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BUILDING KNOWLEDGE AND CAPACITY IN ALBANIA TO IMPROVE
GREENHOUSE GAS EMISSIONS INVENTORIES

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I.   INTRODUCTION

1.   To respond to the significance of the climate change problem and the necessity to take
effective steps for its mitigation, the Government of Albania joined the United Nations
Framework Convention on Climate Change (UNFCCC) in January 1995. The First National
Communication, submitted in July 2002, provides the first assessment of Albania's situation
with regard to climate change. The second communication was submitted in November 2009.
The greenhouse gas (GHG) emission inventories provide important data for the reports. The
inventories and the communications serve as the basis for future action, research,
improvement and policy refinement and development.

2.   Albania is in the process of developing the institutional arrangements for producing
emission inventories. The participation of numerous stakeholders from various economic
sectors, ministries, non-governmental agencies, community based organizations and funding
agencies, is critical to the success of assessing the state of climate change. Considerable
experience has been gained until now and the national capacity is being further developed.
For the second communication, Albania already developed time series for GHG inventories
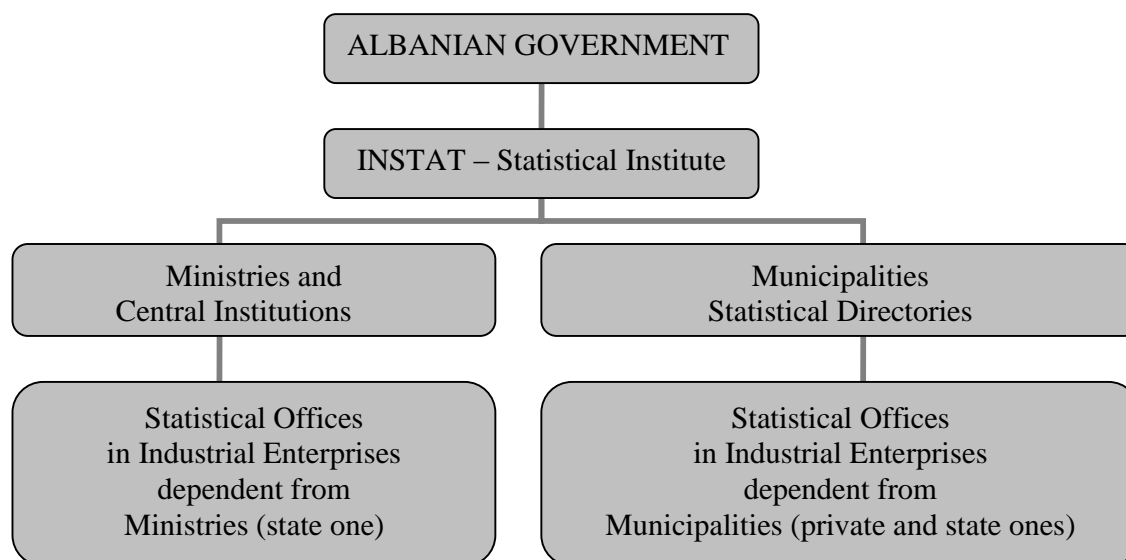for the period of 1990 – 2000.

3.   This paper assesses the challenges with source data and institutional arrangements in
Albania when compiling greenhouse gas emission inventories and preparing national
communications. More information regarding the methodology of GHG inventory
compilation in Albania is provided in Annex I.

4.   Up to now there is no single statistical authority in Albania with the responsibility for
evaluating data collection for the greenhouse gas (GHG) emission inventories. But the
Albanian Institute of Statistics (INSTAT), different ministries and specialized institutes
provide activity data for all sectors as required for the GHG Inventory.

5.   After the approval of the Law No.7687 dated 16.03.1993 "On Statistics", the
coordination role of the national statistical system was given to the Institute of Statistics
(INSTAT) which is the unique central institution in the country under the Council of
Ministers, which approves the National Statistical Program, the criteria of the evidences as
well as methodological ones, nominations and classifications for production of uniform

national statistics underlying the obligations of economic subjects, be they private or public. The Statistical Program, compulsory for all state organs, serves as a basic coordination tool for the collection and compilation of data and for analysing and publishing indicators. The new structure of the national statistical system is shown in Figure 1.

Figure 1: The organigram of the National Statistical System in Albania.

