

Country Assessment Report on Climate Change

ALBANIA

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Table of contents

1. Executive summary	4
2. Introduction.....	6
3. Legal framework related to climate change	7
4. Major commitments under the UNFCCC	8
4.1. National Communication reporting.....	8
4.2. National inventories of all GHGs.....	9
4.3. National policies and measures to limit GHG emissions	11
4.4. Educational and public awareness programmes on climate change	14
4.5. Vulnerability and adaptation	16
5. Albania’s participation in Kyoto mechanisms.....	16
6. Conclusions and recommendations	17

Abbreviations

CDM	Clean Development Mechanism
CGE	Consultative Group of Experts
COP	Conference of Parties
DNA	Designated National Authority
FNC	First National Communication
GEF	Global Environment Facility
GHG	Greenhouse Gas
INSTAT	Institute of Statistics
IPCC	Intergovernmental Panel on Climate Change
LEAP	Long-range Energy Alternatives Planning
LUCF	Land Use Change and Forestry
MDGs	Millennium Development Goals
NAP	National Action Plan
NCSP	National Communication Support Programme
NES	National Energy Strategy
NGOs	Non-governmental Organisations
SNC	Second National Communication
TNA	Technology Needs Assessment
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention on Climate Change

1. Executive summary

Albania joined the United National Framework Convention on Climate Change (UNFCCC) in 1995 and has a status of non-Annex I country. Recently Albania joined the Kyoto Protocol as well. The Government of Albania has taken considerable steps toward the implementation of the UNFCCC, such as preparing the First National Communication (FNC), a Technology Needs Assessment (TNA) and compiling the National Action Plan (NAP) to address climate change with UNDP/GEF support. Albania has also just started the preparation of the Second National Communication (SNC) to the UNFCCC.

According to the FNC Albania is a relatively low net emitter of greenhouse gases, with relatively low carbon dioxide (CO₂) emissions per capita, mainly due to the fact that over 90 percent of electricity is generated by hydro-sources. The energy sector contributes more than 60 percent of total emissions. Relatively high CO₂ emissions per GDP are explained mainly due to high energy intensity. Based on the predictions for future emissions, by 2020 total emissions will rise by more than five times over. Although Albania has made no commitments to reduce GHG emissions, the NAP aims curb their growth.

The abatement scenario of emissions foresees the introduction and implementation of different options mainly focused on energy saving through energy efficiency measures and promotion of renewable energy sources. A tier of GHG mitigation measures for all GHG relevant sectors with a more significant focus on the energy sector has been proposed and evaluated in terms of various criteria, which does not consist only of reduction potential and cost and benefit, but also the contribution to reduce poverty and social acceptability. Measures consist of thermal insulation in housing, efficient bulbs, solar thermal, LPG (cooking, heating), small hydro-plants (SHP), fuel switching in industry, and others.

The future climate scenario for Albania predicts changes such as increased temperatures, decreased precipitation and reduction of water resources and arable land. The most vulnerable area is Albania's coastal zone, while the most vulnerable sectors are water resources, agriculture energy and tourism. Future climate changes are expected to negatively impact the river flow, which in turn will affect the generation capacity of hydro-power plants. This is an issue that needs to be taken into consideration.

Public awareness is an important component that is crosscutting the overall National Communication exercise. Efforts to raise awareness on climate change have contributed positively to the mainstreaming process. This component will also continue to be developed under the Second Communication phase, along with a UNEP project on Article 6 of the UNFCCC (Public Awareness, Education and Training).

The National Communication process has not only been considered as a tool for reporting to the UNFCCC but also for mainstreaming — identifying and integrating — the main directions into national planning process and programming through the mobilisation of new resources. Due to such efforts the National Energy Strategy (NES) has already integrated many findings and outputs from Albania's FNC and TNA. The strategy aims at increasing the security of energy supply through optimisation of supply and efficient consumption while ensuring minimal impact to the environment. In the frame of the Millennium Development Goals (MDGs) exercise led by UNDP, the Climate Change Unit/Programme managed to naturally link up national energy planning, poverty and climate change issues. According to the NES national targets have been set for saving energy of 23 percent and a share of 18 percent of renewable energy sources by 2015. This will bring in turn a GHG reduction of 4 million CO₂ equivalent. A law on energy efficiency

along with an energy trust fund, have been recently established in order to support the implementation of the NES.

A package of project idea notes has been developed under the FNC and TNA. Two projects have been sent to GEF for funding. One of them is a project on market transformation for solar thermal water heating in Albania. GEF has recently approved Project Development Phase B (PDF B) and the pipeline entry of the full project. Another PDF A project on building adaptive capacities for a system assessing the vulnerability is under way. Many of the rest could serve as good possible CDM project ideas.

