



**FACILITATIVE SHARING OF VIEWS –
MONTENEGRO**

15 MAY, BONN

Part I: Summary of BUR and recent development

National context

- Montenegro became a party to the United Nations Framework Convention on Climate Change (UNFCCC) as a non-Annex 1 Party on 27 January 2007. The Kyoto Protocol was ratified in 2007. Considering that EU accession is a national priority, the approximation of national legislation to parts of the EU acquis, regarding the environment and climate change, represents a process during which the national legal framework should be strongly and increasingly shaped.
- *In preparation of the BUR participated:*
 - **Ministry of Sustainable Development and Tourism (MSDT)** has key responsibilities in the area of climate change. The Ministry is responsible for policy making and for adopting relevant regulations;
 - The **Ministry of Economy** also plays an important role in the area of climate change, by creating energy policies and by establishing objectives and measures to increase energy efficiency;
 - **Monstat** responsibilities for statistical data;
 - The **Environmental Protection Agency** responsibilities for GHG Inventory chapter.
- Project start date: **June 2014**.
- Date of completion: **December 2015**.

National context

Montenegro can be characterised by the following parameters:

- ***General Characteristics:***

- The area of the country is 13,812 km²;
- Mountainous country;
- Climate characteristics range from Mediterranean to sub-Alpine;
- Large water coverage;
- High quality ground water;
- Territorial sea water totals approximately 2,540 km²;
- Coastal zone represents 11 % of the total territory;
- Agricultural land represents 22.4 % of the total territory;
- Forests cover more than 60 % of the total territory;
- Biodiversity 'hot-spot' in the Mediterranean area;
- Protected areas represent 11% of the territory;

Environmental problems are present (air and water pollution, waste management).



National context

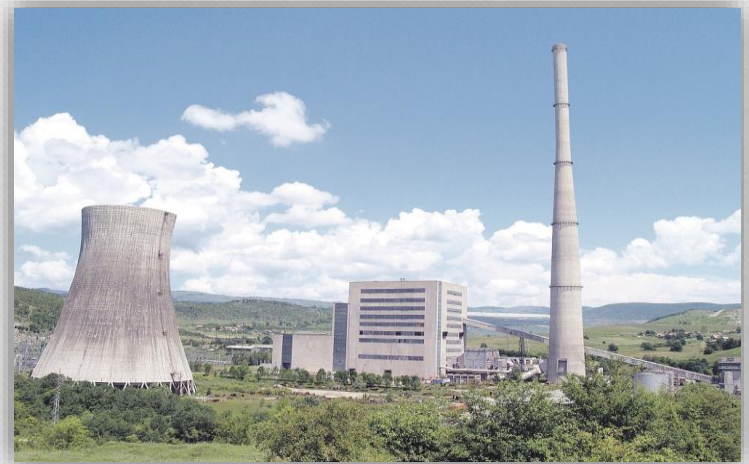
○ *Basic Economic and Social Characteristics:*

- Population of 620,029 (2011);
- GDP is 41 % of the EU-28 average (in PPP);
- Trade balance is €683 million (2013);
- Experienced an increasing trend in GDP from 2000;
- Unemployment rate of 19.7 % (2012);
- The share of solid fuels in the total energy mix represents around 70 %;
- 21 – 37 % of its energy comes from renewable sources (mainly hydro power);
- The per capita consumption of primary energy is 1800 ktoe/year;
- The share of industry in the GDP is 7 – 10 %;
- The share of mining industry (bauxite, lead-zinc ore, lignite) in the GDP is 2 %;
- The share of transport in the GDP is 11 – 12 %;
- The role of tourism is increasing.