6.   In 1994, the **Business Register** of economic enterprises was set up according to the European methodological recommendations. In 1995, based on the Decision of the Council of Ministers, Nr.327, dt.18.07.1994 Albania started to apply the **Nomenclature of Economic Activities Classification**, NACE, Rev.1, for the collection, classification and publication of the official data on enterprises in the Business Register. These two statistical tools (Business Register and NACE classification) make it possible to establish **consistent statistics** for enterprises that are **harmonised with the European and international requirements**.
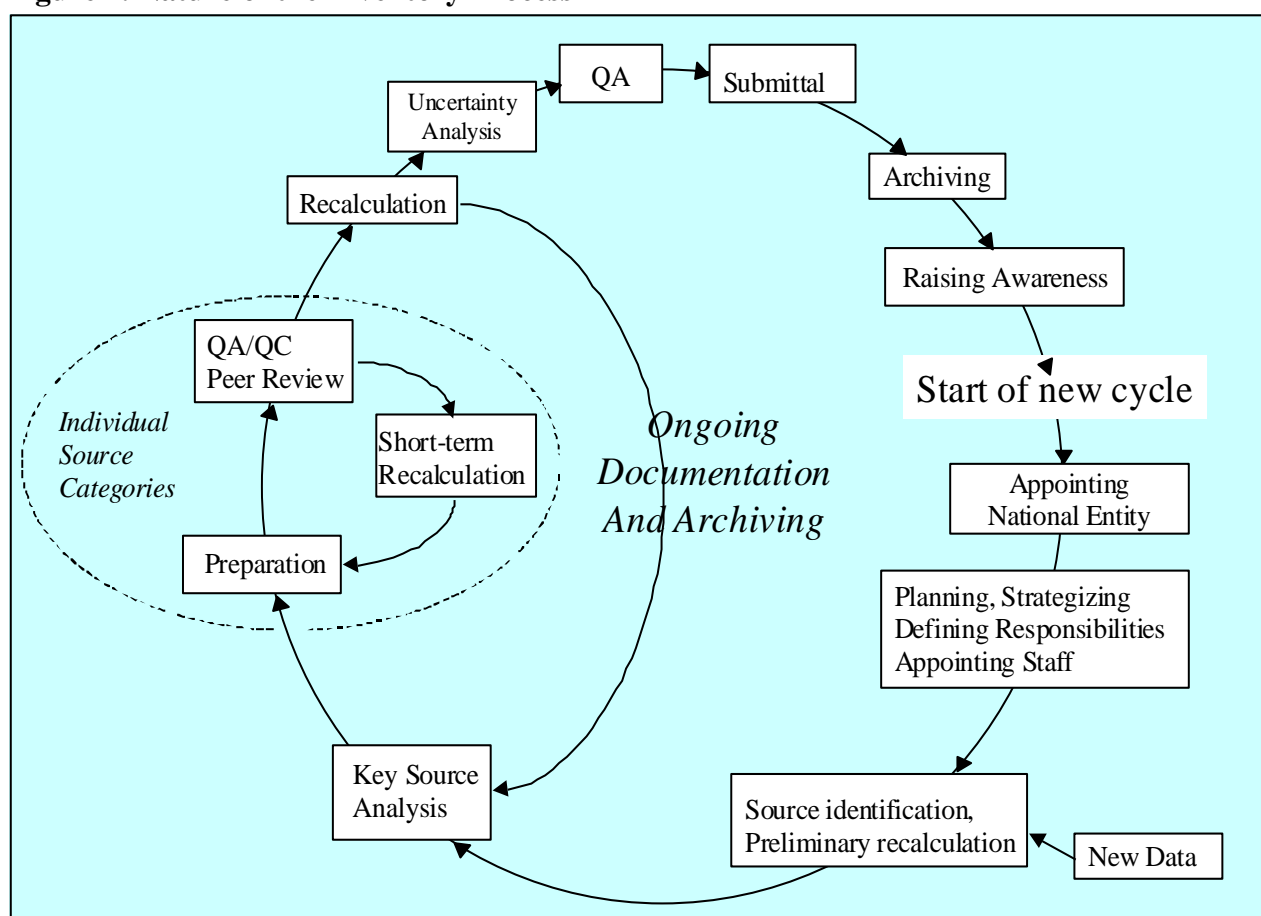
II.   DATA CHALLENGES WITH EMISSION INVENTORIES AND NATIONAL COMMUNICATIONS

7.   Greenhouse Gas Inventory was developed in the framework of the Global Environment Facility (GEF) funded **project "Enabling Albania to prepare its First and Second National Communication in Response to its Commitments to UNFCCC".**

8.   Preparing a national inventory was a complicated and lengthy task and this experience should create the basis for the preparation of the Third National Communication, which will start this summer 2012. The work involved fundamental decisions about methodologies and emission factors to be used. It also required setting up a network of contacts and sources to collect and review activity data, as well as a framework for management, quality assurance, technical peer review, documentation, and archiving. When the inventory is being done for the first time, the output is not known, and the inventory will likely have to go through several major short-term iterations that may not just involve data improvements, but also the removal or addition of entire source categories that were previously over-or under estimated.