2. Introduction

Albania ratified the UNFCCC in October 1994, and it entered into force on January 1, 1995. As of January 2005¹ Albania is also a Party to the Kyoto Protocol of the UNFCCC. Albania holds the status of a non-Annex I party to both these legal documents. As such, Albania has accepted the commitment to produce national communications to the Conference of the Parties (COP) of the UNFCCC. The national focal point for UNFCCC and CDM Designated National Authority belongs to the Ministry of Environment of Albania through its Climate Change Unit.

The Government of Albania has taken considerable steps for the implementation of the UNFCCC such as preparing the First National Communication to the COP, the Technology Needs Assessment, and compiling the climate change NAP. In accordance with Article 4.3 of the UNFCCC, the Government of Albania has requested funding from the Global Environmental Facility (GEF) to assist the country in preparing its FNC. So far Albania has finalised and submitted its FNC to the COP 8 on October 2002 and has started the preparation of the SNC after the completion of the self-assessment exercise (stocktaking). The stocktaking process spurred the generation of essential information for preparing the project proposal for the SNC, which was the main output of this exercise.

According to the FNC Albania is a relatively low net emitter of greenhouse gases, with relatively low carbon dioxide (CO₂) emissions per capita, mainly due to the fact that over 90 percent of electricity is generated by hydro-sources. The energy sector contributes more than 60 percent of total emissions. Relatively high CO₂ emissions per GDP are explained mainly due to high energy intensity. Based on the predictions for future emissions, if no GHG abatement measures are taken by 2020 total GHG emissions will rise from 7,061.45 gigagrams (Gg) in 1994 to 37,653 Gg.

Although Albania does not have any commitments for GHG emission reduction, the NAP aims at reducing the growth rates of GHG emissions. The abatement scenario of emissions foresees the introduction and implementation of different options mainly focused on energy saving through energy efficiency measures and promotion of renewable energy sources. A tier of GHG mitigation measures for all GHG relevant sectors with a more significant focus on the energy sector has been proposed and evaluated in terms of many criteria. They consist not only of reduction potential, and cost and benefit, but also the contribution to poverty reduction and social welfare. Measures consist of thermal insulation in housing, efficient bulbs, solar thermal, LPG (cooking, heating), small hydro-power, fuel switching in industry, and others.

The future climate scenario for Albania predicts changes such as increased temperatures, decreased precipitation and reduction of water resources and arable land. The most vulnerable area is Albania's coastal zone, while the most vulnerable sectors are water resources, agriculture energy and tourism. Future climate changes are expected to negatively impact the river flow, which in turn will affect the generation capacity of hydro-power plants. This is an issue that needs to be taken into consideration.

The National Communication process has not only been considered as a tool for reporting to the UNFCCC but also for mainstreaming to the national planning process and programming through the mobilisation of new resources. Due to such efforts the National Energy Strategy (NES) has already integrated many findings and outputs from Albania's FNC and TNA.

¹ Albania's Parliament adopted Law No 9334 dated Dec. 16, 2004 on "Ratification of the Kyoto Protocol."

3. Legal framework related to climate change

Except for the laws on ratification of the UNFCCC and the Kyoto Protocol from the Albania's parliament there are no laws that address explicitly the issue of climate change. Because the energy sector emits a significant share of GHG emissions, the sector has been the focus of analysis and recommendations for climate change mitigation. In addition, the most relevant laws that relate to climate change are adopted under the energy sector. A legislative framework on energy in Albania comprises a relatively large number of different pieces of legislation at present. A more detailed analysis of the current legislation is given as follows:

- *Law on Energy Efficiency and Renewable Energy Sources* (No. 9372 of April 27, 2005)
This is the most important law for climate change in general and GHG mitigation in particular. It focuses on promoting energy efficiency and energy conservation, creation of an energy efficiency fund, energy efficiency labelling, and promoting energy audits schemes. The purpose of this law is to create the legal framework required for the promotion and improvement of the efficient use of energy throughout the energy cycle. This law establishes the economical use of energy sources, the establishment of more reliable energy supply conditions, as well as the minimisation of impact on the environment
- *Law on Power Sector* (No. 9072 of May 2003)
This law abolishes the one above. It assures the conditions of electricity supply to consumers, efficient functioning of the electricity market and adjusts the power sector to market economy condition. The overall aim of the Law on Power Sector is to enhance the economic effectiveness and the quality of services for power generation, transmission and distribution and provide a transparent and comprehensive legal framework for the mentioned activities.
- *Law on Electricity* (No. 7962 of July 1995)
This law specifies the conditions for activities in the power sector and the rights and duties of all physical and legal persons involved in one of these activities. It also regulates the relationship between consumers and suppliers in terms of their basic duties and obligations. The law provides for operational and technical management of the power network as well as for connections to the grid and measurements of electricity.
- *Law on Regulation of Power Sector* (No. 7970 of July 1995)
This law prescribes the establishment of an Energy Regulatory Body (ERE) in the power sector and defines its duties. According to this law, ERE is responsible for tariff regulation and licensing in the power sector.
- *Law on Energy Conservation in Buildings* (No. 8937 of September 2002)
This law declares that the design and construction of buildings should meet the necessary technical parameters for conservation, saving and efficient use of energy. All buildings to be constructed so as to limit thermal losses, and provides thermal insulation of buildings and central or district heating schemes.
- *Governmental Decree for Energy Building Code*
The elaboration of the Energy Building Code began in 1998 based on the National Agency for Energy (NAE) in collaboration with the Albania-EU Energy Efficiency Center (EEC) and the other institutions of the sector. The Governmental Decree No. 38 of

January 2003 approved it as the Norms, Rules and Conditions for Design and Construction, Production and Conservation of Heat in Buildings.

