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Main outcomes of the “Development of Armenia’s Fourth National Communication to the UNFCCC and Second Biennial Update Report” UNDP-GEF Project

7th Meeting of the Inter-agency Coordinating Council on Climate Change
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Diana Harutyunyan
UNDP Climate Change Program Coordinator

Project Objective

To enable Armenia (as a Party to UN Framework Convention on Climate Change Convention) to prepare and submit to the Convention Secretariat its Forth National Communication (4NC) and Second Biennial Update Report (BUR2).

Timetable of Project Main Outputs

Activity	2016	2017				2018				2019				2020		
	I	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III
Inception Phase																
Preparation of GHG Inventory Report for 2013 and 2014																
Development of BUR2																
Submission of BUR2																
Preparation of GHG Inventory Report for 2015 and 2016																
Development of 4NC																
Submission of 4NC																
Awareness raising on climate change																

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Project Implementation Progress (1)

- National GHG Inventory Report for 2013 and 2014 is developed, agreed and published. It is posted on the MNP website and should be submitted to the UNFCCC in conjunction with BUR2.
- BUR2 is developed and submitted to the MNP for review (21.02.2018).
- International expert involved by support of UNDP-Czech Trust Fund conducted analysis on the potential for application and scaling up of biogas technology to medium and large agricultural farms in Armenia and conducted pre-feasibility study on application of biogas plant on the example of one of the big greenhouses.

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Project Implementation Progress (2)

- The Standardized Baseline of Grid Emission Factor for the Electricity System of Armenia for 2016 is developed. It is approved by CDM Executive Board and is valid until February 18, 2021. The Report is available at the Convention website.
- By request of Ministry of Energy Infrastructures and Natural Resources, the analysis of the cogeneration based district heating opportunities in Armenia is conducted. Recommendations for Avan district heating system further operation are provided based on done analysis.
- 3 project proposals on promotion of energy efficiency and renewable energy are developed. 2 of them are financed by UNDP-Russia Trust Fund. The other one is the Yerevan solar city EU project.

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Project Implementation Progress (3)

- The strategic, legal documents and projects on climate change adaptation related issues for 2012-2017 period are collected and analyzed.
- Project proposal “National Adaptation Plan to advance medium and long-term adaptation planning in Armenia” is developed and submitted to GCF (3 mln USD).
- Reports on trends of the climate main indicators changes; annual and seasonal forecast scenarios are developed.

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Biennial Update Reports under UNFCCC

- **Objective:** report information on the Party's progress on its way to low carbon development, ensuring the information provision in a consistent, transparent, complete, accurate and timely manner
- BURs undergo International Consultation Analysis which includes Technical Analysis of the Report followed by the phase of Facilitative Sharing of Views.
- Armenia's BUR1 passed successfully completed the technical analysis process and Facilitative Sharing of Views within the frames of the 23rd Conference of Parties.

Content of BUR2

- Information on national circumstances and Convention implementation institutional arrangements
- GHG Inventory Report for 2013 and 2014
- Information on the climate change mitigation actions and their effects as well as the mitigation actions projections up to 2030 in Energy Sector
- Information on support received and needs
- Information on Measurement, Reporting and Verification system

National Greenhouse Gases Inventory

- GHG Inventory are developed according to COP 2/17 Decision and IPCC 2006 Guidelines
- The following sectors are included: **Energy** (includes generation and transmission, transportation, industry, housing, among other sectors consuming fossil fuels), **Industrial Processes and Product Use (IPPU)**, **Agriculture, Forestry and Other Land Use (AFOLU)** and **Waste**
- The emissions/removals of the 4 direct greenhouse gases are assessed: carbon dioxide, methane, nitrous oxide and hydrofluorocarbons, as well as indirect greenhouse gases: carbon monoxide, nitrogen oxides, non-methane volatile organic compounds (NMVOCs) and sulphur dioxide

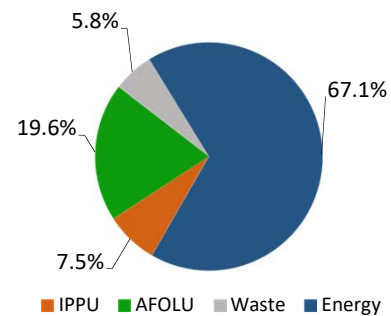
National Greenhouse Gas Inventory

- National Greenhouse Gas Inventory Report includes:
 - Summary report of National GHG inventory
 - Sectoral tables
 - Key category analysis
 - Uncertainty analysis
 - Time series for 2000-2014
- The following improvements are done:
 - Higher tier (2 and 3) methods are applied for 3 subcategories
 - GHG emissions for 14 new subcategories are assessed.

National Greenhouse Gas Inventory, 2014

Total GHG emissions in 2014 - **10,450.71 Gg CO₂ eq.**
 Increase by 4.3% compared to 2012 (434.5 Gg CO₂ eq.)