9.   After the work of the Albanian GHG Inventory Team, the improvements of the first and second inventories have now passed from experts of each sector to the Inventory Team Leader and to the related Steering Committee, and after that to external quality control. The quality control was done by well-known international GHG Inventory Experts. Inventory work can be viewed as cyclical, where the same procedures are basically repeated, while regularly being reviewed and updated, if required, and more recent activity data are entered. Due to the cyclical nature of the inventory process certain tasks can only be executed with the help of information gathered during the previous inventory effort. Consequently, such tasks could also be seen as making improvements to the previous inventory and the exact sequence of these types of tasks becomes somewhat relative. The fundamental principle for improving the GHG Inventory is built in the cyclical nature of the inventory process, which is shown in Figure 2.

Figure 2. Nature of the Inventory Process

10.   Both the Second National Communication (SNC) and the stakeholder consultations identify data availability and quality as a key barrier to the development of a more accurate GHG emission inventory. As the SNC noted, data gaps existed for mobile combustion, enteric fermentation, fuel combustion in industry, fuel wood burned for energy, and solid waste treatment. The main contributor to uncertainty was the amount of carbon dioxide (CO_2) emissions from fuel wood, which was 35.32 % of the total value. The main source of uncertainty was an estimate of the quantity of self-collected fuel wood in rural areas.

11.   The SNC of Albania did not include information on the system for collecting data. Analysis done under this report indicated that this was considered a serious gap because information had to be obtained informally and/or by non-professionals. As a result, this often resulted in data errors or insufficient data. In addition, the SNC lacked information on technologies and models utilized during the inventory process.

12.   All the information required to produce the national emissions inventory was documented and archived, including the assumptions and criteria for the selection of activity data and emission factors, emission factors used, activity data, information on the uncertainty associated with activity data and emission factors; rationale for the choice of methods; methods used, changes in data inputs or methods from previous years, identification of and information on individuals providing expert judgment for uncertainty estimates, details of electronic databases or software used, worksheets and interim calculations, final inventory report and any analysis of trends from previous years, quality assurance and quality control (QA/QC) plans and outcomes of QA/QC procedures.

13.   Analysis of all activities of the First and Second National Communication (F&SNC) shows that there has been a critical mass of institutional capacity developed through the process of updating the inventory for the SNC and it is important to note that the GHG inventory team that was assembled for the SNC has been kept intact and is now poised to undertake the GHG inventory update for the Third National Communication (TNC). This institutional memory represents important familiarity with the limitation, obstacles, and challenges associated with inventory development. The team's detailed experience with past efforts will also help to ensure coherence, continuity, stakeholder participation, and the exploitation of pertinent synergies.

III.   DATA SOURCES

14.   All activity data concerning Fuel Combustion are gathered from National Balance of Energy prepared by the National Agency of Natural Resources and Ministry of Economy, Trade and Energy. A short description of main institutions dealing with collection of energy statistics is given in Annex II.

15.   Although INSTAT was the main activity data provider for the entire Second National Communication (SNC), it did not provide activity data for the GHG inventory. Rather, data was gathered from the former National Agency of Energy, Ministry of Environment, Forestry and Water Administration, Ministry of Economy, Trade and Energy, Ministry of Public Works, Transport and Telecommunications, the General Directorate of Forestry, Taxation Department, Costumer Offices and different data bases, surveys and studies prepared by international organizations (including the World Bank, UNDP, EBRD, EIB etc), universities and NGOs. Default emission factors from IPCC 1996 Revised Guidelines were used.

16.   The following describes in detail procedures used to collect all required data and emission factors for fulfilling the Module 1 "Energy and Transport" of GHG Inventory.

A.   The main categories included in fuel combustion

Energy and Transformation of fuels Industries
• Electricity and Heat Production.

- Petroleum Refining: all combustion activities supporting the refining of petroleum products
- Other energy industries: emissions from own energy use in coal mining & oil and gas production.

17.   Activity data concerning this category are gathered for the years 1994&2000 from National Energy Balance prepared from the former National Agency of Energy (nowadays AKBN) and special figures like fuel consumption for electricity and heat production are collected by contacting each electricity and heat plant. Also the figures concerning each refinery are gathered by contacting three refineries which were operating at that time in Albania.