- *Governmental Decree for Strategy of Energy* (No. 424 of June 2003)

This governmental decree approves the National Strategy of Energy until 2015. According to the decree, the Ministry of Industry and Energy and the NAE are appointed to update this strategy every two years.

- *Law on Electrical Police* (No. 8637 of July 2000)

Based on this law, a specialised executive body for controlling the enforcement of legislation and use of electricity —the Electrical Police — was established. The purpose of such a structure is to monitor and punish abuses in the power sector, particularly with electricity consumption.

4. Major commitments under the UNFCCC

4.1. National Communication reporting

The ultimate objective of the UNFCCC is to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate. By becoming a party to the UNFCCC, Albania has accepted a number of commitments which include, *inter alia*, to:

- develop, periodically update, publish and make national inventories of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol available to the COP;
- formulate, implement, publish and regularly update national and — where appropriate — regional programmes containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and measures to facilitate adequate adaptation to climate change; and
- communicate information related to implementation of the UNFCCC to the COP, in accordance with Article 12.

Albania has lacked the financial resources to fulfil its obligation as a non-Annex 1 country of the UNFCCC and Kyoto Protocol to prepare national communications to the COP. This has prompted the government of Albania to request assistance from UNDP/GEF, which was made available in 1998 through the project Enabling Albania to Prepare its FNC to the COP of the UNFCCC, and in 2004 through the Enabling Albania to Prepare its SCN to the COP of the UNFCCC project.

The preparation of Albania's FNC along with an NAP for climate change mitigation was the first accomplishment of the Government of Albania towards the COP. It was officially submitted to the UNFCCC secretariat in September 2002 and launched in November 2002 at COP 8 in New Delhi, India.

After the completion of the FNC, Albania secured “add-on” support from UNDP/GEF. Through this project, the climate change team that prepared the FNC has completed a Technology Needs Assessment (TNA) Report, which provides a self-assessment of the national needs for both types of technologies: GHG abatement technologies and adaptation technologies. The above assessment consists of the prioritising of key abatement and adaptation technologies for GHG

relevant sectors and coastal zones, under a set of evaluation criteria agreed by experts and stakeholders consulted. After the selection of key technologies, a package of project proposals addressing each selected technology option has been developed.

At the start of the project in 1998, a climate change office was established in the Ministry of Environment. This office serves not only for the UNDP/GEF project implementation but is responsible for the implementation process of the UNFCCC, serving as the national focal point for it and a possible nucleus for a national UNFCCC secretariat/committee in the future. A Programme Steering Committee has also been established which oversees all projects and activities within the framework of the UNFCCC. This informal committee includes high-level participants from all major government and non-government stakeholders. A technical level national climate change team with three thematic working groups (on GHG emission inventories, GHG abatement measures and vulnerability and adaptation) has been established.

The Government of Albania has always been very active in climate change negotiations. In 2001, Albania became a member of the UNFCCC informal consultations group CAMCA (Central Asia, Moldova, the Caucasus and Albania) established during the COP 6 in 1999.

4.2. National inventories of all GHGs

The first GHG emission inventory by sources and sinks for Albania is performed under the Albania's FNC project, Enabling Albania to Prepare its FNC to the COP of the UNFCCC, which started in 1998 and was finalised in 2001.

The lead agency² responsible for preparing the GHG inventory preparation is the Climate Change Unit/Programme, which relies on the responsibility of the Ministry of Environment of Albania. The Unit/Programme was established in 1998 when the GEF provided funds for the FNC. As the UNFCCC focal point, this unit is responsible for the implementation of the UNFCCC. To date, the unit/programme has mainly taken a project-based approach.³

Albania's first GHG inventory covers all sources and sinks as well as all gases as mandated by a decision made at COP2 (10/CP2). Albania's first GHG inventory considers five main modules — energy, industrial processes, agriculture, waste and LUCF — as guided by the Intergovernmental Panel on Climate Change (IPCC), revised in 1996. Solvents are considered as well. The national inventory considers three direct GHGs such as: CO₂, CH₄ and N₂O and three indirect GHGs such as: CO, NO_x, and non-methane volatile organic compounds (NMVOC). Estimates of key sources⁴ are provided as well. Also aggregated GHG emissions and removals expressed in CO₂ equivalent are provided. In addition, indicators such as CO₂/GDP and CO₂/capita are estimated mainly for comparability purposes. Estimates for Albania's first national GHG inventory are made for the base year 1994. Time series (1990-1994) are used only for the category of CO₂ emissions from fuel combustion.

