Kosovo greenhouse gas emissions 2008 - 2009

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Preface behalf of The Ministry of Environment and Spatial Planning

The Ministry of Environment and Spatial Plannning is pleased to have it's first Kosovo wide Greenhouse Gas Inventory developed to cover all greenhouse gases produced in Kosovo. The Ministry is grateful for the collegial help of the Czech Expert's team introducing the Greenhouse Gas Inventory methods to their Kosovor counterparts. Also behalf of the Ministry and Kosovo's environmental and sustainable development, the Ministry wants to express it's compliments for the United Nations Development Programme and the Czech Government to enable the Greenhouse Gas Inventory by their financial and operative contributions.

As Kosovo is developing to catch up the European market economy, it will also mean a more crucial role for Kosovo's environmental managment to secure the country's development at a sustainable path. At the moment Kosovo's greenhouse gas emissions are relatively low compared to the other European countries. However the industrial development taking place in Kosovo will increase, together with urbanisation and population growth, Kosovo's climate change emissions. In order to join the global efforts to reduce and limit the harmful effect of global warming, Kosovo needs to monitor and manage it's greenhouse gases.

The Greenhouse Gas (GHG) managment system will be managed by Kosovo Environment Protection Agency (KEPA) and will be used for reporting to internal and external bodies, for policy development, policy debates and policy monitoring. In the context of increasingly challenging international agreements for emission reductions and green development measures, the introduction of the GHG Inventory in Kosovo is very timely and it will support Kosovo's green development objectives and its contribution to the international climate change agenda.

Muhamet Malsiu, Director of Environmental Department, Ministry of Environment and Spatial Planning; Pristina 2012

Preface behalf of the Czech Greenhouse gas Inventory expert team

The 2007/2008 UNDP Human Development Report estimates that stabilizing the greenhouse gas (GHG) concentrations in the atmosphere at a level that prevents serious climate change impacts will require a 50% reduction of the GHG emissions by 2050 from 1990 levels. This is especially relevant to the Western Balkan region, which has some of the most carbon intensive economies and climate change is already having a severe impact on development. A very high priority for UNDP as an implementing agency with a climate and development mandate is to develop capacities of the countries to formulate, access finance and implement low-emission development strategies.

In the light of these urgent needs UNDP opened a call for project called "Transfer of Czech Experience: Developing Kosovo Greenhouse Gas (GHG) Inventory Management System". The group of Czech experts constituting present Czech National Inventory System (NIS) formed a group that has been led by the Charles University Environment Center and successfully responded to this call. The main objectives of the project were to go to Kosovo and teach country experts how to apply GHG inventory methodologies in national conditions. Another goal of the project was to estimate GHG emissions from all anthropogenic activities according to the IPCC 2006 methodology and presented these results for a national forum. Brochure you are holding contains the results for GHG inventory for years 2008 and 2009. All the underlying assumptions and methods and data that are behind these results are described more in detail in separate document.

Kosovo is not a Party to the UNFCCC or to its Kyoto Protocol. However Kosovo Government, similarly to the EU, considers climate change as a priority area, and is dedicated to make its contribution to the solution of this global challenge. Because results of the GHG inventory were developed in close cooperation with experts from MESP (Ministry of Environment and Spatial Planning) and KEPA (Kosovo Environmental Protection Agency), we consider this project as a first very important step of Kosovo people on the road of climate change mitigation.

Miroslav Havránek, Prague 2012

Contents

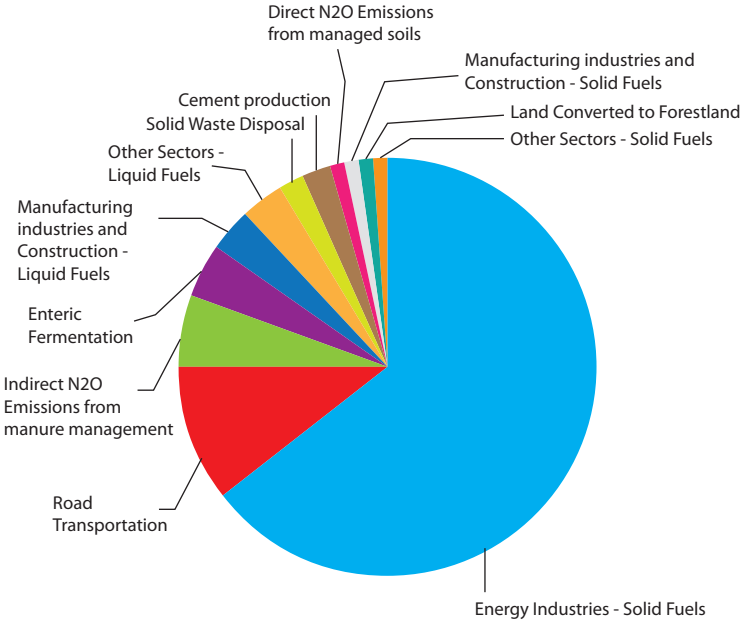
Total emission from human activities in Kosovo