18.   There are several laws in Albania which address compilation of the energy statistics and energy balance (see table 1). The Law on Statistics is relevant for energy statistics as it defines a methodological concept of collection, compilation and analyses of data. The Institute of Statistics (INSTAT) provides and compiles general and detailed data in various areas and publishes them in its own publication formats. INSTAT does not have any obligation related to the gathering of energy data specifically. On the other hand, according to the Decision of Council of Ministers nr. 202, date 1.04.2007, the National Agency for Natural Resources (AKBN) is defined as the institution in charge of assembling and processing energy data on both supply and demand side. Based on that, AKBN is responsible for making analyses of trends of different energy sources by year and for preparing the annual national energy balances, making the energy planning and preparing the energy strategy.

Table 1. The relevant laws in Albania regulating compilation of energy statistics

Title	Subject matter and scope
The Law on Statistics	This law is relevant for energy statistics as it defines a methodological concept of gathering, systematization and analyses of detailed data which concern different areas.
Decision of Council of Ministers nr. 202, date 1.04.2007, the National Agency for Natural Resources (AKBN of NANR)	According this law is defined as the institution in charge of assembling and processing energy data on both supply and demand side.
Law on Power Sector (9072/2003),	According this law, provides the data related TPP
Law on Refining, Transportation and Trading of Oil, Gas and their By-products" (8450/1999)	According this law, the Ministry responsible for oil and gas sector is responsible for elaboration and publication of information, defining the form, terms and manner. Also, the rules on maintaining and management of the emergency stock of oil, gas and their products are determined by this Law.
the Petroleum Law (Exploration-Production) (7746/1993)	According this law, provides the data related Oil and Gas exploration
Law Energy Efficiency (2005)	This law, clearly defines the procedure for reporting energy data for the purpose of supporting, developing and monitoring the national energy efficiency program. As

	defined in this Law, fuel and electricity suppliers are obliged to submit every sixth months reports on amount of energy supplied to the customers.

19.   According to Article 8 of the Law no. 8450/1999 (on refining, transportation and trading of oil, gas and their by-products), the Ministry responsible for oil and gas sector is responsible for elaboration and publication of information, defining the form, terms and manner. Also, the rules for maintaining and management of the emergency stock of oil, gas and their products are determined by this Law.

20.   The Energy Efficiency Law clearly defines the procedure for reporting energy data for the purpose of supporting, developing and monitoring the national energy efficiency program. As defined in this Law, fuel and electricity suppliers are obliged to submit every sixth months reports on amount of energy supplied to the customers. Consumers who consume more energy than it is defined by the Law need to report the data on their energy consumption for the last year. All data should be filled in according to the format requested by AKBN. Not always, the requested data are provided upon the request. In majority of cases, AKBN needs to process the data, especially those related to demand side for each sector and by commodities. Consumers with an annual consumption of energy that is lower than the defined level are obliged to submit their actual energy consumption only if requested.

21.   To improve the quality of these data, AKBN should undertake surveys on energy consumption for households, agriculture and transport sectors. The Council of Ministers adopted a regulation on the content and manner of submitting data reports by fuels and energy suppliers and energy consumers. But, this Law faced severe difficulties in the implementation as the secondary legislation was not prepared to support practical implementation.

22.   There is no legislation defining the methodology and procedure for the development of energy balance. Now, amendments to the Law on Power Sector are under preparation. The Energy Efficiency Law has taken into consideration a chapter on provision of energy data from different actors and energy consumers (traders, buildings owners, energy consumers, public and private sector, etc.).

23.   The Council of Ministers should prepare the relevant decree and decisions defining the roles and responsibilities of INSTAT and AKBN. This decree should oblige AKBN to prepare energy database and submit annual energy balance. Currently, AKBN prepares energy database for supply and demand sides, transformation process and losses, and compiles energy balances annually. AKBN makes the reports focusing on trends for a period of time horizon and uses these data in different studies for energy planning.

24.   The main problem of the decree is that it does not oblige other institutions, companies or enterprises to submit and present their data, so AKBN encounters serious difficulties with private sector, depending on their will to participate and compile AKBN's questionnaires. AKBN developed its own methodology for primary data collection. The following important institution is the national regulatory authority (ERE), which only provides information on electricity generation. The data provided to ERE can be provided to AKBN as well.

25.   There is a need for either changes of the existing laws or for the development of new ones in order to appoint AKBN as the bearer of the energy balance development, and to define obligations of the suppliers and particular consumer branches to submit reports to AKBN on supply and consumption of energy, by sources and commodities.

26.   In Albania, importers of oil products are private companies. According to the Law on Refining, Transportation and Trading of Oil, Gas and their By-products" (8450/1999) these companies are obliged to report to Ministry of Economy, Trade and Energy.

