

## Armenia: Energy and Environment Sector

The Republic of Armenia has a population of approximately 3.2 million people and limited energy resources to satisfy its needs. Armenia has no oil and natural gas reserves, and imports all its energy (oil or oil products from Georgia, Iran, Russia and Europe; gas exclusively from Russia through Georgia; and nuclear fuel from Russia). Electricity is provided by:

- A nuclear power plant which provides 30-40%;
- Hydroelectric plants (total installed capacity of approximately 1,000 MW) satisfy 20-35% of the country's needs depending on level of precipitation, which varies significantly. Besides, the hydropower generation is declining due to limitations associated with irrigation purposes of the hydro plants;
- The remaining electricity demand is satisfied by thermal power plants (total installed capacity of 1,350 MW, which can burn either oil or natural gas). The share of the thermal plants in the generation mix of the country is on average 30-35%.

In summary, over 70% of the electricity demand in Armenia is satisfied through nuclear and thermal generation that relies entirely on imported energy. That is why the energy security of the country is a major concern for the Government.

Armenia's energy strategy (Poverty Reduction Strategy Paper (PRSP)) prepared in 2003 clearly emphasizes (among others): "Maintaining and strengthening energy independence by developing indigenous and alternative energy sources and promoting energy efficiency. Regarding the development of indigenous resources, priority should be given to developing renewable energy production."

Armenia's Energy Law, which was enacted in 1997 and revised by the national assembly in 2001<sup>1</sup> states among others (Article 5) that the main principles of the state policy in the energy sector are:

"...

(v): Efficient use of local energy resources and energy renewables and the application of relevant economic and legal measures for that purpose;

...

(viii): Ensuring energy security;

(ix): Promotion of the energy independence of the republic, including the diversification of local and imported energy resources and ensuring maximal use of capacities;

(x): Ensuring environmental security".

Armenia's commitment to promote renewable resources relates to its need to diversify its energy resource base and reduce energy imports. The country has taken concrete steps to make renewable energy development part of its energy law and energy strategy.

On November 9, 2004 legislation was passed on the Law of the Republic of Armenia on Energy Saving and Renewable Energy.

The Public Services Regulatory Commission of Armenia, has set high tariffs for newly constructed small hydro power plants operating on natural water flows and other renewables.

### **Measures in the Frameworks of International Conventions**

Ratified conventions are an integral part of the legal system of the nation, and serve as a basis for the future improvement and international harmonization of the domestic environmental legislation.

Armenia cooperates actively with convention secretariats and international organizations, namely UNDP, the WB, GEF, and UNEP. Partial difficulties arise in connection with the

implementation of regional conventions, namely those of the UN European Economic Commission, because national resources are not adequate to fulfill provisions, as often no international assistance for this purpose is provided. The above mentioned hindered the ratification by the country certain protocols under that conventions.

On 2 December, 2004 the Government of Armenia adopted a Decree # 1840 on Measures to Perform Obligations of the Republic of Armenia under a Number of Environmental Conventions, which set forth the state agencies responsible to perform different tasks under the Conventions, including UN Framework Convention on Climate Change and Convention on Long-Range Transboundary Air Pollution.

The First National Communication of the Republic of Armenia has been prepared, which included the greenhouse gas inventory for 1990. According to the Inventory 85% of greenhouse gas emissions in Armenia originate from the energy sector.

Currently country has received GEF funds for development of Second National Communication.

Armenia has large potential for energy conservation, which can be considered as internal energy resource. The main potential is in the sectors of power generation, municipal heat supply, and transport. The technical potential for GHG reduction in case of realization of energy conservation is estimated as 22 mln t CO<sub>2</sub> for the period of 2000-2020 (UNDP/GEF «Armenia -country study on climate change Phase II» project report).

The project “Removing Barriers to Energy Efficiency for Municipal Heat and Hot Water Supply” is underway (GEF -financed and UNDP-implemented) as the sector has a great potential for energy savings and reduction of CO<sub>2</sub> emissions, in-line with the national strategy for limitation of greenhouse gases emissions.

As a non Annex I country, Armenia does not have any quantitative obligations regarding greenhouse gases emissions reduction or limitation and participates in this process within the framework of the Clean Development Mechanism (CDM) under the Kyoto Protocol which was ratified by Armenian Parliament on December 2002. The Ministry of Nature Protection of RA is appointed as Designated National Authority for CDM.

At present Armenia is embarked on development of CDM projects under Kyoto Protocol. The Ministry of Nature Protection of the Republic of Armenia, as a national authorized body for Clean Development Mechanism considers the importance of national capacity building for efficient cooperation in the frames of Kyoto Protocol. Currently, capacity building activities are underway to develop and strengthen the institutional and legal framework to develop approve and implement CDM projects.

This position of Armenia was stated on the Eleventh Conference of the Parties to the UNFCCC, held in Montreal, 28 November-9 December, 2005.

Besides the evident environmental benefits the CDM projects implementation opens up new perspectives for Armenia in establishing international cooperation aimed at mitigation of climate change.

In spite of its relatively limited potential of GHG emissions reduction, Armenia manages to attract constant attention in the field of CDM, since it is consistently working on streamlining procedures for projects identification, revision and approval.

On November 28, 2005, the first CDM project to be implemented in Armenia was registered by CDM Executive Board, during its 22<sup>nd</sup> meeting. The significance of the event must not be underestimated as it made Armenia the 17<sup>th</sup> country in the world and very first country in the post Soviet space, hosting a CDM project. The success was made possible thanks to active participation of both Japanese and Armenian parties who maintained consistent cooperation aimed at facilitating the process of development of “Nubarashen Landfill Gas Capture and Power Generation Project in Yerevan” project.

The registration of the project obviously lays grounds for the development of further CDM initiatives in the country.

It is proper to mention also the other perspective cooperation frameworks developed in Armenia. Among those the Memorandum of Understanding signed between Danish and Armenian Governments in November 2004.

Currently four CDM project feasibility studies (1 PDD and 3 PINs) are developed and submitted for revision to DNA, including one hydro energy, one biogas and two industrial energy efficiency projects.

### **Motor Transport Impact**

The main cause of atmosphere pollution in the country is the emissions from motor transport. According to the 2004 figures, they take up 85% of total emissions in the country (and 97% in Yerevan).

The automobile park in the country is generally outdated, with the negative environmental implications thereof. The situation in the Public Transport can be described as chaotic, in which very limited number of medium-size or large buses operate in urban passenger transport, as mini-vans have taken up their place. There is a reduction trend in ground electrical transport. The large number of mini-vans hinders proper traffic, and jams are often created, which in turn leads to an increase in motor vehicle emissions.

However the quality of fuel imported into the country during recent years has been consistent with the existing standards.

In execution of the Pan-European Strategy on Gradual Abolishment of Leaded Gasoline, the Armenia took the necessary measures to refuse leaded gasoline. As a result of this, the RoA Government passed decree # 913 on September 29, 2001 prohibiting the production, imports, and sale of leaded gasoline.

An important pre-requisite for setting up an effective governance structure for motor transport emissions is the implementation of a comprehensive reporting scheme over emissions.

Considering the complicated and interconnected problems the situation in transport sector is proposed to solve gradually: as a first step was developed and approved the concept for reduction of harmful emissions from the motor transport (2004, Government Decree # 40), which was followed with the approved set of measures (Governmental Decree #1033, July 14, 2005). The amendments to the acting laws are done banning the import of cars without catalyzers, setting procedures and indicating the list of harmful emissions to be detected on the licensed controlling points.