National context

Montenegro has five stationary emitters:

- Thermal power plant Pljevlja
- Aluminum plant Podgorica
- Vektra Jakić Pljevlja (wood industry)
- Brewery Trebjesa Nikšić
- Iron Works Nikšić



TPP - Pljevlja

National context

○ *Country Specific Issues*

- The majority of all of the national GHG emissions are produced by a very small number of stationary installations (only one coal fired LCP1 is in operation – TPP Pljevlja which has CO2 emissions of up to 1,800 Gg, and there is one industrial installation – KAP – which has CO2 eq emissions varying from 216 Gg to 1,762 Gg). As the total annual national emissions of GHG (without removals) are at a level of 4,000 Gg of CO2 eq., it can be seen that emissions from TPP Pljevlja and KAP could each individually represent up to 45 % of the national total and that both together could represent up to 90 %.
- Montenegro's total national emission balance contains a very high share of synthetic gases (F-gases) (depending of production levels at KAP Aluminium Works, Podgorica).
- There are very high levels of CO2 sinks in comparison with CO2 emissions (2,222 Gg compared with 2,440 Gg in 2013); this is caused by high levels of forest coverage in the country (69.8 % in 2013).

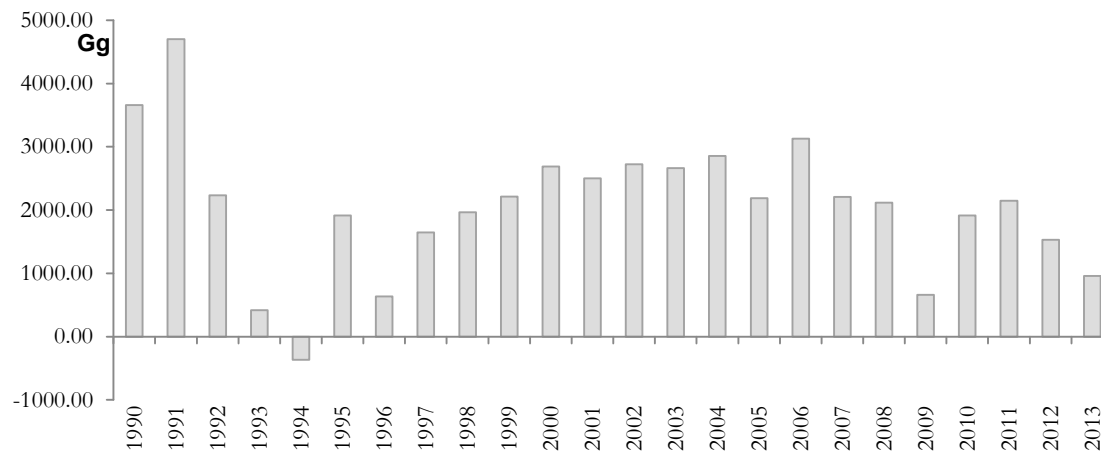
GHG Inventory

Overview of Trends in Greenhouse Gas Emissions:

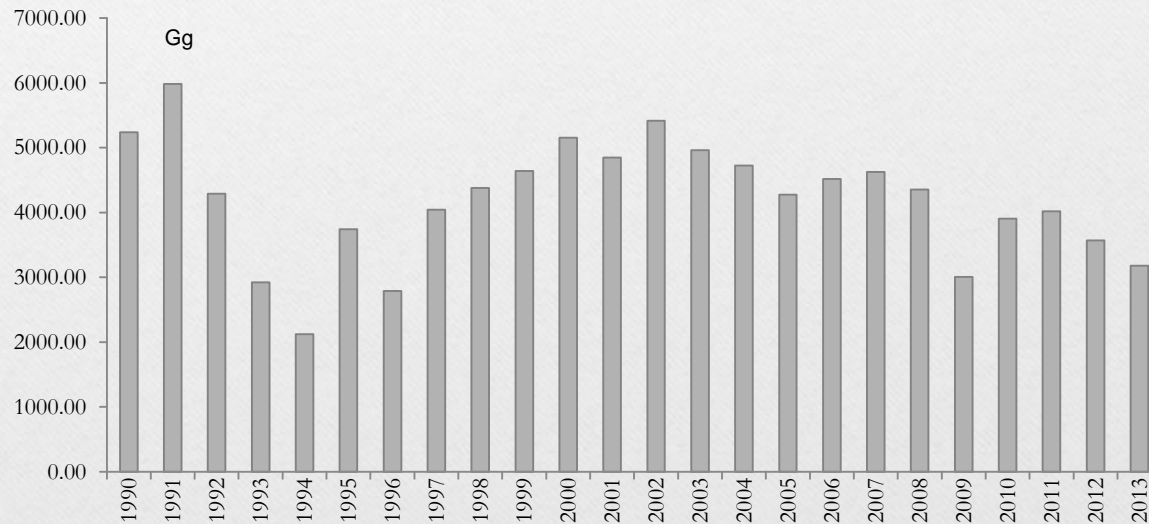
- The period of reporting: 1990-2013.
- Montenegro's contribution to total global emissions is 0,009 %.
- Total emissions with sinks range from -364.57 Gg CO₂ eq. in 1994 to 4,703.27 Gg in 1991. High levels of CO₂ sinks are the consequence of large forest areas in Montenegro, while low levels of estimated emissions from agriculture are partly due to the incomplete estimation of emissions due to a lack of statistical data. This fact, as well as negative economic trends and the continuous decline of industrial production, has resulted in relatively low levels of emissions being recorded in some of the years during the observed period.
- The energy and industrial process sectors represented the greatest share of total CO₂eq emissions during the observed period. Accordingly, depending on the consumption of energy-generating products and depending on the level of industrial production, both the decline and the increase of estimated emissions were registered during the observed period.
- GHG emissions were recalculated into CO₂eq. in line with the Second Assessment Report of IPCC (SAR IPCC) where the global warming potential (GWP) is: CO₂ -1, CH₄- 21, N₂O- 310, CF₄- 6500, C₂F₆- 9200 and SF₆- 23900.