Industry: GHG from final consumption of fuels in industry (not for transportation in enterprises)
• Iron & Steel;
• Non-ferrous metals;
• Chemicals;
• Pulp, Paper & Print;
• Food Processing , Beverages & Tobacco;
• Other.

27.   Activity data concerning this category are gathered for the years 1994 and 2000 from the National Energy Balance (years 1994&2000), prepared by the former National Agency of Energy (nowadays by AKBN). The main problem here lies with the data availability for the consumption of energy commodities for each sub-sector.

Transport: GHG from combustion and evaporation of fuels for all transport activities, as by sub-sectors
• Civil aviation (International and Domestic aviation);
• Road Transportation: Cars, Light Duty Trucks, Heavy Duty Trucks & Buses, Motorcycles;
• Railways;
• Navigation (International Marine and Internal Marine - except fishing);
• Other Transportation.

28.   Activity data concerning transport category are gathered for the year 1994 from the National Energy Balance (years 1994 & 2000) prepared by the former National Agency of Energy. The main problem here lies similarly with data availability for consumption of energy commodities for each sub-sector.

29.   For the years 1994&2000, there exists activity data divided between fuel consumption in road, rail, water navigation and air transport. These activity data were gathered from the Albanian Energy Balance prepared from the ex-National Agency of Energy (now should be get under AKBN). Concerning activity data for the year 2008 and 2009 in the transport sector, there exists only an aggregate figure of fuel consumption from the transport sector. Activity data for the sub-sectors like road, rail, water navigation and air do not exist. The same problem applies for dividing fuel consumption between road transport modes. In order to overcome this activity data gap, we propose to carry out a pilot survey.

Small Combustion: Emissions from fuel combustion in the following sectors
• Commercial/Institutional Buildings
• Residential Buildings
• Agriculture/ Forestry/ Fishing

- Other

30.   Activity data concerning small combustion category 1994 are obtained from the National Energy Balance, prepared by the National Agency of Energy. The main data gap here is with the consumption of energy commodities for each sub-sector and their division between Households (Residential), Public Building, Commercial Building, Agriculture, Forestry and Fishing. Previously, this division was done based on analytic studies and sample surveys. For the years 2008 and 2009, it will be very difficult to get such data and we have started immediately to work on this task in order to have all data ready by middle of May 2012 as required for the Third National Communication.

Other: All remaining emissions from non-specified fuel combustion except for wood. Also here should be included emissions from military fuel use

31.   Activity data for military fuel use are obtained from the Ministry of Defense and reported under the road transport.

Traditional biomass burned for energy purposes: emissions of CO2, CH4, CO, N2O, NOx and NMVOC from the burning of wood

32.   Activity data concerning wood consumption are gathered for the years 1994&2000 from the National Energy Balance, prepared by the National Agency of Energy (currently AKBN) based on the Yearly Report of Forestry Directorate. The main problem is the lack of data on self-collection of wood and illegal cutting of forest which is not registered. For the years 2008 and 2009, it will be very difficult to get such data and we have started immediately to work on this task.

B.   Fugitive emissions from fuels

Solid Fuels
- Coal mining: total emissions (CH_4) from underground & surface mining and post mining activities;
- Solid Fuel Transformation: Fugitive emissions arising during the manufacture of secondary & tertiary products from solid fuels: coke, etc.
- Other: other not elsewhere specified.

33.   Activity data concerning coal mining, enrichment coal post mining, coal transformation for coke production are gathered by expert team visits in coal mine and coal enrichment plants. For the years 2008 and 2009, challenges are expected in acquiring these data since most of the mines are privatized and new contacts have to be established.

Oil & Natural Gas
- Production of crude oil only,
- Transport: loading & unloading of crude oil from tankers,
- Refining/storage of crude oil and oil by products,
- Distribution of oil products,
- Production/processing of natural and associated gas,
- Transmission/distribution of natural and associated gas,
- Other leakage: release of natural and associated gas at point of use.

34.   With regard to the data on crudes, we foresee difficulties in collecting the data for 2008 and 2009 and we have start to work to collect all data needed from all oil production enterprises directly.

Venting & Flaring: the release and/or combustion of excess gas at facilities for the production of oil or gas and for the processing of gas

35.   Activity data concerning gas venting & flaring release are gathered from contacting ALBPETROL and ARMO Companies directly. Coal and natural gas were the "big losers" since the economic changes forced many industrial consumers to close down. Supply and use of coal and production of natural gas has declined a lot since 1990.

36.   We foresee difficulties in acquiring these data for 2008 and 2009. Therefore, we have started to work on securing data for the release and/or combustion of excess gas at facilities for the production of oil or gas and for the processing of gas.

