to modernize the cultivation techniques and also to assist in the creation of larger agricultural and economically viable exploitations. The plan is implemented with a priority to areas with demographic problems, many of which are located in desertification threatened territories..

Also the Ministry of Agriculture is promoting a plan for the development of Agro tourism in mountainous and other marginal lands by providing subsidies for creating the supporting infrastructure. The plan is aiming to the improvement of rural income, the improvement of local living conditions, the population holding, the trading of local rural products, the protection of the environment, the preservation and exploitation of the architectural and cultural inheritance.

Actions Taken before UNCCD

National plans and strategies developed prior to the UNCCD referred mainly to the protection of forest land, reforestation, erosion control, irrigation, soil reclamation (desalinisation and drainage), introduction of new plant varieties and hybrids, protection and improvement of pastures and extensive infrastructure development in the rural areas

3.3. SCIENTIFIC AND TECHNICAL DESERTIFICATION CONTROL ACTIVITIES.

Agricultural research in Greece is implemented by Universities and the National Agricultural Research Foundation (N.AG.RE.F.). Both are in close cooperation with the Greek National Committee for Combating Desertification, since they are represented in its synthesis. More specifically:

The Greek National Committee for Combating Desertification and the Agricultural University of Athens have recently developed systems for small and large scale mapping of desertification sensitive areas and produced respective maps. The systems are empirical and they have been incorporated in the National Action Plan Against Desertification. The results obtained by the research projects described below have been communicated to the scientific society through publications and reports and have been discussed in national and international workshops and meetings.

3.3.1. SMALL SCALE MAPPING

The 1:000,000 scale Desertification vulnerability map was compiled on the basis of principles and indicators proposed by Yassoglou (1995) and of CORINE (1992):

Indicators

Indicators used for the definition of the sensitivity of the mapping units were compound:

- a. The soil mapping units of the ESB 1:1,000, 000 Soil Map of Europe. The Greek mapping units are characteristic of erosional sequences of each soil in each geologic formation, climatic zone and vegetation cover. Therefore, soil units are indicative of the extend of the erosion that has taken place, the erosion risk, the soil depth and the soil drought risk. Tabular data concerning the composition of the soil mapping unit and the erodility of the soils are derived from the tabular data of the ESB georeferenced Soil Map of Europe.
- b. The bioclimatic zone. The bioclimatic classification and particularly of each soil mapping unit were derived from the Bioclimatic Map of Greece. The aridity of each unit was derived from this map and it was used to estimate soil drought, soil salinity and potential resilience of damaged vegetation cover.
- c. Irrigation intensity and salt seawater intrusion were derived from information on irrigation works and the sea water intrusion map (Ministry of Agriculture). The data were used along with the proximity to the sea estimate the secondary salinization risk of the irrigated soils.