Year	Energy (Gg CO2 eq)	Industrial Processes (Gg CO2 eq)	Agriculture and Land Use (Gg CO2 eq)	Waste (Gg CO2 eq)	Total Emissions with Sinks (Gg CO2 eq)	Total Emissions without Sinks (Gg CO2 eq)
1990.	2352.61	2272.87	-987.83	19.618	3657.27	5238.52
1991.	2450.28	2909.18	-691.16	34.97	4703.27	5985.49
1992.	1809.33	1891.39	-1504.53	45.41	2235.27	4293.39
1993.	1602.90	709.60	-1974.81	57.43	418.00	2923.52
1994.	1428.09	94.12	-1946.76	68.97	-364.57	2121.89
1995.	825.24	2272.87	-1263.66	80.39	1914.84	3742.74
1996.	1842.40	294.48	-1592.61	91.69	635.96	2788.23
1997.	1850.80	1547.59	-1855.69	105.17	1647.87	4043.37
1998.	2259.86	1471.88	-1882.02	116.04	1965.76	4380.87
1999.	2332.16	1648.27	-1895.22	126.57	2211.78	4640.09
2000.	2427.50	2046.92	-1921.70	136.79	2689.51	5156.55
2001.	2013.42	2173.09	-1831.38	146.02	2501.15	4847.49
2002.	2517.68	2223.86	-2171.93	154.39	2724.00	5415.80
2003.	2427.77	1846.00	-1771.35	161.92	2664.34	4962.67
2004.	2388.09	1665.62	-1367.44	168.61	2854.88	4726.41
2005.	2200.89	1544.11	-1730.85	174.48	2188.63	4278.82
2006.	2356.22	1635.67	-1044.51	179.63	3127.01	4519.17
2007.	2293.34	1769.81	-2042.20	184.25	2205.20	4628.58
2008.	2904.72	930.08	-1907.74	188.21	2115.27	4355.32
2009.	1979.14	572.38	-2080.66	190.26	661.12	3009.31
2010.	2725.54	722.66	-1725.92	193.65	1915.93	3904.95
2011.	2768.15	765.59	-1583.79	197.41	2147.36	4017.89
2012.	2684.24	398.94	-1754.26	200.49	1529.41	3571.94
2013.	2415.87	282.93	-1941.39	199.26	956.67	3178.28

Table: Total GHG Emissions Expressed as CO2 eq, by Sector, for the Period 1990-2013 (Gg)