IV. CONCLUSION

A. Improvement of Energy Statistics

37.   INSTAT as the State Statistics Office has an intention to respond fully to EU requests for information on the energy sub-sectors in general and other sectors in particular. All these data might serve the GHG Inventory and GHG Mitigation Scenarios Analysis.

38.   According to Eurostat, energy balance, on the consumption side, includes the following sectors: households, service, industry, transport, agriculture and non-energy use sector. In order to secure all data needed for TNC it is very important to undertake some development work in the short-term (during 2013). The last questionnaire regarding the access to solar, water and heating systems of households and different sectors of the economy was prepared by UNDP. These surveys were carried out between November 2001 and April 2006. A similar survey should be established by INSTAT involving Regional Statistical Offices. To create a sustainable data system, the survey should be included in the regular yearly data collection scheme. This would enable getting timely data on the actual situation in all households and service, transport, industry and agriculture sectors.

39.   After 2013, longer-term improvements of data collection on the energy sources, including all GHG data are needed. The long-term improvement proposal for energy statistics is based on the two main draft laws: the Energy Efficiency Law and Renewable Energy Sources (RES) Law especially for energy activity data.

40.   The draft Law on RES is in the final stage of approval from the Albanian Parliament. It has a very important goal to promote the use of renewable energy sources and new data are urgently needed for reporting of RES. We need to define to whom to report; what time of the year and how to monitor that the data reported are reliable. This will form the basis for the secondary legislation that requires data from Regional Statistical Offices, INSTAT and AKBN.

41.   The draft Law on Energy Efficiency is in the final stage of approval from the Albanian Parliament. It promotes energy efficiency and data are needed for monitoring the implementation of the National Energy Efficiency Action Plan. The monitoring activities will

be based on the indicators contained in the official national energy database. Other individual comparable indicators produced by the EU member States may also be used for monitoring purposes. Establishment of Local Energy Offices to work in close collaboration with Regional Statistical Offices will enable developing the required information about energy statistics in general, and for the purposes of monitoring energy efficiency and GHG activity data. We expect to have a good and reliable energy data base, in compliance with Eurostat recommendations. The database will be to be used for short, medium and long-term energy planning.

B.   Improvement of other GHG Statistics

42.   The environmental dimensions, and climate change in particular, should be mainstreamed to official statistics, and the capability of INSTAT to produce high quality basic statistics following standard concepts and classifications should be strengthened.

43.   The use of official statistics for scenario development and modelling should be improved and promoted. To this end, there is a need for a dialogue between the university researchers and INSTAT.

44.   The availability, quality and timeliness of greenhouse gas emission estimates should be improved through the provision of high quality official statistics by INSTAT for the calculations. We think that, in general, the role of official statistics in the production of emission inventories should be strengthened.

45.   In view of their importance to national policy, statistics on emissions should become part of the regular production and dissemination process of official statistics at the national level. This means that the appropriate institutional arrangements should be first established between the Ministry of Environment and INSTAT.

46.   The monitoring of emission trading schemes and other mitigation measures should be supported by advanced analysis and by developing new statistics.

ANNEX I.   METHODOLOGY USED FOR GHG INVENTORY

1.   In accordance with Article 4 of the United Nations Framework Convention on Climate Change during the period of 1998-2009 the first greenhouse gas (GHG) emission inventory was prepared for the First and Second National Communications. GHG Inventory was prepared to accomplish **anthropogenic emissions** by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, using comparable methodologies to be agreed upon by the Conference of the Parties.

2.   The IPCC Guidelines of 1996 are taken as the methodological basis for estimation of GHG emissions and removal by sinks in the national GHG inventory. In some cases original methodologies or methodology slightly different from that of the IPCC are applied (for estimating the carbon dioxide absorption by forests). The GHG inventory for Albania was developed according to the IPCC Guidelines of 1996 (revised). The National Greenhouse Gases Inventory of Albania considers five main modules of the IPCC Guidelines. These are: "Energy", "Industrial Processes", "Agriculture", "Land Use Change and Forestry " and "Waste". Since IPCC does not provide methodology for "Solvent Use" the estimations are based on methodology provided by International Consultant who provided training for national team of GHG Inventory. Inventory of GHG was prepared for anthropogenic greenhouse gases emissions and removals by sinks in Albania for the base years 1994 & 2000, as well as a brief description of the methodologies used to estimate them and the associated uncertainties. The national GHG inventory represents emission data for three gases with a direct greenhouse effect: carbon dioxide, methane and nitrous oxide; and for three gases with an indirect greenhouse effect: carbon monoxide, oxides of nitrogen and non-methane volatile organic compounds (NMVOC). The last ones are not GHG but indirectly contribute to the GWP.