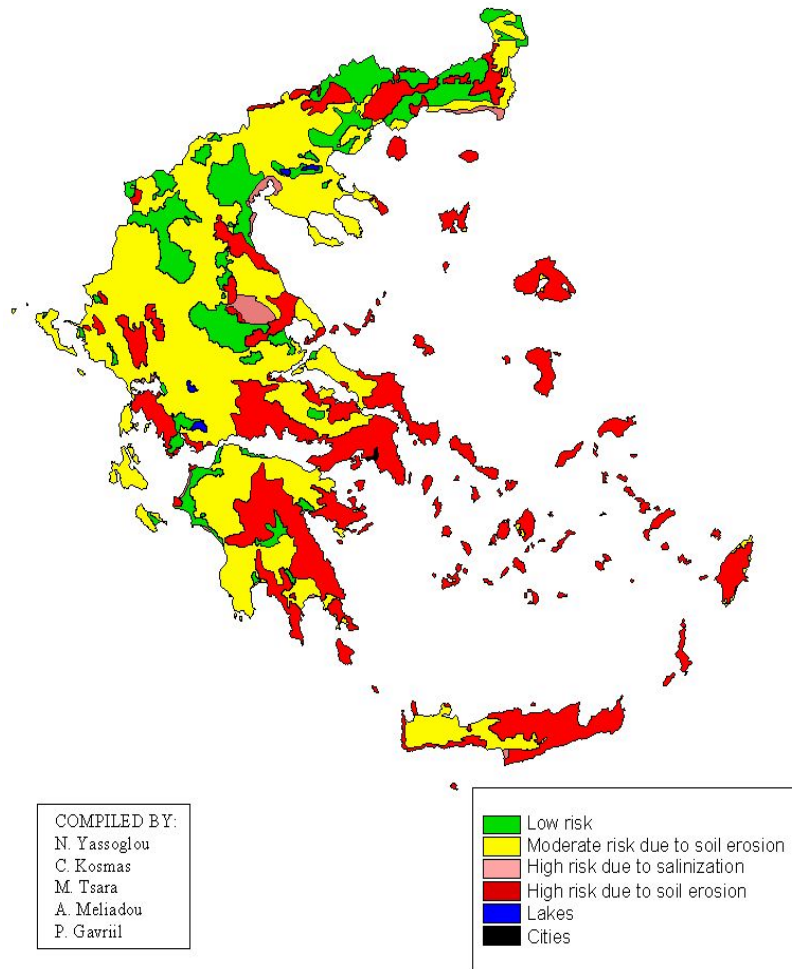


Figure 3.1. Map of potential desertification risk in Greece

The above compound indicators were overlapped and were used to delineate the mapping units in an 1:1,000,000 potential desertification risk map for Greece in an ARC/INFO environment. The produced map is shown in Fig. 3.1. The defined units correspond to the two main processes and are the following:

- A. Low risk, due to soil erosion and bioclimatic aridity
- B. Medium risk, due to soil erosion and bioclimatic aridity
- C. High risk due, to soil erosion and bioclimatic aridity
- D. Salinization risk due to irrigation, bioclimatic aridity and sea proximity

3.3.2. MEDIUM SCALE MAPPING (The MEDALUS Project)

A system developed in the frame of the MEDALUS project was used for mapping desertification sensitive areas in the Lesvos pilot area at a scale of 1:50,000.

a. Mapping Land Parameters

Soil parameters

The soil mapping system used by the Greek National Soil Survey was used, modified for the local conditions and the purpose of the study. This system is based on soil texture, depth to bedrock, drainage, degree and direction of soil development, topography, erosion of the soil surface, and parent material. All these land characteristics were studied in a dense network of 8520 field observations (soil auger holes and road cuts to the depth of bedrock or to a maximum depth of 150 cm in case of deep soils), and were recorded on each soil mapping unit (Fig. 3.2). The boundaries of the mapping units were drawn on 6 topographic maps (scale 1:50,000)

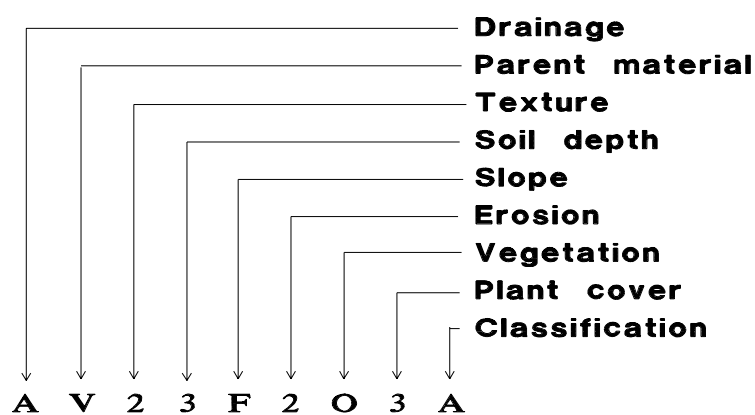


Fig.3.2. Mapping symbol used for the description of land parameters.