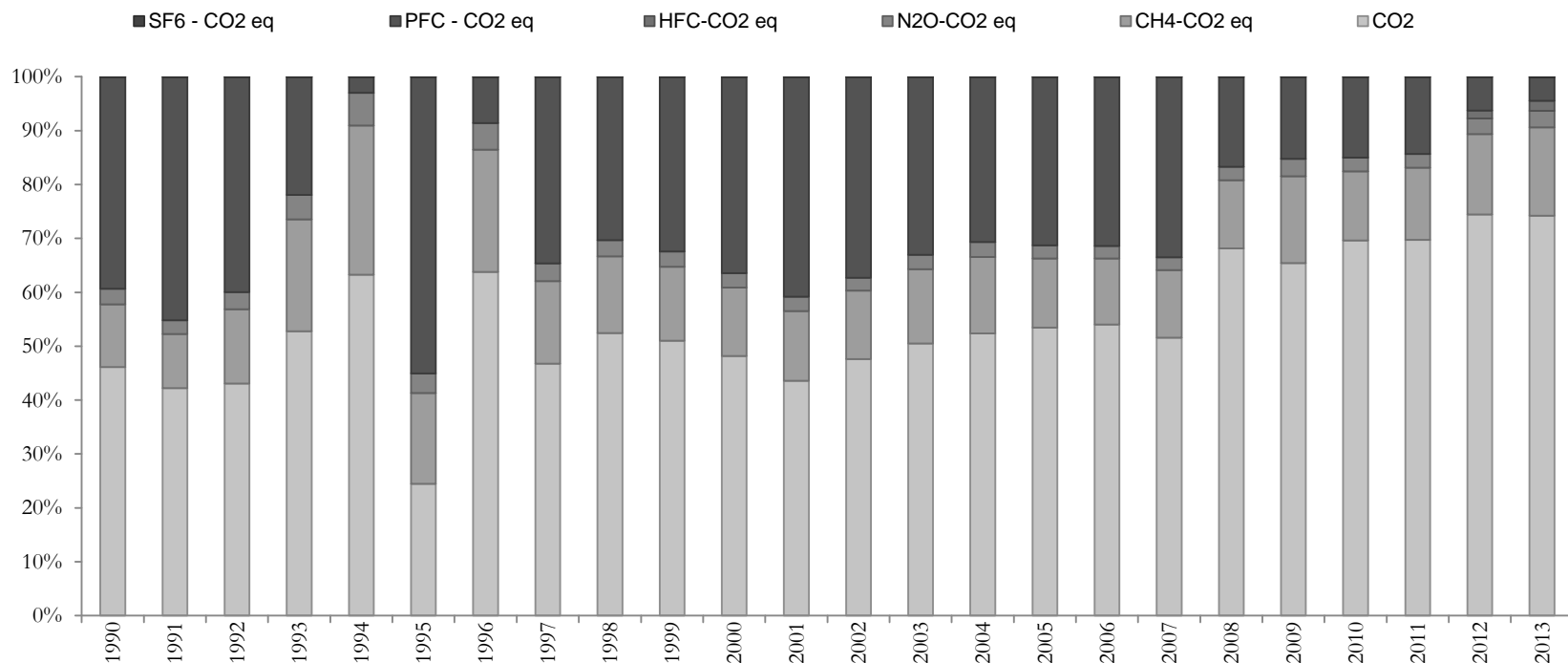


Total GHG Emissions Expressed as CO₂ eq with Sinks, 1990-2013 (Gg)