3.   In order to estimate emissions of *carbon dioxide*, the most significant greenhouse gas, two approaches were used. According to the first approach, CO2 emissions are estimated for each fuel type, based on the total national consumption, and then the values are summarized (top down). According to the second approach, emissions for separate sectors and source categories are estimated, and then emissions are also summarized (bottom up). Usage of these two approaches in the Albania's inventory allows us to judge on the fuel spectrum of the carbon dioxide emissions (top-down), and in the second one –on the sector distribution (bottom-up). In both approaches, the default IPCC emission factors for each fuel type are used. Preliminary estimation shows that difference between the two approaches was about 3.5%. Also a very detail analyses is done concerning CO_2 emissions from other economic sectors.

4.   *Methane* emissions coming from the Fuel Industry, Waste, and Land Use Change & Forestry and for Agriculture are calculated. To evaluate the amount of emissions from coal mining and hydrocarbon fuel extraction the amount of extracted fuel is multiplied by the emission factor, which depends upon the type of coal mining or upon the stage of fuel processing in the oil and gas sector. Methane emissions from livestock are evaluated by multiplying the livestock population (cattle, sheep, etc.) by the corresponding emissions coefficients.

5.   *Nitrous oxide* emissions from fossil fuel combustion are obtained by multiplying the energy content of coal, oil products, and gas consumed by the corresponding emission factors, as given in the IPCC Guidelines. Also emissions of indirect greenhouse gases such as

carbon monoxide and *nitrogen oxides* are calculated according to the IPCC Methodology. It was possible that *NMVOC* emissions to be estimated not only for internal combustion engines for the base year 1994 but also for Solvent Use, Agriculture, Land Use Change and Forestry. They were based on the activity data provided by the Institute of Statistics (INSTAT), Ministry of Transport and for solvent use on the activity data provided by Costumer Offices of Albania.

6.   In its basic form, the emission inventory estimation has the following elements:

Emission estimate (Gigagrams GHG/year) = Activity data × Emission factor × Other Factor(s),

where:
-       Activity (e.g., tons of diesel consumption in 1994, 2000 (data for those two years have been collected under F&SNC) and through RENA data will be collected for years 2008 and 2009);
-       Emission factor (e.g., m^3 CH_4 per ton of diesel);
-       Other factor(s) (e.g., factor expressing diesel gassiness, or conversion factors).

7.   Usually, there are different ways or methods to estimate the emissions, depending on the desired degree of detail and the available activity data and emission factors. For example, to calculate the CO_2 emissions from cars, one could use data on the number of cars sold; the amount of gasoline or diesel sold; or the number of kilometers travelled per driver, related to the total number of drivers and the gasoline consumption per kilometer. Each method would have its own appropriate emission factor and other factor(s). This exercise can be done for the country as a whole, or for each region after which the regional estimates are added up. In IPCC terminology, the simplest method is "Tier 1," while more elaborate method are "Tier 2" or "Tier 3." Higher Tiers may recommend making use of country-specific emission factors that are based on measurements.

8.   For each source, estimation methods will differ, depending on the type and detail of available activity data and the model used for emission factor evaluation. Especially for higher Tiers there may be more than one emission factor and a term to correct for e.g. abatement (controls). The quality of GHG inventories depends substantially on the completeness of activity data and reliable emission factors.

9.   Obtaining complete and detailed activity data is usually time-consuming and expensive. Concentrating efforts on gases and sources of higher priority allows the preparation of an inventory that is almost complete at substantially reduced costs. In practice, most emissions can be estimated with a reasonable accuracy applying IPCC default emission factors (the least resource-demanding method). However, if there is an indication that a sector may be a major key source, efforts should be taken to obtain a more country-specific activity data or emission factor for this specific key factor.

10.   An emission and removals inventory is a current, comprehensive listing, by source, of specific emissions and sinks, and covers a specific geographic area for a specific time interval. For example, Albanian GHG inventories could consist of a list of CO_2, CH_4 and NO_2 emissions from all sectors for 1994 & 2000 (for RENA project analysis will be done for years 2008 and 2009) plus explanatory text. Or, on a larger scale, the inventory may estimate all

GHG emissions for Albania for a certain number of years. An emission inventory contains the following information:

(a) Tabular summary of emission estimates by source category for each sector;

(b) Background information including the reasons for compiling the inventory;

(c) Geographic area covered by the inventory (e.g., certain regions or entire Albania);

(d) Time interval represented by the emissions inventory (e.g, for the whole year 1994 & 2000 for RENA analysis will be done for years 2008 and 2009) with emissions expressed in mass/year);

(e) Activity data, which are human or animal population, industrial, or economic data used to estimate and allocate emissions (in our example, this would be the sum of tons of oil and coal produced at each well and mine);

(f) Emission factors;

(g) Other factors (e.g., a factor that expresses the gassiness or CH_4 content of the oil and coal);

(h) Additional supporting text that is provided.