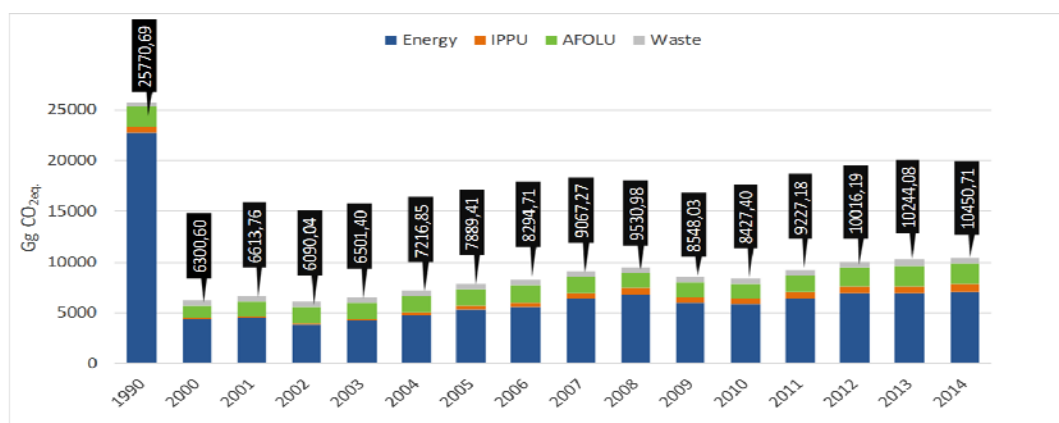
Sectors	CO ₂	CH ₄	N ₂ O	HFC	CO ₂ eq.
Energy	5,370.3	76.88	0.09	NA	7,012.26
Industrial Processes	250.79	NA	NA	NA	250.79
F- gases	NA	NA	NA	531.74	531.74
Agriculture	0.68	62.22	2.38	NA	2,044.73
Waste	4.36	25.69	0.22	NA	611.19
Total emissions	5,626.1	164.79	2.69	531.74	10,450.71
Forestry and Other Land Use	-480.26	NA	0.01	NA	-477.14
Net GHG emissions	5,145.8	164.79	2.70	531.74	9,973.57



GHG emissions by sectors (without Forestry and Other Land Use)

Time series of greenhouse gas emissions

59% reduction of emissions compared to 1990



Energy: 63% increase compared to 2000

Agriculture: 54% increase compared to 2000

IPPU: 100% increase of F-gases emissions compared to 2010
 due to emissions from refrigeration and air conditioning

Mitigation actions

- Information on mitigation actions for for 2013-2017 for all sectors is collected and analysed.
- 40 mitigation actions/programs impact on GHG emissions is assessed, as well as impact of implemented, on-going and planned actions in power generation side is assessed.
- The vast majority of the mitigation actions are within Energy Sector.

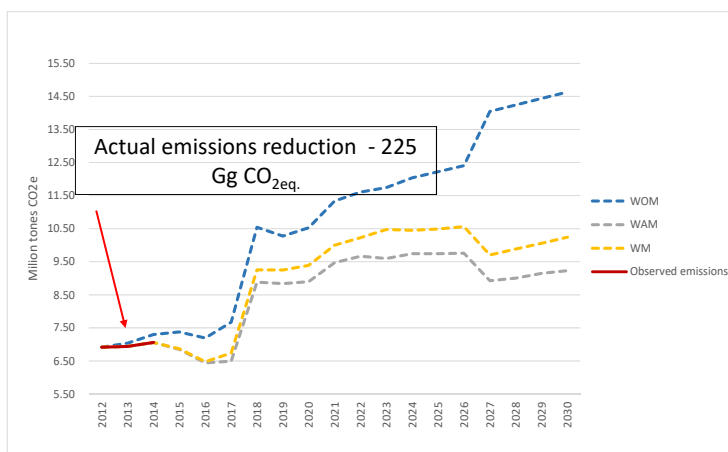
Mitigation actions

- Energy sector mitigation measures impact assessment is done using Long Range Energy Alternatives Planning System (LEAP) software
- Each mitigation measure impact on greenhouse gas emissions is assessed separately, followed by combined impact assessment under 3 development scenarios considering different combinations of mitigation measures and policies

GHG emissions forecast in Energy Sector

- Greenhouse gas reduction potential are assessed for Energy Sector up to 2030 for 3 development scenarios
- Mitigation measures scenarios are developed considering the strategy and recent developments of Energy Sector for 2013-2017 and is agreed with the Ministry of Energy Infrastructures and Natural Resources.
- Comparative analysis between the BUR1 results of emissions projections for 2013-2014 and the NIR Inventory results of the actual emissions for the same period revealed those mitigation actions ensured

Emissions reduction projections in Energy Sector



Impact of mitigation measures on GHG emissions

Mitigation measure	Gg CO _{2eq.}	%
New NPP	2,383	44.1
Renewables	928	17.2
Demand-side measures	1,106	20.5
Additional renewables	295	5.5
Demand-side additional measures	693	12.8
Total	5,406	100

Greenhouse gas emissions and energy intensity of GDP

Indicators	1990	2000	2010	2012	2014
GHG emissions per GDP, t CO ₂ eq./mln USD	-	1.46	0.91	0.96	0.94
GHG emissions per capita, t CO ₂ eq./people	7.12	1.82	2.6	3.14	3.31
Energy intensity, TPES/GDP, PPP (ktoe./mln USD)	-	0.25	0.15	0.141	0.138

Thank you

E-mail: climate@nature.am
 Website: www.nature-ic.am