



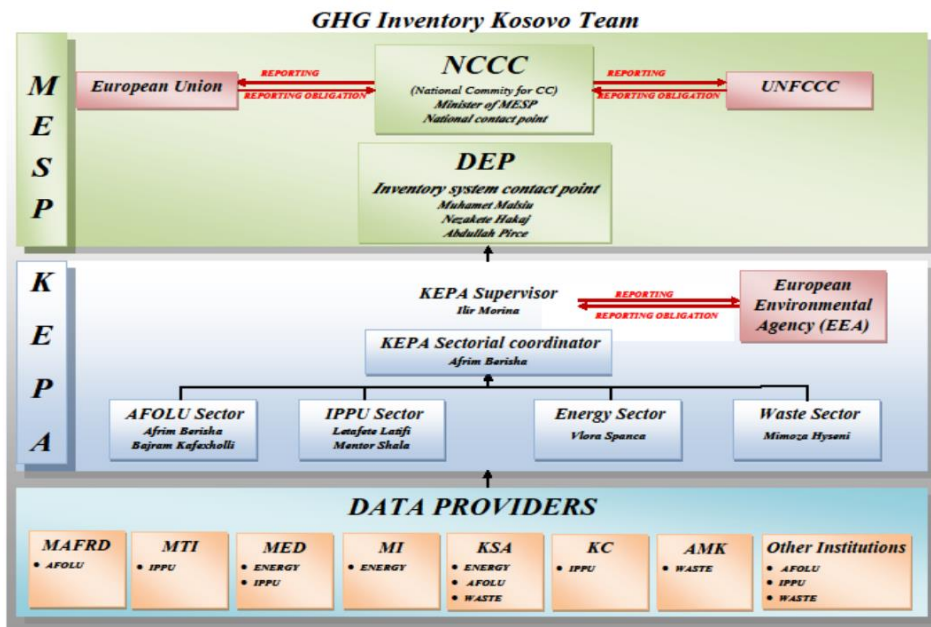
Kosovo, GHG emissions from Agriculture

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Overview of National system

- **Institutions and responsibilities**
 - **Single Entity:** Ministry of Environment and Spatial Planning, (*Policies, National contact point*)
 - **Inventory Agency:** Kosovo Environmental Protection Agency (*Data collection, Inventory of GHG, Reporting*)
 - **Others:** Ministry of Agriculture, Forestry and Rural Development, Kosovo Statistical Agency, (*Data provider, statistics, analyses, sector experts*).
- **Legislation & Policies**
 - Two administrative Instruction for implementation of MMR;
 - Climate Change Strategy (CCS) 2014-2024 (MESP);
 - Law on Environmental Protection,
 - Law on Air Protection,
- **Ongoing activities**
 - Preparation of GHG inventory 2014,
 - Review /Low Emission Development Strategy,
 - Drafting Action Plan for Climate Change.



Completeness

- Kosovo has inventory of GHG for 2008-2013.
- Step 1: Years 2008 and 2009**
 - Experts from Charles University, Czech Republic, Under the project "Transfer of Czech Experience: Developing Kosovo Greenhouse Gas (GHG) Inventory Management System". (Supported by UNDP)
 - During the process National expert were trained and collect relevant data.
- Step 2: Year 2012**
 - From KEPA under the "Transfer of Czech Knowledge: Activating Kosovo Greenhouse Gas (GHG) Monitoring System." (Supported by UNDP),
 - National Experts- Assessment, collect data, calculation, NIR, with supervising from Czech Expert.
- Step 3: Years 2010, 2011, 2013**
 - From KEPA experts - Assessment, collect data, calculation, summary report 2008-2013.

Agriculture: Relevant Categories

➤ 3A Livestock

Subcategories	Gases
✓ 3A1 Enteric fermentation	CH ₄
✓ 3A2 Manure management	CH ₄ & N ₂ O

➤ 3C Aggregate sources and non-CO₂ emissions sources on land

Subcategories	Gases
✓ 3C1 Emissions from biomass burning	CH ₄ & N ₂ O
✓ 3C3 Urea application	CO ₂
✓ 3C4 Direct N ₂ O emissions from managed soils	N ₂ O
✓ 3C5 Indirect N ₂ O emissions from managed soils	N ₂ O
✓ 3C6 Indirect N ₂ O emissions from manure	N ₂ O

Non relevant categories

Subcategories

- 3.C.2. Liming
- 3.C.7. Rice Cultivation
- 3.D.1. Harvested Wood Products

Methodology

- IPCC 2006 Methodology,
- Tier 1- Default emission factors,
- Emission factor relevant for Eastern Europe and Developing countries.