11. All activity data used for GHG inventory under F&SNCs have been provided by: The Ministry of Industry and Energy (actually Ministry of Economy, Trade and Energy), Dr. Besim Islami - Thesis "Forecast of Energy and Electricity Demand and Financial Evaluation of Expansion Power Sector for Albania", Institute of Statistics, Ministry of Economy (activity data for industry), and Ministry of Agriculture and Food (activity data for agriculture), Scientific Research Institute of Veterinary (activity data for agriculture), Institute of Soils and Forestry (activity data for land use change and forestry), National Committee of Energy (later up to 2007 - National Agency of Energy and nowadays National Agency of National Resources), Committee of Environmental Protection (now days Agency of Environment and Forestry) provided data used in the initial GHG emissions (and for RENA analysis will be done for years 2008 and 2009). Later on, the results of the inventory were refined. The activity data for the solvents use was provided by both information's: the information by the Institute of Statistics (INSTAT) and was double-checked with information by Costumer Offices. Additionally, certain differences in the degree of the initial data comprehensiveness, differences in the information sources, as well as structural reorganization of the economy, that occurred from 1990 through 2000.

ANNEX II.   MAIN INSTITUTIONS DEALING WITH COLLECTION OF ENERGY STATISTICS

1.   **Ministry of Economy, Trade and Energy (METE)** is the highest state authority in drafting policies and strategies in the energy sector. Missions of METE in the energy sector are development policies to ensure a normal supply with energy of the consumers, to guarantee a sustainable growth of country's economy and a social and cultural development of the population. It determines the policies at national level for developing different kinds of energies, policies in the field of energy efficiency and measures for implementing these energies. METE has the authority of supervising the activity of companies with state owned capital and it has the power to appoint all the members of the Supervisory Councils of these companies.

2.   **National Agency of Natural Resources – NANR (Agjencia Kombetare e Burimeve Natyrore - AKBN)** has been established in accordance with Council of Ministers Decision No. 547, dated 09.08.2006, "Establishment of National Agency of Natural Resources", (Official Journal No. 93, Page 3903; Publication Date 25.08.2006), as the outcome from the former National Agency of Petroleum and the Institute for Extraction and Processing of Minerals merge. Based on CMD No. 202, dated 11.04.2007, "Few supplements and changes in CMD No. 547, dated 9.8.2006, "Establishment of National Agency of Natural Resources" (Official Journal No. 50, Page 1324; Publication Date 02.05.2007), the former National Agency of Energy was abolished as an institution and it merged with NANR. NANR is an institution depending directly from responsible Minister on energy. It serves as a specialized body for drafting the strategy in this field, monitors its implementation, plans the needs for energy in the future, issues recommendations, as well as implements policies of the Government in the field of minerals, petroleum and hydro-energy.

3.   **Central Technical Inspectorate (CTI)** has been established based on Law No. 9595, dated 27.7.2006, "Establishment of Central Technical Inspectoriate", (Official Journal: Year 2006, No. 84, Page 2871; Publication Date: 09-08-2006), as a merge of State Inspectorate of the Oil and Gas Control, Inspectorate of Containers under Pressure and Inspectorate of Electrical Equipment and Installations. This inspectorate is responsible to exercise control with all public or private entities that have to meet requirements, norms and standards determined for the petroleum products, under pressure equipements and electrical equipements.

4.   **Energy Regulatory Entity (ERE)** is an independent institution, based on Law No. 9072, dated 22.5.2003, "On power sector", amended, Official Journal No. 53, Page 2120; Publication Date 03.07.2003), and Law No. 9946, dated 30.06.2008, "Natural gas sector", (Official Journal No. 114, Page 5015; Publication Date 22.07.2008), with closely associated responsibilities with energy markets. Its mandate includes licensing electricity and gas companies, setting wholesale and retail tariffs, protecting consumers' interests, settling disputes between licensees and consumers, promoting competition and approving market rules and grid codes.

5.   **Albanian Power Corporation (KESH sh.a.)** is responsible for production of electricity and maintaining and developing the generation assets (Drin River Cascade 1350 MW, Mat River Cascade 50 MW, Bistrica Cascade 27.5 MW, Selita HPP 5 MW, Fieri TPP 159 MW (out of functioning) and new Vlora TPP 97 MW. KESH has also the license as

Wholesale Public Supplier of electricity for the tariff customer and could play the role of the supplier of last resort for the Eligible Customers.

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