	Emissions (mil. tons CO_2 eq.)	
	2008	2009
NATIONAL TOTAL	9489.7	10507.2
1 - Energy	7615.2	8590.0
1.A - Fuel Combustion Activities	7578.2	8548.2
1.B - Fugitive emissions from fuels	37.0	41.8
1.C - Carbon dioxide Transport and Storage	0.0	0.0
2 - Industrial Processes and Product Use	248.6	254.0
2.A - Mineral Industry	221.3	217.8
2.B - Chemical Industry	0.0	0.0
2.C - Metal Industry	18.2	16.9
2.D - Non-Energy Products from Fuels and Solvent Use	2.7	1.4
2.E - Electronics Industry	0.0	0.0
2.F - Product Uses as Substitutes for Ozone Depleting Substances	4.7	12.6
2.G - Other Product Manufacture and Use	1.7	5.4
3 - Agriculture, Forestry, and Other Land Use	1335.0	1370.4
3.A - Livestock	586.9	597.2
3.B - Land	-37.2	-26.3
3.C - Aggregate sources and non-CO2 emissions sources on land	785.3	799.5
3.D - Other	0.0	0.0
4 - Waste	290.8	292.9
4.A - Solid Waste Disposal	202.1	203.7
4.B - Biological Treatment of Solid Waste	0.0	0.0
4.C - Incineration and Open Burning of Waste	0.5	0.5
4.D - Wastewater Treatment and Discharge	88.1	88.6
Memo Items		

International Bunkers	0.7	1.0
1.A.3.a.i - International Aviation (International Bunkers)	0.7	1.0
1.A.3.d.i - International water-borne navigation (International bunkers)	0.0	0.0
1.A.5.c - Multilateral Operations	0.0	0.0

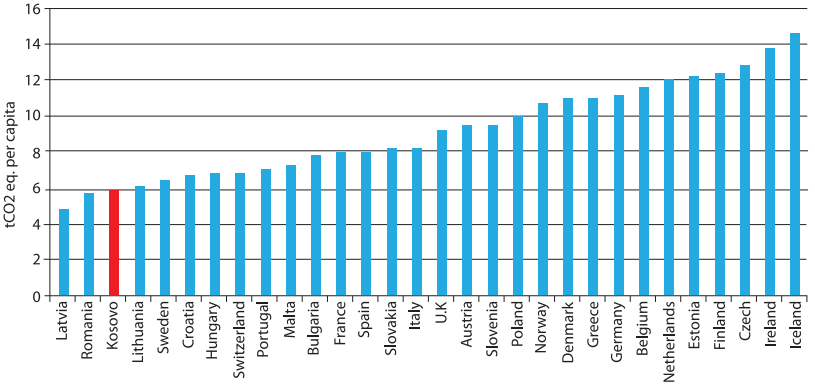
Total emissions of all greenhouse gasses in 2008 reached 9.5 Mt CO_2 eq. They increased to 10.5 Mt CO_2 eq. in 2009. This relatively high increase was driven almost solely by increased fossil fuel combustion. Carbon dioxide constitutes about 80 % of all emissions, while methane and nitrous oxide are both about 10 %. The so called new greenhouse gasses, such as HFCs and PFCs, are almost negligible.

The most important sector for whole inventory is sector "1A Fuel combustion activities" which constitute about 80% of all anthropogenic emissions in Kosovo. Most important source category for Kosovo is solid fuels combustion. Other so called "key categories" (those who cumulatively constitute 95% of emissions total) is shown on following picture.