² The designation "lead agency" implies that the agency has overall responsibility for the inventory and that the agency carried out most, or all, of the following duties: coordination/compilation of the national inventory; archiving of relevant national data; periodic updating of the inventory; documentation of the selection process for national activity data, emission factors and other conversion factors; documentation of methods and assumptions used; validation of conversion units and other data; verification of inventory estimates; compilation of the inventory report; and reporting to international bodies.

³ For more information visit the national climate change homepage: <www.ccalb.org>.

⁴ A key source category is one that is prioritised within the national inventory system because its estimate has a significant influence on a country's total inventory of direct GHGs, in terms of the absolute emissions level and trend.

The estimates of GHG emissions and sinks are performed according to the 1996 revised IPCC Guidelines. In addition, the IPCC Good Practice Guidance is used for the uncertainty assessment⁵ and key source estimates. The solvent category follows the Co-ordinated Information on the Environment in the European Community (CORINAIR). The methods elaborated for Albania's GHG inventory were labelled "Tier 1" and "Tier 2." Emissions of carbon dioxide released from energy and transport are estimated through two approaches: the top-down and bottom-up approach.

All activity data concerning each sector are national. The main activity data source/provider is the Institute of Statistics (INSTAT), although it does not provide activity data for GHG inventory purposes according to the IPCC nominations. Other Data providers/sources are the National Agency of Energy, Ministry of Environment, Ministry of Energy and Industry, Ministry of Transport, the National Directorate of Forestry, Taxation Department, Costumer Offices and different databases, surveys and studies prepared by international organisations (e.g. the World Bank, UNDP, EBRD, and EIB), universities and different NGOs. As regards emission factors, in most cases they represent default factors provided by the IPCC 1996 Revised Guidelines. An exception is made in two cases only: emissions released from fuel consumption in small industrial boilers and emissions from burning of fuel wood in household stoves. Most of the emission factors used in estimates do not reflect the Albanian situation.

The major technical constraints faced by the GHG inventory process is related to the activity data gaps and use of IPCC default emission factors that do not reflect the country situation.

Activity data gaps identified for Albania's first GHG inventory are mainly related to the availability of data (disaggregated activity data or inconsistency with the IPCC format) and their variability after the 1990s. In most cases, activity data reported were in an aggregated form or inconsistent with the IPCC format, which made estimating emissions exceedingly difficult. Most of the activity data are characterised for their variability after the 1990s, when the country entered a period of rapid development. In the course of these years, sectors like transport, agriculture, industry and waste, underwent drastic change. In addition, the problem of data gaps becomes significant in those cases where the missing ones are key sources, such as mobile combustion, enteric fermentation, fuel combustion in industry, fuel wood burned for energy purposes, and solid waste treatment.

The overall uncertainty estimated for Albania's first GHG inventory was 17.03 percent,⁶ of which the CO₂ equivalent emissions from fuel wood contribute 79.23 percent. This comes especially from the large degree of uncertainty of activity data for this subcategory (especially from fuel wood self-collected from rural areas).

Attempts to improve the quality of the GHG inventory started on June 2002 through the UNDP-GEF regional project Building Capacitates to Improve the Quality of the GHG inventories in East Europe and CIS. The goal of this project is to build on the inventory work undertaken for the first FNC in preparation for SNC, aimed at creating sustainable technical and institutional capacity. The progress made so far under this project consists of strengthening national arrangements for compiling, archiving, updating and managing GHG inventories.

⁵ The Monte Carlo method is used for uncertainty estimates.

⁶ The combined uncertainty reported under Albania's FNC is found to be higher (19 percent). The above value of 17.03 percent is a corrected one estimated after the peer reviews of the GHG inventory.

Albania's system of GHG inventory is under the process of documentation. A national inventory report along with the manual of procedures has been drafted. The archiving of data and estimates is under way. A national strategy aimed at improving the quality of GHG inventories has been drafted. The strategy focuses on activity data collection and identification of methods/approaches for reducing the gaps.

A plan that can be put into place for SNC has been developed. It consists of the development of a methodology for filling in gaps, and would be implemented during the SNC's preparation. Survey method stands at the heart of the methodology for filling the activity data gaps for those categories which do not exist.

The second GHG inventory will be done under the project Enabling Albania to prepare its SNC to the COP of the UNFCCC. The project started in March 2005 and is expected to last three years. The GHG inventory will be carried out according of the new UNFCCC guidelines 17/CP.8 on National Communication from non-Annex I countries.