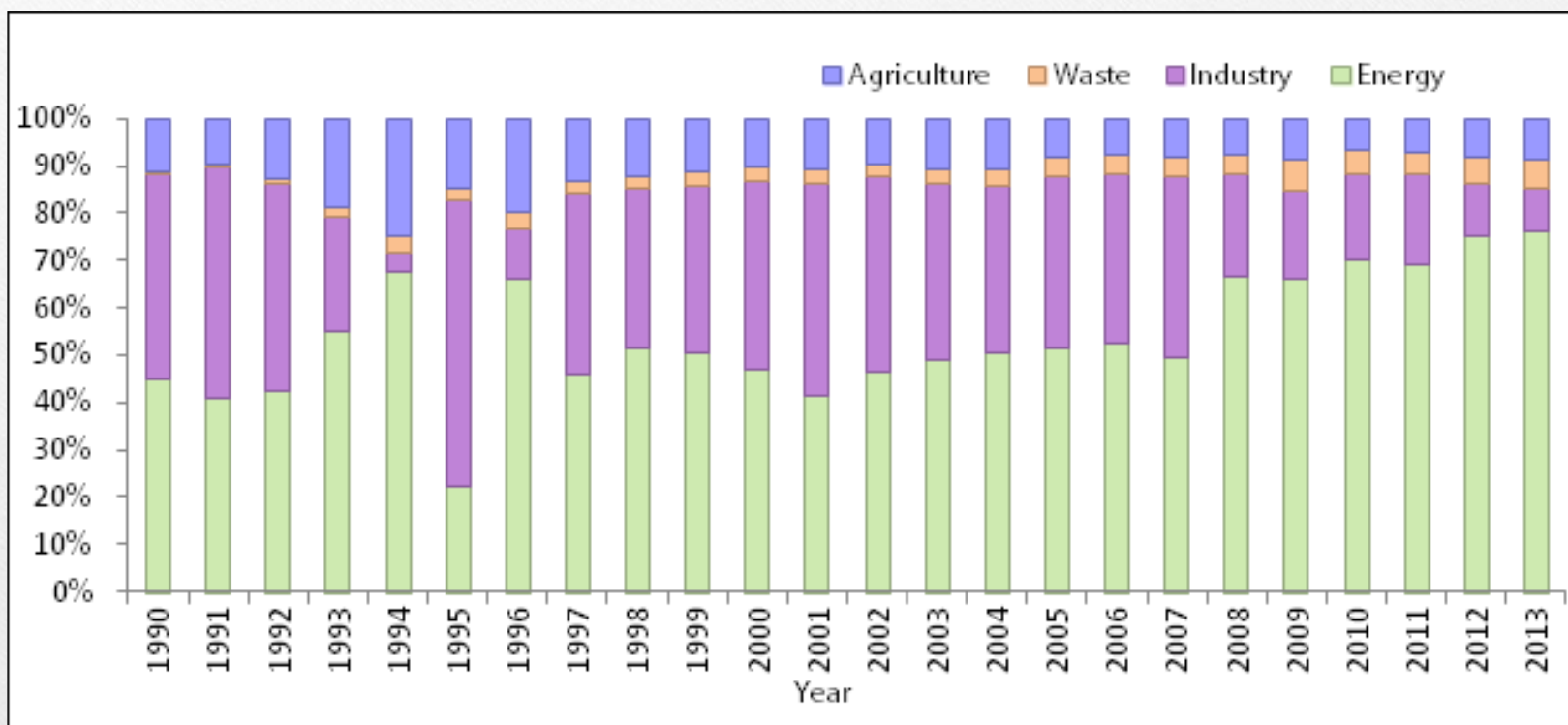


Total GHG emissions expressed as CO₂ eq without sinks, 1990-2013 (Gg)

○ CO₂ represented the greatest share of total GHG emissions (24.6% - 74.5%), followed by PFC (CF₄ and C₂F₆) which represented between 3% and 40.9%. CH₄ represented between 10% and 27.5%, and the N₂O represented between 2.3% and 5.8 %. SF₆ represented the smallest share in the total emissions produced and ranged from 0.01% to 0.07%. In line with the data that was available at the time of recalculating the inventory, HFC emissions (in 2012 and 2013) were only estimated for subsector 2.F. Product Use as a Substitute for Ozone Depleting Substances (2.F.1 – Refrigeration and Air Conditioning).



In 2013 the share of emissions represented by the energy sector ranged from 22.12% in 1995 to 76.10%. The share of emissions represented by the industrial process sector ranged from 4.43% in 1994 to 60.91% in 1995. CO₂eq emissions produced by the agriculture sector ranged from 6.54% in 2010 to 20.16% in 1994, while the waste sector produced the least emissions ranging from 0.38% in 1990 to 6.33% in 2009.



Analysis of Key Emission Sources and Inventory Completeness

- The Analysis of Key Sources and Inventory completeness was produced based on the methodology provided by the IPCC, using Tier 1 approach.