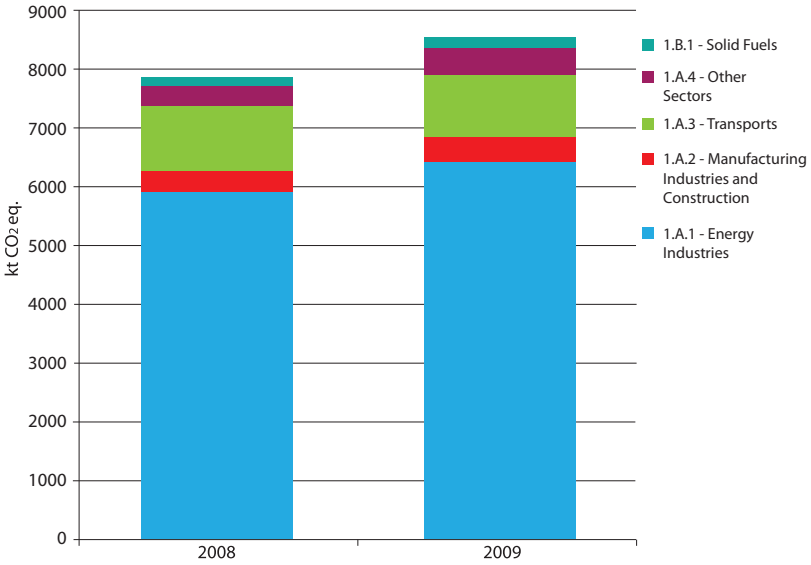
Picture 1: Key emission categories in Kosovo, 2009

Kosovo in comparison with other countries in the Europe has still relatively low emissions per capita. This is mainly because favourable geographical conditions and also because of lack of energy intensive industries, intensive agriculture and lack of waste management. As we expect that all these factors will change in the future possibly increasing emissions, there is also opportunity to follow carbon neutral development strategies.



International comparison of GHG emission, 2009

Sector 1: Energy

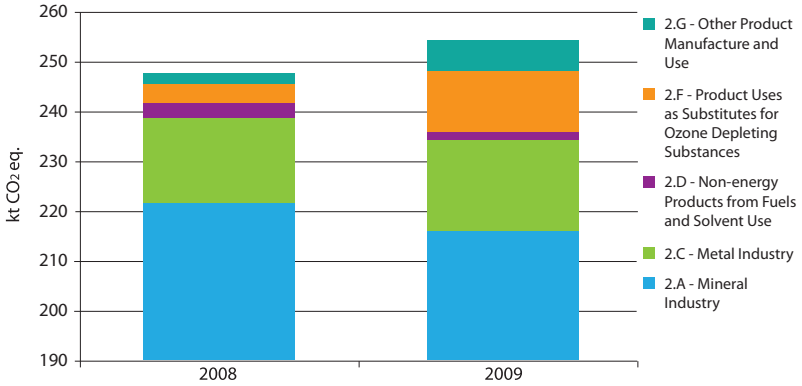


Energy sector produces about 82% of total national emissions of GHGs. This sector covers combustion, exploitation and transmission of fossil fuels in Kosovo. Combustion processes in energy industries in category 1A make a decisive contribution to total emissions of greenhouse gases, especially by carbon dioxide, which is produced when carbon-based fuels are burned. Emissions from this category are almost solely based on incineration of brown coal in Kosovo power plant. In future should the Kosovo look for opportunities to reduce their emissions of GHGs improvement of energy efficiency of this important installation is win-win strategy for the side of energy production and GHG emissions.

Transport sector is growing by number of cars and also by fuel consumption. As people will get richer and road system will become more developed this category will certainly grow in importance.

Fugitive emissions that are included in the category 1B come from exploration, exploitation and distribution of fuels. In case of Kosovo it is minor importance as the brown coal that is mined in Kosovo is relatively young and does not contain much methane. In future as the country will industrialise and start to use natural gas this category might increase by leakages of gas during transport.

Sector 2: Industrial Processes and Products Use

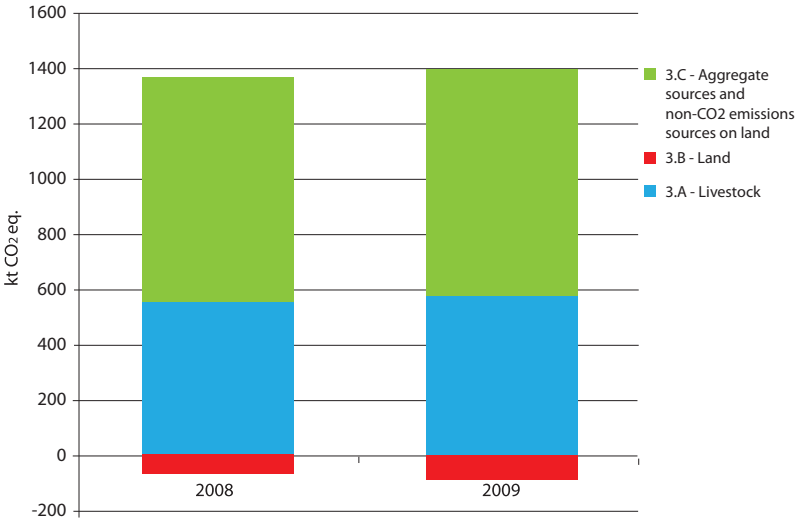


Sector Industrial Processes and Product Use total about 250 thous. tons of CO2 eq. which makes about 2% of whole anthropogenic emissions in Kosovo. This sector covers greenhouse gas emissions occurring from the industrial processes, from the use of greenhouse gases in products, and from the non-energy uses of fossil fuels.