4.3. National policies and measures to limit GHG emissions

The first GHG emission abatement analysis for Albania is performed in the frame of Albania's FNC. This analysis consists of developing two GHG scenarios: a GHG baseline scenario and a GHG abatement scenario. Projections for Albania's GHG abatement are made for 1994-2020. Projections of GHG emissions performed for Albania are sector-specific. They are built up for all GHG source categories: energy and transport; LUCF; agriculture; waste; industrial processes and solvents. The development of both scenarios was made by utilising a number of assumptions based on the macro-economic projections of the country as a whole, as well as in the development plans of the economic sectors taken in particular.

Given that the baseline GHG emissions scenario forecasts the most significant share of CO₂ emissions [83 percent] will be released from energy and transport activities, the team decided to analyse the energy and transport sectors in detail, i.e. quantitatively, and not simply qualitatively, as the other sectors.

The abatement GHG emissions scenario combines the emissions in the baseline scenario (reference scenario) with the changes (i.e. reductions) in emissions introduced by various abatement options being evaluated. The selection of measures for the energy and transport sectors was made taking into account the actual situation of the energy sector in Albania, as well as key sources of GHG emissions and reference scenarios of GHG emissions for the energy and transport sectors.

The GHG abatement measures and technology options identified under Albania's FNC have undergone a prioritisation process through Albania's TNA exercise carried out under the Top-Up phase of Climate Change Enabling Activities.

The TNA is a complex process. It is a continuation of the work already carried out or identified/recommended under Albania's FNC and through other activities to enhance technology transfer. This assessment of technology needs has been made through a sector-by-sector approach, starting with the energy sector which, according to the Albania's FNC makes the most significant contribution to the overall GHG emissions inventory. The assessment also covers other sectors such as LUCF, agriculture, waste management and industrial processes.

Using the compiled information on alternative technologies for the priority sectors and sub-sectors and based on the ranking of the alternative technologies, the top three to four technologies were considered as the key ones for most sectors under assessment. Once the key technologies had been selected, the barriers were assessed, along with the policy needs and actions, and a package of project ideas for the key technologies was designed.

The software used for the development of energy and transport baseline emissions scenario was Long-range Energy Alternatives Planning (LEAP) (version 95.0). Concerning the non-energy sectors, the 1996 revised IPCC methodology is used for the development of baseline emission projections, although an exception is made for the solvent use sector. The predictions for NMVOC emissions by the year 2020 are made according to CORINAR methodology. The development of GHG abatement analysis for the energy and transport sector is based on LEAP and GACMO⁷ software. For the other sectors, the analysis is more qualitative (quantitative analysis was not possible).

Base year data (from 1994) for the development of the GHG baseline scenarios are identical to those of the GHG inventory. Data for other years (1994-2000) and predictions on macro-economic indicators were received from INSTAT and other relevant institutions/ministries already mentioned in GHG inventory section.

Having the GHG inventory as the starting point for the GHG abatement analysis and given the data gaps related to this inventory, the same gaps and uncertainties were present in the abatement analysis exercise as well. Therefore attempts to reduce data gaps and the level of uncertainty under the GHG inventory will in turn bring more accurate abatement analysis, i.e. more realistic predictions. The team lacked the necessary data to perform quantitative analysis for some technology options, such as: central heating (CH) schemes; district heating systems (DHS); small scale combined heat and power (CHP) and DHS in new urban areas.

Another gap was related to the programming issue. In other words, in the course of the preparation of the Albania's FNC sector-specific scenarios and related national strategies, and programmes were not available for the sectors that were under the focus of the GHG abatement analysis. This is not the case for the time being. Many new strategies and actions plans have recently been adopted by the Government of Albania that will impact GHG abatement in Albania, and therefore both scenarios (baseline and abatement) need to be updated and improved. Abatement analysis is a component of the national communication that follows the GHG inventory. It could be done right after the completion of the GHG inventory, which serves as the starting point of the analysis. In Albania's case the GHG inventory developed for 1994 served as the starting point for the baseline scenario of GHG emissions. The analysis consists of the development of two scenarios: baseline and abatement. The analysis of scenarios brings the package of measures and technologies to be developed in order to reduce (abate) the GHG emissions.

Albania has addressed the mitigation and adaptation measures through the National Climate Change Strategy, which consists of a set of priorities for action in order to integrate climate change concerns into other economic development plans. This strategy is elaborated in the frame of Albania's First National Communication. The abatement scenario of emissions foresees the introduction and implementation of different options mainly focused on energy saving and energy efficiency measures. A basket of 25 GHG mitigation measures for the energy and transport sector is proposed in the frame of this study, which are then analysed in terms of cost and benefit. Even

⁷ GACMO is a GHG costing model developed at the UNEP Center for Energy and Environment.

the rate of penetration is calculated. The above measures consist of the thermal insulation in housing, efficient bulbs, solar thermal, LPG (cooking, heating), small schemes SHP, fuel switching in industry, etc. More information on the GHG inventory can be found in Albania's FNC report. These measures are addressed in the National Climate Change Action Plan, which is a part of the revised National Environmental Action Plan already adopted by the Government of Albania.