Activity data

- Livestock categories and Number of population,
- Manure management systems/Fractions,
- Urea applied/consumed/annual amount,
- Synthetic fertilisers used/ annual amount,
- Agricultural production/amount for specific categories (Annual harvest/fixing crops/Crop residues-N),
- Area burned in land use categories,
- Climate region and average temperature.

Sources/Relevant data

- ✓ Agricultural Households Survey (KSA&MAFRD)
 - Livestoc categories,
 - Urea and Synthetic fertilizers used,
 - Agricultural production.
- ✓ Expert estimates from Ministry from Agriculture, Forestry and Rural Developmet and Agriculture Faculty
 - Manure Management systems and fractions,
 - Area burnt in cropland areas.
- ✓ Kosovo Forestry Agency
 - Area burnt in forest areas.

Enteric fermentation

Categories	Activity Data	Emissions
	Number of Animals	CH ₄ (Gg)
3.A.1 - Enteric Fermentation	415356	23,56
3.A.1.a - Cattle	264189	22,83
3.A.1.a.i - Dairy Cows	183340	18,15
3.A.1.a.ii - Other Cattle	80849	4,68
3.A.1.b - Buffalo	480	0,07
3.A.1.c - Sheep	103400	0,51
3.A.1.d - Goats	12118	0,06
3.A.1.f - Horses	2139	0,03
3.A.1.g - Mules and Asses	151	0,001
3.A.1.h - Swine	31909	0,03

Emissions of N₂O and CH₄ from manure management

Categories	Activity Data	Emissions	
	Number of Animals	CH ₄ (Gg)	N ₂ O (Gg)
3.A.2 - Manure Management	801957	2,858	0,057
3.A.2.a - Cattle	264189	2,68	0,048
3.A.2.a.i - Dairy cows	183340	2,200	0,019
3.A.2.a.ii - Other cattle	80849	0,485	0,029
3.A.2.b - Buffalo	480	0,007	0,0002
3.A.2.c - Sheep	103400	0,010	0,001
3.A.2.d - Goats	12118	0,001	0,0002
3.A.2.f - Horses	2139	0,002	0,0001
3.A.2.g - Mules and Asses	151	0,00009	0,0001
3.A.2.h - Swine	31909	0,143	0,006
3.A.2.i - Poultry	386601	0,0077	0,0003

Biomass burning

Categories	Activity Data	Emissions		
	Area burnt i ha	CH ₄ (Gg)	N ₂ O (Gg)	NO _x (Gg)
3.C.1 - Emissions from biomass burning		0,554	0,029	0,0135
3.C.1.a - Biomass burning in forest lands	5604,53	0,521	0,028	0
3.C.1.b - Biomass burning in croplands	3090	0,033	0,0008	0,013

Direct N₂O emissions from managed soils

Categories	Activity Data	Emissions
	Total amount of nitrogen applied (Gg N / yr)	N ₂ O (Gg)
3.C.4 - Direct N ₂ O Emissions from managed soils	19010062,88	0,331
Inorganic N fertilizer application	2312857	0,036
Organic N applied as fertilizer (manure and sewage sludge)	13248796,47	0,208
Urine and dung N deposited on pasture, range and paddock by grazing animals	2795576,407	0,076
N in crop residues	652833	0,01

Indirect N₂O emissions from managed soils

Categories	Activity Data	Emissions
	Total amount of nitrogen applied / excreted (Gg N / yr)	N ₂ O (Gg)
3.C.5 - Indirect N ₂ O Emissions from managed soils		0,121273812
From atmospheric deposition of N volatilized from managed soils from agricultural inputs of N: synthetic N fertilizers; organic N applied as fertilizer; urine and dung, N deposited on pasture, range and paddock by grazing animals; N in crop residues; and N mineralization/immobilization associated with loss/gain of soil organic matter resulting from change of land use or management of mineral soils	18,35722988	0,054059661
From N leaching/runoff from managed soils (i.e. from synthetic N fertilizers; organic N applied as fertilizer; urine and dung, N deposited on pasture, range and paddock by grazing animals ; N in crop residues; and, N mineralization/immobilization associated with loss/gain of soil organic matter resulting from change of land use or management of mineral soils.	19,01006288	0,067214151

Indirect emissions from manure management

Categories	Activity Data	Emissions
	Total amount of nitrogen applied / excreted (Gg N / yr)	N2O (Gg)
3.C.6 - Indirect N2O Emissions from manure management	4,239327368	0,033

Urea application

✓Due to application of urea fertilization in to field we estimate that 17.46 Gg CO₂ was released.