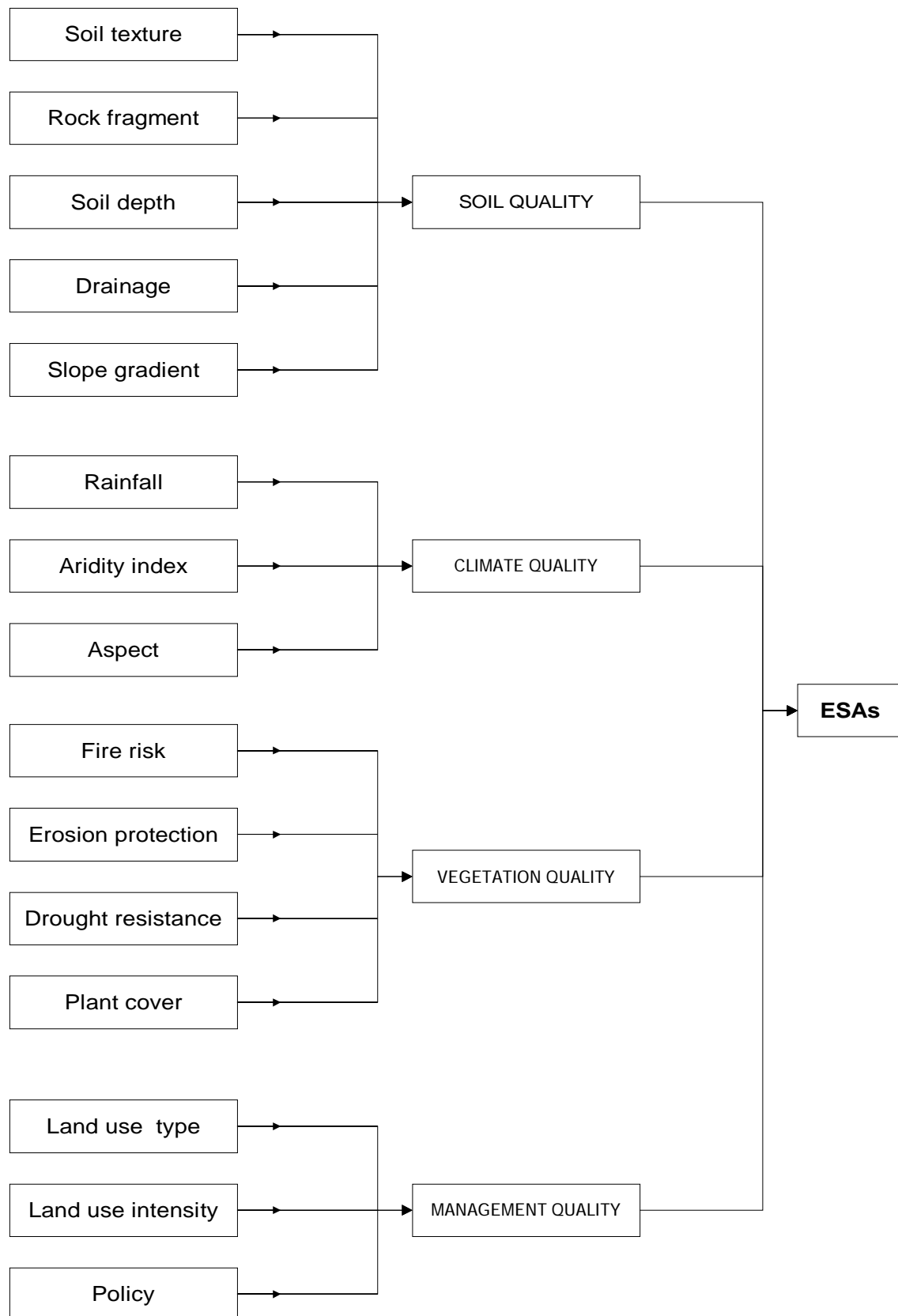


Fig. 3.4. Parameters used for the definition and mapping of the ESAs to desertification.