In terms of resource mobilisation, the package of project ideas were developed under the TNA exercise. Two projects have been sent to GEF for funding and seem to be successful (one is a project on Market Transformation for Solar Thermal Water Heating in Albania). GEF has recently approved PDF B and the pipeline entry of the full project. Another project on building adaptive capacities for representative vulnerable system is under way. The rest of the project idea notes serve as a good background for the potential project to be carried out under the CDM.

The NES has been drafted and approved in June 2003 by the Government of Albania according to the Decision of the Council of Ministers, No. 424 dated June 26, 2003. The NES, which was prepared as an integral part of the National Strategy for Social and Economic Development (NSSD), has already integrated many findings and outputs from Albania's FNC and TNA that have naturally linked up with energy, a critical issue in Albania now. The NES primarily aims to restructure the energy sector based on market economy principles and to develop a modern energy policy. A detailed plan of action was adopted on September 19, 2003 by the Albanian Government follows this strategy.

The Strategy for the Development of the Energy Sector is a document that analyses and recommends changes by 2015 that must be undertaken in Albania to increase the security of the energy supply and the optimisation of the energy resources to meet the demand and achieve sustainable development. It is the first national strategy to address explicitly environmental issues like greenhouse gas emissions and urban air emissions. Addressing the recommendations provided for the energy sector under the Albania's FNC is considered to be significant progress in mainstreaming the global environmental concerns into national sectoral planning and policy. This strategy is considered as an expression of the national demands, which provides a sustainable development of the whole national economy and achieves in the meantime, the environmental protection during the whole cycle of the energy source utilisation.

The specific objectives of the NES are:

- to increase the security and reliability of the energy supply in general and electricity in particular, on national and regional levels;
- to establish an efficient energy sector from the financial and technical aspects;
- to establish an effective institutional and regulatory framework and restructuring of energy companies;
- to increase the energy efficiency in generation/production and final use of energy sources aiming to minimise pollution;
- to optimise the supply system with energy sources based on least cost planning principle with minimal pollution; and
- to increase considerably investments in the energy sector through capital enhancement by international financial institutions, as well as private capital.

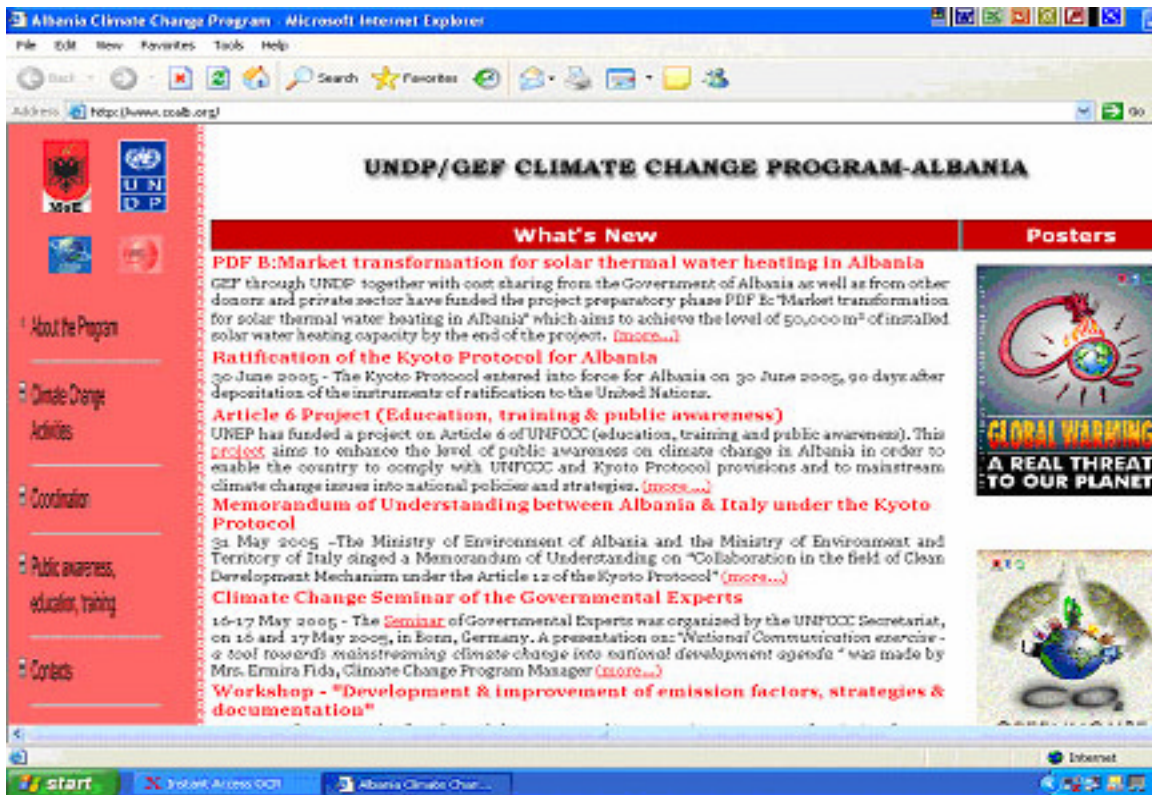
The implementation of the above strategy foresees the needs for the following investments. An important contribution will be made through the energy trust fund established under the Law on Energy Efficiency and Renewable Sources.