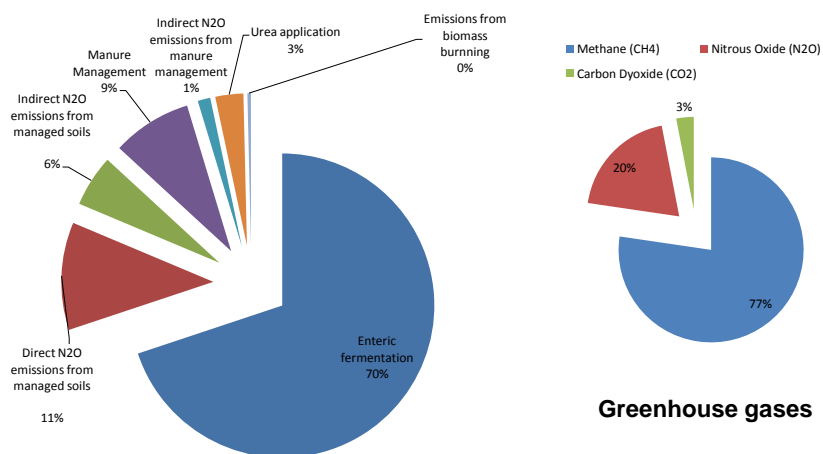
Total emmissions from Agriculture

Categories	Emissions (Gg)		
	CO ₂	CH ₄	N ₂ O
Total Emissions from Agriculture	17,46	26,88	0,57
3.A - Livestock		26,42	0,06
3.A.1 - Enteric Fermentation		23,56	
3.A.2 - Manure Management		2,86	0,06
3.C - Aggregate sources and non-CO₂ emissions sources on land	17,46	0,55	0,51
3.C.1 - Emissions from biomass burning		0,55	0,03
3.C.3 - Urea application	17,46		
3.C.4 - Direct N ₂ O Emissions from managed soils			0,33
3.C.5 - Indirect N ₂ O Emissions from managed soils			0,12
3.C.6 - Indirect N ₂ O Emissions from manure management			0,03

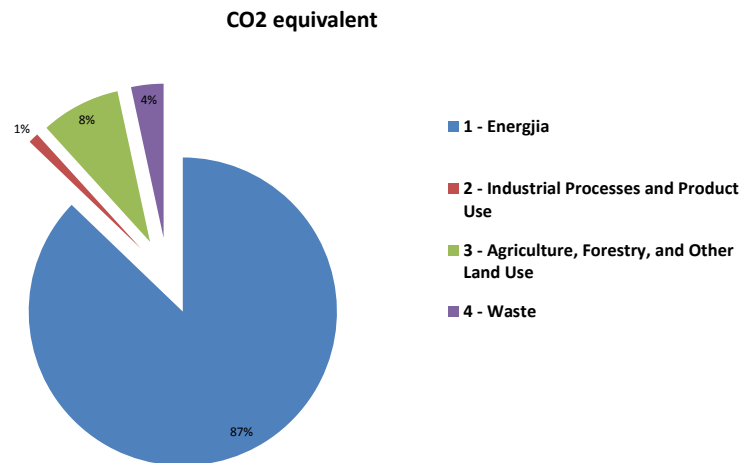
Assessment of categories

IPCC Category	Greenhouse gas	(Gg CO2 Eq)
Enteric Fermentation	METHANE (CH4)	494.9
Direct N2O Emissions from managed soils	NITROUS OXIDE (N2O)	177.4
Indirect N2O Emissions from managed soils	NITROUS OXIDE (N2O)	67.1
Manure Management	METHANE (CH4)	59.4
Manure Management	NITROUS OXIDE (N2O)	31.8
Indirect N2O Emissions from manure management	NITROUS OXIDE (N2O)	24.6
Urea application	CARBON DIOXIDE (CO2)	16.9
Emissions from biomass burning	METHANE (CH4)	6.8
Emissions from biomass burning	NITROUS OXIDE (N2O)	5.5

Category analyses



AFOLU in total GHG emissions



Problems

- Gap of data for all categories,
- Lack of time series data,
- Gap of relevant studies and analyses in this sector,
- Limited knowledge of relevant national institutions,
- Limited knowledge of expert judgment in this sector,
- Lack of experience.

Needs

- Improve data (statistical surveys) for:
 - Livestock categories,
 - Average life of livestock,
 - Use of synthetic fertilizers,
 - Manure management systems.
 - Other relevant data.
- Improve Cooperation with:
 - Kosovo Statistical Office,
 - Ministry of Agriculture, Forestry and Rural Development,
 - Kosovo Agency of Forestry
 - Faculty of Agriculture
 - Farmers and Association in Agriculture sectors.
- Trainings and seminars.
- Studies and analyses in this sector.



Thank you for your attention...