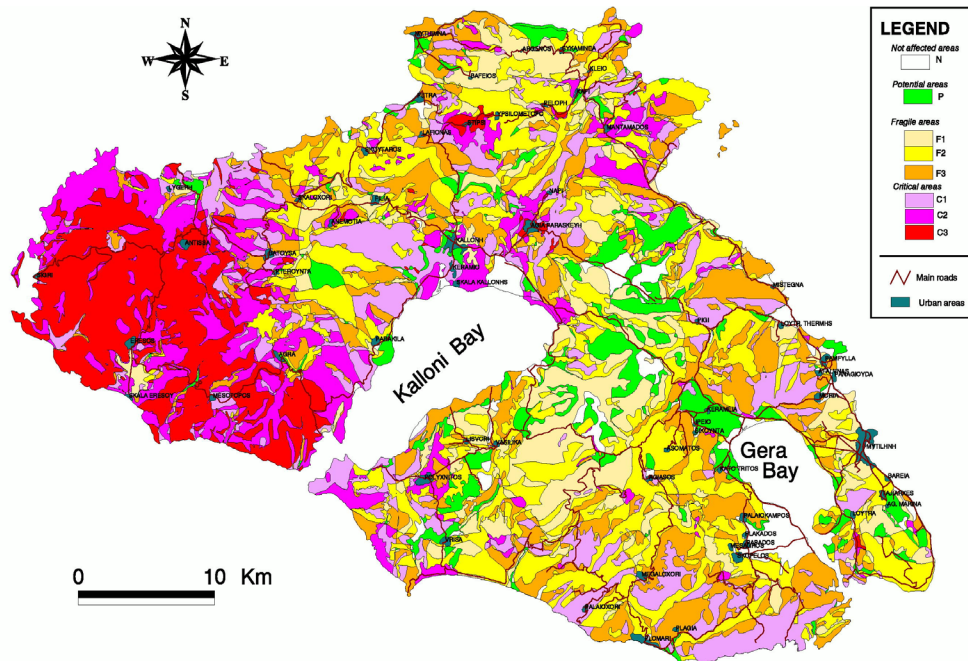


Fig. 3.5. Map of environmentally sensitive areas to desertification of the island of Lesvos (P=potential, F=fragile, C=critical).

3.3.3. THE PESERA PROJECT

The GNNCCD and the Agricultural University of Athens are co-operating in the EU supported multinational project PESERA for the development of a regional diagnostic tool for predicting soil erosion rates under various types of land use, soil, and landscape characteristics. The model developed assesses the sensitivity of an area to soil erosion and making predictions of erosion rates under changing conditions of climate, land use and management practices. It has been validated in desertification threatened areas of Greece and has been applied on an erosion sensitive area in the Ionian island of Zakynthos.

The model consists of components on climate, vegetation topography and soil. Erosion rates of each particular land unit, which is defined by soil, geological, topographic and land use parameters.

The estimated erosion rates matched satisfactorily the measured rates. However, there is a need for further improvement of the model and especially refinement, so that it considers local conditions and weights in the parameters used.

3.3.4. SEA WATER INTRUSION IN GROUND WATER AQUIFERS.

Ground water aquifers subjected to sea water intrusion due to their geological structure or to their over-pumping have been investigated and mapped by P.Pergialiotis and Sp. Papadakos.

3.3.5. ACTIVITIES OF THE NATIONAL AGRICULTURAL RESEARCH FOUNDATION (N.AG.RE.F.)

N.AG.RE.F. is carrying out the following research projects, which are directly or indirectly related to desertification:

- Soil survey, evaluation and classification
- Soil fertility and plant nutrition
- Agricultural usage of sewage sludge and other liquid wastewaters.
- Soil pollution
- Soil degradation
- Study of the water runoff.
- Land reclamation, efficient water use.. The reuse, mainly of urban liquid sewage and industrial effluents as well as its desalination, with special emphasis given on the quality of the water in agriculture.
- Analysis and ecosystems management, including forest ecology, forest management and economy, pastures and management of natural biotopes
- Forest policy and socio-economic research of forestry and rural economy.
- Preservation, restoration and rehabilitation of forests and natural environment including prevention and suppression of forest fires, forest protection.
- Development of friendly to the environment cultivation systems
- Cultivation systems Organic Agriculture Programme.
- Sociological traits and demographical analysis of rural areas and rural population
- Economic efficiency of alternative agricultural production technologies.

The Greek NAP has been distributed to all scientific and technical organizations and foundations in the country. Also the GNCCD is providing information to every one who is interested in the field of desertification and invites interested parties to be represented in workshops carried out. Evenly representatives of the Committee are participating in conferences and workshops with relevant subjects organized by other organizations. Finally, it is important to state, that NAP is considered as a part of every planning decision of the Ministry of Agriculture.

3.4. IMPLEMENTATION OF THE RECOMMENDATIONS OF THE COMMITTEE ON SCIENCE AND TECHNOLOGY.

In part 9 (page 27) of the First National Report there is a list of benchmarks and indicators used in evaluating the degree of implementation of the Convention for combating desertification.

Additional indicators for this reporting period are:

Positive Indicators

- The compilation of the final version of the National Action Plan for Combating Desertification.

- The official acceptance of the Action Plan by the Government and the publication in the Government's Gazette of a Common Ministerial Decision authorizing governmental and non governmental agencies to Implement the Plan. The Common Decision also gives the basic guidelines for the application of measures and policies of the Plan at national and local levels.
- The early implementation of the Action Plan by the Ministry of Agriculture in combating drought, storing rain water and economizing in water consumption.
- The promotion of the implementation of the E.U. Directive 2000/60 for the management of water resources.
- The development and implementation of a programme for confronting extreme drought events and water shortage.
- The operation of a monitoring and early warning system for the quality of the surface waters.
- The publication of Codes for Good Agricultural Practices.
- The effective projection of the impacts of desertification and drought by the mass media.
- The significant contribution of the celebration of the Desertification Day to public awareness.
- The development and application of indicators for mapping desertification sensitive areas.
- The upgrading of the forest fire facilities of the Fire Department.
- The promotion of the co-operation with Turkey in combating desertification.
- The selection of pilot areas for the application of the Action Plan.