Category	CO2eq Emission Estimate for 1990 (Gg)	CO2eq Emission Estimate for 2013 (Gg)	Trend Assessment	Cumulative Share of Total Emissions (%)
2C3 – Metal Industry –Aluminium production – PFCs	2,059	139	0.2118309	37.2%
1A1 – Fuel Combustion Activities - Energy Industries (solid fuels) - CO2	1,089	1,505	0.1624299	65.7%
1A3b – Fuel Combustion Activities - Transport – Road Transportation - CO2	327	585	0.0742573	78.7%
4A – Solid Waste Disposal - CH4	12	178	0.0327847	84.5%
1A2 – Fuel Combustion Activities - Manufacturing Industries and Construction - CO2	273	74	0.0174763	87.6%
1A4 Fuel Combustion Activities – Other Sectors - CO2	175	29	0.0147449	90.2%
1A5 - Fuel Combustion Activities - Non-Specified - CO2	19	71	0.0114626	92.2%
2F1 – Product Uses as Substitutes for Ozone Depleting Substances - Refrigeration and Air Conditioning - HFCs, PFCs	NA	60	0.0114379	94.2%
3A1 – Enteric Fermentation - CH4	401	189	0.0102265	96.0%

Mitigation actions and effects

Montenegro has developed two realistic scenarios:

- Scenario with measures (WM scenario)

WM scenario includes those measures which are laid down by national and/or EU legislation and strategies.

- Scenario with additional measures (WaM scenario) which includes the original WM scenario extended by additional measures that are not required by EU legislation and/or measures for which EU legislation allows flexibility regarding certain quantified requirements.

The scenario with measures (WM) includes 14 measures:

- Introduction of BAT2 in energy and industry installations (2 measures – TPP Pljevlje, KAP);
- Energy sector (4 measures)
- Transport (2 measures)
- Forestry (1 measure)
- Agriculture (1 measure)
- Waste management (1 measure)
- Tourism and services (1 measure)
- Horizontal (cross-cutting) issues (3 measures)

Mitigation actions and effects

Priorities

- The WM and WaM scenarios do not include all of the possible measures that could lead to a reduction in the level of GHG emissions. Only the priority measures have been included, those for which a substantial reduction potential in GHG emissions can be expected (in many cases, also along with positive side-effects).
- The 20 priority measures have been divided into three categories:
 1. **Top Priorities**
 2. **High Priorities**
 3. **Medium Priorities**

Mitigation actions and effects

- It is evident that the full implementation of the WM scenario could lead to a gross reduction in GHG emissions of more than 375 Gg CO₂ eq / year from 2024 (i.e. after the decommissioning of TPP Pljevlja I and its replacement by TPP Pljevlja II) in comparison with 2013.
- This reduction would, however, be cancelled out by increases in emissions in the transport sector (an expected increase of 186 Gg CO₂ eq / year by 2020 and of 309 Gg CO₂ eq / year by 2025 in comparison with 2013) and emissions produced by KAP (an expected increase of 25943 – 87344 Gg CO₂ eq / year in comparison to 2013).
- Reductions of GHG emissions in the waste management sector are estimated to be 80 Gg CO₂ eq. /year in 2020 in comparison with 2013.
- Moreover, the reduction of GHG emissions could be further improved by more than 200 Gg of CO₂ eq in comparison with 2013.

Mitigation actions and effects

Description of domestic MRV

- As an EU Candidate country, Montenegro is at the beginning of the process of developing its own MRV system under mitigation action.
- This system includes reporting on National Communications, on Biennial Update Reports, on GHG Inventories and on other relevant information on a regular basis. Montenegro has achieved a higher level than that which is expected from non-Annex I countries as it regularly prepares inventories, and has also prepared First and Second National Communications and First Biennial Update Report.

The steps proposed for the establishment of a MRV system in Montenegro include the following:

1. Precise definition of institutional arrangements and processes;
2. Definition of GHG mitigation actions and accounting;
3. Establishment of data collection and reporting responsibilities;
4. Establishment of clear and transparent reporting obligations;
5. Verification and quality assurance.