Table 1: Necessary investment in Albania's energy sector													
Year	2003	04	05	06	07	08	09	10	11	12	13	14	15
1. Investment needed for energy savings in households													
Investment [MUSD]	0.00	7.52	8.93	10.29	11.87	13.29	14.87	16.70	18.25	20.14	21.82	23.75	25.55
2. Investment needed for energy savings in services													
Investment [MUSD]	0.00	9.24	9.89	10.74	11.60	12.59	13.74	15.01	16.28	17.65	19.05	20.64	21.96
3. Investment needed for energy savings in industry													
Investment [MUSD]	0.00	6.42	6.79	7.34	7.79	8.25	8.69	9.16	9.62	10.10	10.58	11.06	11.86
4. Investment needed for energy savings in transport													
Investment [MUSD]	0.00	2.20	5.10	8.52	12.45	16.83	21.88	27.45	33.43	39.97	46.86	54.27	62.14
5. Investment needed for energy savings in the agriculture sector													
Investment [MUSD]	0.00	0.90	1.80	3.00	4.10	5.40	6.80	8.20	9.70	11.30	13.00	14.80	16.60
6. Investment needed in the power sector (generation, transmission, distribution)													
Investment [MUSD]	49.2	156	183	170	110	109	94	125	72.9	94.3	58.1	12.7	7.2
7. Investment needed for oil and natural gas													
Investment [MUSD]	34.39	147.40	151.40	47.50	95.10	19.90	24.00	17.38	16.03	16.20	28.32	27.79	18.48
Total for the energy sector													
Investment [MUSD]	84	329	367	258	253	185	184	219	176	210	198	165	164

4.4. Educational and public awareness programmes on climate change

The overall process of preparing the First National Communication, the Technology Needs Assessment and the Second National Communication has likely contributed to the enhancement of general awareness and knowledge of climate change related issues in Albania; strengthening the dialogue, information exchange cooperation and partnership with and among all relevant stakeholders, including governmental, non-governmental, academic and private sectors; building national capacities; and providing a permanent mechanism and trained national staff to regularly update different elements of the project, especially the emission inventory.

Public awareness and outreach has been designed as a cross-cutting component during the overall climate change activities carried out by the Climate Change Unit/Programme. A national climate change web page <www.ccalb.org> designed in 2000 is updated on a monthly basis. In addition, seminars, trainings, posters and newspaper articles have been produced and interviews have been given in the media over the years.



Publication of the main results and findings of the Albania's FNC under the recent *Status of Environment Report*; inclusion of the Climate Change Action Plan into the revised National Environmental Action Plan; inclusion of major findings and recommendations from the FNC and TNA to the NES; and the Energy Efficiency and Renewable Law, along with Law on Ratification of the Kyoto Protocol; are indicators of a raised level of awareness on climate change issues among policy makers. However, the overall process has highlighted the need to enhance the level of awareness among the general public because the issue of climate change is not defined as purely an environmental issue, but also as an issue of the sustainable development. (IPCC; Third Assessment Report)

The process of preparing the FNC and the TNA, and conducting the stocktaking has also contributed the capacity building and development. Capacity building has consisted of hands-on training organised from the programme office and the NCSP, as well as on-the-job training. Albania's experience gained under the above projects has been also disseminated to the region as well as globally, through the different forums held to date.

A strategy of partnership with governmental institutions, international organisations, academia and NGOs has been implemented and found to be successful. The role of the Project Steering Committee has been critical to the success of this strategy. Among the partners involved under the process those to whom the collaboration has been strong and successful have been the Ministry of Energy and Industry, National Agency of Energy, Ministry of Agriculture and Food, Polytechnic University of Tirana, Institute of Hydrometeorology, Institute of Biological Research, Institute of Statistics, ECAT-Tirana, and Energy and Environment for Sustainable Development (NGO).

UNEP is currently implementing a project in Albania in support of UNFCCC Article 6, which includes, inter alia, assistance to countries to raise public awareness on climate change, to involve local stakeholders in a dialogue on a perspective national climate strategy, to approach various target groups on climate change issues, and to disseminate up-to-date materials on climate change problems. This project aims to enhance the level of public awareness on climate change in Albania in order to enable the country to comply with UNFCCC and Kyoto Protocol provisions and to mainstream climate change issues into national policies and strategies. A country assessment on the level of the awareness on climate change issues will be carried out. This will help the development of a national outreaching strategy. Posters and leaflets will be developed and distributed in the course of this project.