Negative Indicators

- The slow down in the reforestation of areas burned by forest fires.
- The delay in the institutional and organizational aspects of the Action Plan's implementation and especially in the creation of local desertification committees.
- The insufficient application of traditional methods, which are practiced, in a relatively small scale, in olive groves.
- The delay in application of codes for good agricultural practices for soil erosion control
- The delay in the completion of the cadastral plan, especially in the forested areas.
- The lack of an effective national land use plan.

Traditional Knowledge

Concerning traditional knowledge, the GNAP suggests and enhances the expansion of the traditional olive tree cultivation on sensitive sloping land in the semiarid and dry sub humid zones of the country. Additionally, the restoration or construction of traditionally stone built terraces in inclined cultivated areas is suggested, as an appropriate measure to prevent soil erosion.

4. INSTITUTIONAL MEASURES TAKEN TO IMPLEMENT THE CONVENTION

4.1. ESTABLISHED AND FUNCTIONAL NATIONAL COORDINATING BODY (NCB)

According to paragraph 4.2.1. (1st National Report) the GNCCD is established as the national coordinating body, by decision of the Minister of Agriculture, no. 96990/9361/11.12.96. Also the decision defines the tasks (par.4.2.1.), the composition and organization.

In respect to the intersectoral and multidisciplinary nature of desertification issues, the composition of the Committee includes representatives of ministries, universities, research foundations and NGOs. Specifically and according to the decision mentioned, the composition is as follows:

- Chairman,
- Vice- Chairman,
- two representatives of the Ministry of Agriculture,
- one representative of the Ministry of National Economy,
- one representative of the Ministry of Development,
- one representative of the Ministry of Foreign Affairs,
- one representative of the Ministry for the Environment, Physical Planning and Public Works,
- two representatives of research institutes
- three University professors,
- one representative of NGOs relative to the field of desertification.

The fourteen members of the Committee are appointed by the Minister of Agriculture upon the recommendation by the involved ministries, organizations, institutions and services.

The GNCCD is funded directly out of the budget of the Ministry of Agriculture and its logistic management is carried out by NAGREF's administrative services.

The Committee is summoned once per month, to review the activities and take decisions about its plans and actions.

4.2. INSTITUTIONAL FRAMEWORK FOR COHERENT AND FUNCTIONAL DESERTIFICATION CONTROL

The National Action plan provides that the central coordination and monitoring of its implementation is undertaken by the National Committee. It also provides that Local Committees for Combating Desertification should be created and function, according to NAP and CMD in each region and prefecture. These committees have not yet been created.

4.3. NAP AS PART OF THE NATIONAL ECONOMIC AND SOCIAL DEVELOPMENT PLANS

The GNAP is implemented through other development plans of the Greek State, which include the Committee's suggestions according to the principles of the Convention and the current situation of the Country. So the GNAP is part of every plan running by the Ministries or research foundations and as a result the funds spent for financing are included to the budgets of all these services.

On the regional level, the local authorities may refer to the GNCCD for scientific guidance and information. Their actions are covered economically by their own budgets.

4.4. COHERENT AND FUNCTIONAL LEGAL AND REGULATORY FRAMEWORK

The most important event during the year 2001 was the official adaptation of the GNAP by the Ministers of Agriculture, Internal affairs, Foreign affairs, National Economy, Environment Physical Planning and Public Works. The decision No. 99605/3719 was published in the Official Gazette on July 2001. According to paragraph 2 the services of the mentioned ministries are ordered to incorporate the GNAP measures proposed in their planning.

Also, the Minister's decision no.100949/2478 established the Codes of Good Agricultural Practice. In this decision, a list of general obligations for farmers is included. There will be a Code for every relative sector of Agriculture. Up to now, the "Code of Good Practice for the Protection of Ground Water by Nitrogen Pollution of Agricultural Origin" by decision no.85167/820 has been published.