The main category in this sector Kosovo is mineral and metal industry which covers in 2009 approximately 90% of whole sector. Highest share on mineral industry has sub-category cement production even while there is only one cement plant in the Kosovo. Chemical industry that produces GHG emissions is not present in Kosovo as well as electronic industry. In future this might change and low carbon development principles should be taken in to consideration when developing these industrial sectors.

This sector includes also emission of substances that substitute ozone depleting substances. These substances are mostly part of in domestic refrigeration, high pressure chillers and mobile or stationary air conditioning systems. They are insignificant now, but as the country will develop the will follow similar pattern as in rich European countries.

Sector 3: Agriculture Forestry and Land Use

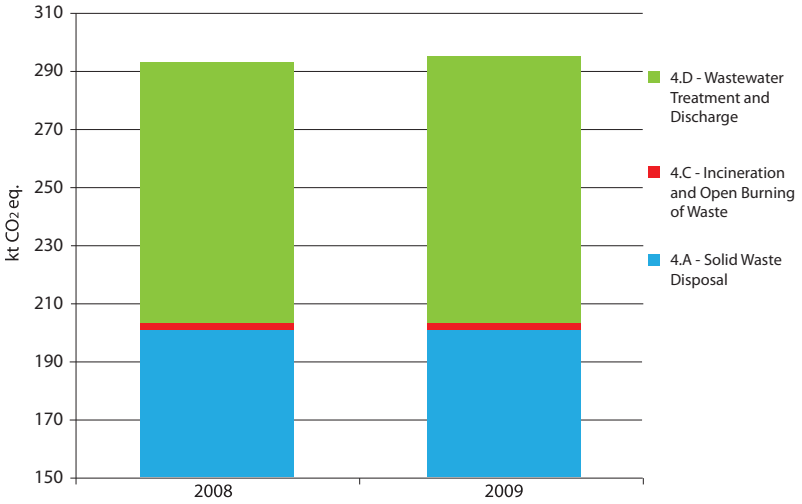


Sector Agriculture Forestry and Land Use covers about 13% of total emissions of GHGs in Kosovo. It is the only sector with sink category in Kosovo inventory. It consists from three distinctive sub-sectors. First sub-sector is dealing with emissions from livestock. Emissions of methane from enteric fermentation and emissions of nitrous oxide and methane from manure management are important part of Kosovo GHG budget. Annually almost 600 thous. tons of CO_2 eq. is produced by livestock.

Second subsector is dealing with changes of carbon stocks in different land uses. This subsector is dominated by forestry which could be powerful sink of atmospheric carbon, however due to intensive (and often illegal) logging this sector is insignificant in Kosovo in relative terms (about -40 thous. tons of CO_2 eq.) but in terms of carbon that annually flows through the sector is the second largest sector in the country (forest land that remains forest land have throughput about 2750 thous. tons of CO_2). Good forest inventory and sustainable management of Kosovo forests would be greatly benefit in decreasing emissions from the country as a whole.

Third sub-sector is dealing with emissions from fertilisation of soils and also emissions from biomass burning. Most important categories are indirect emissions of nitrous oxide associated with manure management and fertilisation of crops. In total this subsector emits about 800 thous. tons of CO_2 eq.

Sector 4: Waste



Waste sector in Kosovo covers approximately 3% of national total of GHGs emissions. Most important sub-sector is emissions from landfills. Landfills in the Kosovo don't fulfil strictly anaerobic conditions needed for methane formation. This sub-sector produces about 200 thous. tons of CO_2 eq. annually. Should the landfills fulfil all sanitary and good management practices than methane generation potential would increase to the levels when is economically viable to capture it and use it as a fuel.

Waste incineration is almost non-existent in the country. There are few installations that incinerate very specific waste (clinical waste) but there is no municipal waste incineration plant. There high probability that significant part of waste is incinerated in households but this is not estimated in the inventory.

Waste water treatment sub-sector covers emissions of methane from waste water and sludge produced by population. Population in Kosovo produces almost 90 thous. tons of CO_2 eq. from (mostly untreated) sewage. Should the wastewater treatment increase it should be done in synergy to improve surface water quality and not increase emissions from this category (e.g. by capturing produced methane and usage of it as a fuel).