4.5. Vulnerability and adaptation

The very first (and modest) assessment of Albania's climate vulnerability and adaptation options was carried out under the UNEP/Mediterranean Action Plan in 1995, which covered Albania's coastal area only. A more complete assessment followed the first, which was already carried out as part of Albania's FNC. The study covered the vulnerability and adaptation measures for all of Albania's territory.

As a climatological baseline a 30-year "normal period" was used. The period 1961-1990 has been selected as a baseline to study the influence of climate in the relevant sectors. Three time horizons were considered: 2025, 2050 and 2100. The Top-Up phase focused on coastal adaptation, as it was assessed as the most vulnerable under the Albania's FNC. The assessment process carried out was sector-specific. It covered water resources, agriculture, forestry, human health, and tourism and settlements. Priority adaptation measures were selected at the end.

The assessment of vulnerabilities and adaptation was guided by IPCC guidelines from 1994. The scenarios of likely impacts from climate change were assessed with MAGICC/SCENGEN software. Other tools have been used for impact assessment such as experimentation, impact projections, empirical analogue studies and expert judgment. The LEAP software has been used for impact assessment in the energy sector. A simple statistical model is used in the run-off assessment. For the rest of the sectors, statistical models have been developed or empirical analogues are used. The need to use socio-economic scenarios or integrated system models is highly stressed.

All climatologically data were received from the Hydro-metrological Institute. Data regarding relevant sectors have been received from other relevant institutions/ministries. However, the team lacked data from systematic monitoring. In addition, the study lacked proper guidance from UNFCCC, simulation of extreme weather events and cost-benefit analysis.

5. Albania's participation in Kyoto mechanisms

With the ratification of the Kyoto Protocol by its Parliament, Albania become eligible for participation under the CDM. This will serve mainly to promote sustainable development through the promotion and diffusion of new and clean technologies, protection of the environment at national and global levels by accepting that the global nature of climate change requires wide cooperation between countries according to their common but differentiated responsibilities and in the line with their socio-economic circumstances.

Ratification does not entail any financial implications to Albania due to the status that the country enjoys (non-Annex I), which does not bring any emissions reduction target. However, the ratification enables Albania to attract new investments and projects in the field of energy, transport, environment, forests, etc. through the CDM mechanism by facilitating the implementation of the sectoral action plans that derive from respective strategies. This is the case for the National Energy Strategy, which reflects environmental concerns very well, particularly climate-change related concerns such as greenhouse gas emission reduction. This strategy has stressed greatly the need for ratification of the Kyoto Protocol by Albania. This ratification is also in line with the policy of the EU that has already ratified this protocol. Moreover, four years ago it started the implementation of an action plan to achieve a 7-percent reduction from 1990 levels by 2012.

After the ratification of the protocol, the next step to make it operational is the establishment of respective institutional structures (DNA) that would propose, follow up on and monitor the CDM projects that would be funded under this mechanism. The DNA belongs to the Ministry of Environment through its Climate Change Unit.

The first CDM project would be a project funded by the BioCarbon Fund of the World Bank Group on Community-based carbon sequestration.

A Memorandum of Understanding has been signed recently with the Ministry of Environment and Territory of Italy on issues related to the Kyoto Protocol. Capacity-building activities will start soon in order to enable the environment to host CDM projects.

6. Conclusions and recommendations

The national communication process has not only been considered as a tool for reporting to the UNFCCC but also for mainstreaming climate change into the national planning process and programming through mobilisation of new resources. Due to such efforts the climate change team managed to integrate many findings and recommendations from the FNC and TNA into the NES, as well as to the Energy Efficiency and Renewable Law adopted by the Albania's parliament on June 2002 and June 2005 respectively.

Despite the progress made in mainstreaming climate change issues, there is a significant need to continue the process of bringing climate change into national planning and policy. In addition to GHG reduction measures, there is a significant need to address adaptation, mainly under the most vulnerable areas of the country and the most vulnerable sectors, such as water resources, agriculture and tourism. From the institutional point of view, there is a significant need to institutionalise the national communication process in order to ensure a sustainable and qualitative reporting process.

References

Albania's First National Communication to the CoP of the UNFCCC.

Project document: "Enabling Albania to Prepare its First National Communication to the CoP of the UNFCCC."

Project document: "Building National Capacities in Priority Areas (Technology Needs Assessment)."

Albania's Technology Needs Assessment Report

Synthesis Report on Stocktaking of Climate Change Activities Carried Out in Albania up to 2004.

Project Document: "Enabling Albania to Conduct the Self-assessment Exercise for the Purpose of Preparation of the Second National Communications the CoP of the UNFCCC."