The Ministries responsible for the management of the water resources have decided to co-ordinate their activities, as it is proposed in the NAP, by the creating a Central Co-ordination Body and to speed-up processes for the implementation of the E.U. Directive 2000/60 for the sustainable management of the water resources.

5. PARTICIPATORY PROCESS IN SUPPORT OF PREPARATION AND IMPLEMENTATION OF ACTION PROGRAMMES.

5.1. EFFECTIVE PARTICIPATION OF ACTORS IN DEFINING NAP PRIORITIES.

As mentioned previously, all Regional Administration Services and NGOs are invited to be represented in Workshops arranged by the GNCCD. Such an occasion was the MEDRAP Workshop, held in Athens in 14- 17 of December 2001. Within the frame of the "World Day for Combating Desertification" on June 17 2001, a number of actions took place, such as public awareness and sensitization through the media,

meetings of various actors and reforestations. Relevant documents of the Convention have been translated in Greek and published. The core theme of the meeting was the sustainable management of the water resources.

Several local meetings were held in areas threatened by desertification where the problem of water shortage was discussed by representatives of the local government and stakeholders. Proposals for facing the drought in agricultural areas were also discussed. The media played an important role in promoting public awareness and supporting the need for action.

Meetings have been held for the presentation and analysis and implementation of the E.U. Directive 2000/60.

The NGO "Society for the Protection of the Environment and Natural Heritage" organized a Mediterranean conference, where issues of water resources management were discussed.

Copies of the NAP have been sent to all competent departments of Universities in order to include the principles and measure suggestions in the courses taught to the students.

Teachers working in the elementary and high school education sector of the Ministry of Education have attended seminars on issues related to environment. The knowledge obtained is transferred to the students as an effort to sensitize their approach to the environment.

6. CONSULTATIVE PROGRESS IN SUPPORT OF THE PREPARATION AND IMPLEMENTATION OF NATIONAL ACTION PROGRAMMES AND PARTNERSHIP AGREEMENTS WITH DEVELOPED COUNTRY PARTIES AND OTHER INTERESTED ENTITIES.

6.1 COOPERATION WITH INTERNATIONAL PARTNERS

Greece, as a full member of the European Union, is obliged to integrate and fully implement the legislation formulated by the Union.

Greece is participating in all activities of the Annex IV group, by being in close collaboration with its members. Especially the Subgroup of the Annex, for the period 2001-2002, Greece has the Presidency of the Annex.

Within the frame of Annex IV the EU Concerted Action Programme, known as MEDRAP, is being carried out to support the Northern Mediterranean Regional Action Programme for Combating Desertification. Through this programme, workshops aiming to the improvement of collaboration and the information exchange between the Parties are organized.

The MEDRAP workshop on " Sustainable Management of Soil and Water Resources", held in Athens on December 15-17th 2001, offered a unique opportunity for the scientific community and the stakeholders to come together and discuss methods and measures for preventing and mitigating desertification. In particular, discussions were focused on solutions to specific problems related to the management practices of these two land components in the frame of the NAP. Experts and stakeholders from different Annex IV Countries have met and contributed to the awareness of the risks and the promising approaches to prevent the spreading of desertification in the Northern Mediterranean.

Particular attention has been paid on the involvement of the local stakeholders from the hosting Country in the concrete problems of their sensitive areas.

6.2. SUPPORT PROVIDED TO DEVELOPING COUNTRIES

According to data provided by the Service for International Development Cooperation of the Ministries of Foreign Affairs and of Environment, the Greek state has participated in programmes of rural development applied in developing countries of Africa and the Balkans. These programmes aim at the rural development and contribute directly and indirectly to combating desertification

More specifically, during the period 1997-2001 fifteen programmes were applied to Ethiopia, Uganda, Ivory Coast, Eritrea, Benin, Madagascar and Tanzania. The programmes include activities such as the construction of water deposits, the watering of rural communities, combating drought, water storage, forest management, food technology, management of natural resource and crop and animal production.

The total found spent for these programmes amounted to **600,435.021** drachmas (**1,762,098.37€**), shown in Table 6.1.