Obstacles and barriers

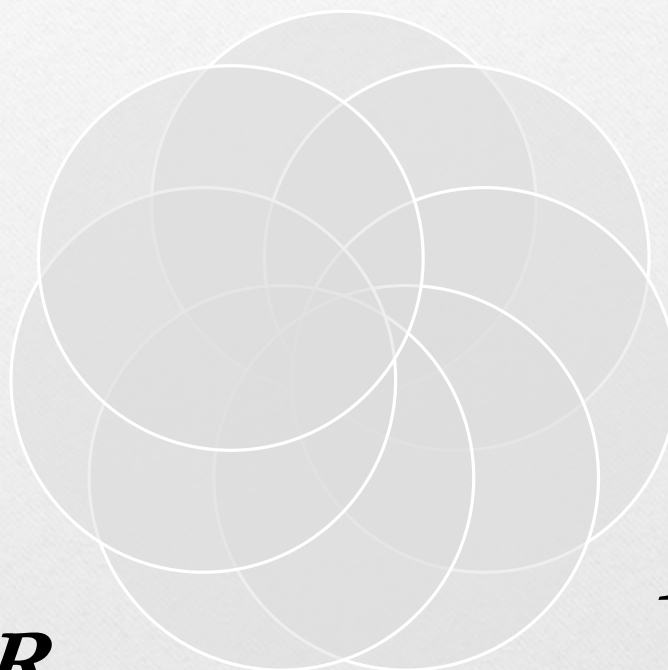
***NATIONAL
GHG
INVENTORY***

***AFOLU
SECTOR***

NAMA

***IPPU
SECTOR***

***ENERGY
SECTOR***



Support received and needed (finance, technology, capacity building)

- The institutional set-up and the capacity of the state have shown evident progress over recent years. However, there are still needs, gaps and obstacles that impede the further development of climate-related activities.
- Currently available financial, technical and capacity-building support still can not meet the growing requirements related to the challenges of climate change.
- Montenegro must continue to draw support from a large number of international donors, including national governments, non-profit organizations and international organizations.
- Bilateral technical cooperation across all sectors needs to be enhanced and expanded.
- The exchange of expertise and technology needs to be promoted in order to achieve greater efficiency in mitigation activities.

Support received and needed (finance, technology, capacity building)

Technology Required for the Purpose of Climate Change Mitigation

- Energy-efficient technology in all sectors of the economy and in the housing and commercial sectors,
- Technology that uses renewable energy sources (hydro, wind, solar and biomass)
- Technology designed to efficiently use water, land, forests, coastal area and other natural resources.
- The introduction of low-carbon modern technology; this will require continuous cooperation with international organizations and institutions, along with a review of best international practices and the implementation of various projects supported by international donors.

Financial Needs Concerning Climate Change Mitigation

- A number of mitigation activities have already taken place in the country.
- The Government is still working on securing additional financial resources – thus, under IPA II Montenegro has been allocated €37.5 million for environment and climate change (not including the funds allocated for cross-border cooperation) and €32.1 million for transport for the period 2014-2020.
- Attracting investment is of major importance in ensuring the long-term, sustainable and balanced development of the country.

Capacity Building Needed for Mitigation Purposes

- Further support is needed to continue developing and consolidating existing technical and institutional capacities along with efforts to integrate climate change into national policies, programmes and plans.

Part II: Experience and lessons learned in participating in the ICA process

Enhancing transparency of reporting and areas for improvement

- BUR in Montenegro has been prepared on the first time;
- Measures are elaborated in detail and sorted by priority (WM), and also taking into account additional measures (WaM);
- The technical analysis has contributed to improve capabilities in reporting;
- It is important to point out that the mitigation measures in the field of climate change be taken into account in the planning of sectoral policies, because there are sectors in their development documents have not been taken into account these;
- Montenegro's Government has decided to strengthen the administrative capacity until to 2020 in the Directorate for Climate Change and the Agency for Environmental Protection.

Part III: Response to questions received

Response to questions received

The answer to the question that we received during the QA period

- A question entitled '*Methodologies for assessing mitigation actions*' has been submitted from New Zealand.
- **The report provides data on the preparation** of the greenhouse gas (GHG) inventories for 2012 and 2013 and on the update of the inventories for the period 1990-2011. For the first time, the **2006 methodology of the Intergovernmental Panel on Climate Change (IPCC)** was applied; it required the recalculation of the entire time series (1990-2011) of the inventory produced based on the 1996 methodology for the purposes of the Second National Communication on Climate Change. The software tool of the Intergovernmental Panel on Climate Change was used to prepare the inventory.



THANK YOU FOR ATTENTION!

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