Table 6.1. Founds spent on support provided to developing countries

Year	Drachmas	Euros
1997	2,000,000	5,869.41
1998	47,685,021	139,941,38
1999	72,000,000	211,298,62
2000	232,750,000	683,052.09
2001	246,000,000	721,936.90
TOTAL	600,435,021	1,762,098.37

7. MEASURES TAKEN OR PLANNED WITHIN THE FRAMEWORK OF NATIONAL ACTION PROGRAMMES

As it has already been mentioned above, the GNAP was adopted by the government, which has recommended its implementation by all the related governmental and no governmental agencies, as it is described by the Common Ministerial Decision. Thus every project and activity, mentioned in section 3 of this report, is compatible with the implementation of the NAP, for combating desertification. More specifically:

In the Agricultural sector:

The adopted Codes of Good Agricultural Practice applied to sloping lands promotes: the strip rotation along contour lines (with legumes alternating with other annual crops), the minimum plowing, the plowing along contour lines, the alternating cultivated and fallow strips, the use of non soil eroding irrigation systems on sloping land and the prohibition of the burning of crop residues in soils with slope over 6%.

The subsidies to those exercising biological agriculture are given on the condition they apply the above measures.

The approval of the plan for the recovery and reconstruction of terraces on sloping lands is targeting towards soil erosion control enhanced rain-water storage, promotion of traditional farming and reducing tendencies of population desertion.

The plan applied for the reduction of ground water- pollution by nitrogen of agricultural origin is one of the measures proposed for the preservation of water quality.

In the field of livestock production, the measures planned or applied such as the demarcation of the grazing forest land, financing of grazing land development, and the modification of subsidy regime and protection of pastures from over grazing are implemented through the Codes of Good Agricultural Practice, the Biological Animal Production Plan, the mapping of forest lands and the Forest Functional Plan.

Publications and organization of workshops have provided significant data for assessing desertification risks and for preventing and mitigating desertification not only in Greece, but also in other North Mediterranean countries.

In the Forest sector:

The clarification of the forest-land ownership by the cadastral plan, which is still in the state of preparation, is a basic target of the NAP, since it contributes to preservation of natural vegetation and pre-fire land use in areas highly sensitive to desertification. The reforestation in burned forest lands, the management of forest ecosystems to prevent forest fires, the forest thinning and maintenance of the appropriate forest structure, pre-fire land use management procedures, rapid fire detection, control and the fire damage limitation are planned and applied according to the Forest Functional Plan. The above actions and planned activities, as well as other activities of the Forests General Directorate as mentioned in the section are in line with the provisions of NAP. Also is the support and carrying out of related research

In the Water Resources sector

The institutional and legal measures proposed by NAP for the sustainable management of the water resources are covered by the more effective application of the existing laws, the implementation of the E.U. Directive 2000/60 and the government's decision to improve the co-ordination among the authorities and the stakeholders.

Other measures taken or planned, which are compatible with the NAP are:

- A programme for the management of water resources and the development of institutional structure for the period of 2001-2006 is being prepared.
- The completion of the A Master Plan for Water Resources Management is under way.
- The implementation of the plans for developing water resources at all levels, the establishment and operation of the regional water management services, the issue of regulation decisions by prefectures to protect water resources per water basin and the exertion of effective checking on infringement of the law and infliction of the respective penalties are ensured by the respective laws, and the support for more efficient operation of Local Land Reclamation Organizations.
- The repairing and renovating the irrigation networks, the application of integrated irrigation systems, the water recycling and re-usage is implemented through the plans of the Land Reclamation Directorate for facing drought as well as the Local Land Reclamation Organizations.
- The actions for combating draught are being realised by the construction of dams and water deposits. Until today, twenty dams and twenty-nine water deposits have been constructed with total capacity of 76.282.850 m³. Also technical studies for eleven dams and four water deposits have been prepared, with total capacity of 25.616.000 m³. Both Greek government and E.U fund the plans. Additionally, the Ministry of Agriculture has continued an activity initiated in 1994 for facing the draught problem, by funding works like drilling (where sufficient ground water resources exist), harvesting of spring waters, repairing the irrigation networks and other land reclamation projects. Recycled water was used, at a relatively small scale, to satisfy irrigation needs.
- Several reports are being prepared for the support and pilot application of the E.U. Directive 2000/60.
- The refilling of artificially drained lakes and the planned diversion of the Acheloos river toward the desertification threatened plains of Central Greece.
- The development and expansion of a water database.
- The support of research for increasing available water supply water

8. FINANCIAL ALLOCATIONS

8.1. ADOPTED FINANCIAL MECHANISMS.

Financial support has not been explicitly allocated for combating desertification. Funds allocated as well as measures taken are incorporated in the development programmes of the respective Ministries and of the local government agencies. Thus is not easy to exactly separate and estimate the budget available for the implementation of the Convention in the country.

Funding that could be considered as directly and indirectly dedicated to combating desertification in the agricultural sector e.g. is that of the of subsidies. These funds allocated for the period of 2000-2006 include:

- Biological agriculture: 66.000.000 €
- Biological animal production: 46.000.000 €
- Long period set- aside of agricultural lands: 43.000.000 €
- Reduction of ground water- pollution by nitrogen of agricultural origin: 56.000.000 €.

The largest amount of these funds will distributed to the farmers participating to these programmes. The farmers from their part are bound to practice in accordance to the programme. The remaining part of the amounts is provided for farmers' training and for the expenses of controlling mechanisms (scientific supervision etc.).

The funding of Forestry, in its largest part, is controlled directly by the Directorate General of Forests. This is due to the fact, that most of the forest lands in Greece are considered by legislation as public property. Part of the amounts is offered to the NAGREF and competent University Departments for research.

The funds allocated during 2001 are not available, but they should be comparable to those spent by the Forest sector during 2000, listed in the table bellow:

Table 8.1. Funds spent by the Forest sector during 2000.

Action	Expenses in Drs	in Euros
Forest protection	3.251.285.000	9.541.555,4
Protection of mountainous water sheds	236.928.000	7.049.009,53
Reforestation-plant nurseries	2.401.950.000	659.313,3
Forest pastures	98.213.000	288.225,97
National Parks	655.268.000	1.923.016,87
Restoration of degraded forests	555.363.000	1.629.825,4
Mapping of forest lands	4.000.000	11.738,81
Total	7.203.007.000	21.102.685,28

The funds allocated to the Ministry of agriculture for the construction of dams and water deposits, amounted to 70.195 billions of drachmas (210,000,000 €), for the period 1989- 2001. Also these funds include the establishment or improvement of 19 irrigation nets. The projects funding has been realized through the I, II and III CSF of the EU. The annual plan for facing the draught problem (par.3.2) is funded by the State budget and was 480.000.000 drachmas (1.408.657,4 €) for the year 2000, while it reached the amount of 2.500.000.000 drachmas (7.336.757,15 €) for the year 2001. The provision for the works planed to be applied in the future, is at the amount of 83.000.000.000 drachmas (243.587.486 €).

The total funds allocated during 2001 for the development of water resources are estimated (on the basis of 1994-1999 allocations) to amount **137.28 billion drachmas (400,000,000 €)**

The GNCCD has granted the amount of 50.000.000 drs (146.735 €) for its current expenses and the activities to be done, towards the coordination of the efforts for combating desertification. Unfortunately, problems of bureaucratic nature blocked the funding, causing malfunctions.

9. REVIEW OF BENCHMARKS AND INDICATORS UTILIZED TO MEASURE PROGRESS AND AN ASSESSMENT THEREOF.

9.1. OPERATIONAL MECHANISMS FOR MONITORING AND EVALUATION.

The GNCCD is responsible for monitoring and evaluating the implementation of the NAP. The Committee is responsible for collecting and evaluating information relative to desertification. The data sources are the relevant services of Ministries, research foundations (NAGREF and Universities), regional authorities' services, NGOs, other governmental organizations and committees. Funding difficulties have slowed down the performance of the Committee during 2001.

The Ministry of Environment, Planning and Public Works is responsible for monitoring the environmental policy in general. However, a number of other related ministries are also responsible for monitoring the implementation of specific items of the environmental policy. The Ministry of Agriculture has the main role for desertification.

A corps of environmental inspectors is planned for investigating and monitoring the compliance with the provisions of the environmental policy. Members of this organization will be distributed throughout the country.

A large part of the responsibility is decentralized and lies with the local authorities, which are monitoring environmental effects of local development projects.

Monitoring of factors and processes causing desertification is, at present, rather limited. Some examples of monitoring by universities, research institutes and public agencies are:

- The monitoring of the quality of surface and subsurface waters.
- Field plots for recording soil erosion rates.
- Human pressures on desertification threatened areas.

SOURCES USED

Ministry of Agriculture
(<http://www.minagric.gr>)

Ministry of Environment, Planning and Public Works
(<http://www.minenv.gr>)

Ministry of Development
(<http://www.ypan.gr>)

Ministry of Foreign Affairs
(<http://www.mfa.gr>)

Ministry of Education
(<http://www.ypepth>)

National Agricultural Research Foundation
(<http://www.nagref.gr>)