ECRAN Regional Closing High Level Seminar on Climate Change adaptation

Skopje, 6 September 2016

CONTENT

- Adaptation to climate change in international and the EU context
- Vulnerability assessment findings in different sectors
- Current work and future needs

UNFCCC, Facts

UNFCCC- non Anex I Party since 1998

Kyoto Protocol-non Anex B Party since 2005

Copenhagen Accord-acceded by submitting non-quantified mitigation actions

INDCs-submitted as 23rd country in the world

Paris Agreement-signed

Status under the UNFCCC

GOAL:

to obtain stabilization of GHG concentration in the atmosphere on levels which would prevent dangerous anthropogenic (human induced) impact on the climate system

PRINCIPLES:

Equality and shared, but differentiated responsibilities

Acknowledging requirements and circumstances of developing countries

Precautionary principle

Promotion of sustainable development

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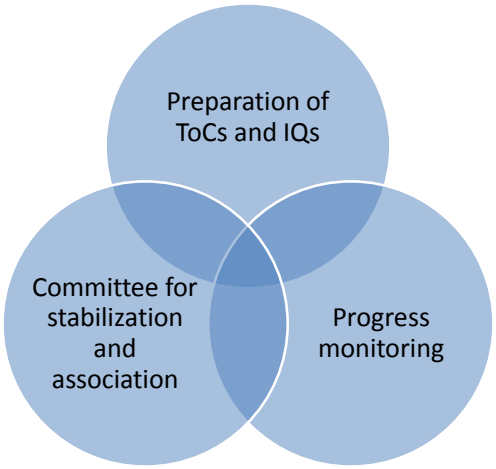
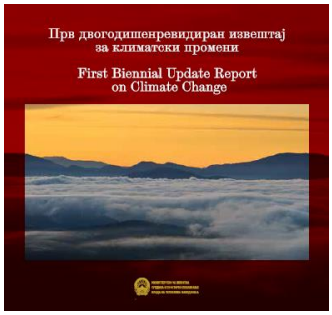
EU related requirements



UNFCCC Obligations

1	The First National Communication on Climate Change submitted to the UNFCCC Secretariat in 2003
2	The Second National Communication on Climate Change submitted to the UNFCCC Secretariat in 2008.
3	The Third National Communication on Climate Change submitted to the UNFCCC Secretariat in 2014

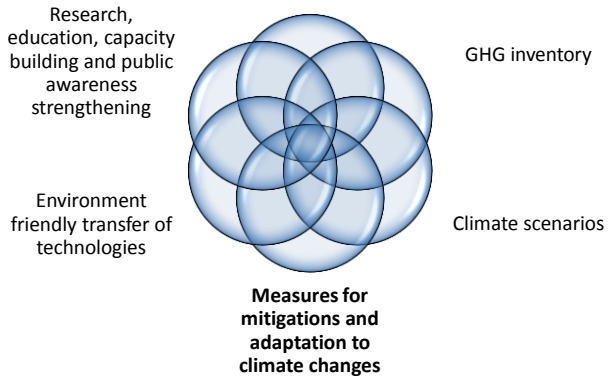


The first non-Annex I country in Europe and the CIS region to submit its First Biennial Update Report on Climate Change to the UNFCCC so far (Feb 2015), and the 11th country in the world to have done so.

Preparation of the Second BUR is in progress.

UNFCCC obligations
Preparation of national communications

OBLIGATORY CHAPTERS



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	Annex I UNFCCC countries	Non Annex I countries (including the Republic of Macedonia)	The Republic of Macedonia
GHG Inventory Requirements			
Frequency	Submit annual GHG inventories to the UNFCCC in an electronic format.	No set frequency; can be submitted in hard copy. Upon availability of resources	GHG inventory submitted in electronic format as part of the National Communication or Biennial Update Reports.
Coverage	Trends in emissions of the six primary GHGs1, from 1990 to the most recent year for which data is available; includes sectoral background data. Kyoto inventory systems have additional structural detail.	Trends in emissions for CO_2, CH_4, and N_2O only, with estimates for other gases encouraged but not required from 1990 or 1994 for the first inventory and 2000 or later for the second; sectoral background data is not required.	Trends in emissions of the six primary GHGs are reported for 1990-2012, including the sectoral background data.
Standards	Use both the IPCC Guidelines and Good Practice Guidance and thoroughly document emissions estimation methods and data sources.	Use IPCC Guidelines; use of the Good Practice Guidance encouraged but not required. Documentation of methodologies is encouraged.	The IPCC Guidelines and Good Practice Guidance used for reporting and thoroughly document emissions estimation methods and data sources, as well as 2006 IPCC Guidelines for National GHG Inventories. Also, country specific emission factors have been developed, adopted by IPCC and inserted into their EF database.
Methods	Generally adopt higher-tier methods	Generally adopt lower-tier methods	Generally adopt higher-tier methods.
Review	Subject to annual review by expert teams following agreed upon review guidelines. At least once every five years, inventory systems are subject to a more detailed in-country review. Parties to the Kyoto Protocol are subject to more rigorous review, and if review teams determine a Party's inventory report or system is deficient, the Party may be judged to be out of compliance and subject penalties	No subject to review	Subject to voluntary review by experts under the Global Support Programme (GSP). The review of the FBUR confirmed significant progress in improvement of the quality of the national GHG inventory.

Legal basis
National Plan on Climate Change

(1) For the purpose of stabilization of green house gases concentration on a level that would prevent dangerous anthropogenic impact on the climate system within a time frame sufficient to allow the ecosystems to naturally adapt to the climate change, in accordance with the principle of international cooperation and the goals of the national social and economic development, a National Plan for mitigation of climate change shall be adopted (hereinafter: National Plan on Climate Change).

(2) The National Plan on Climate change referred to in paragraph (1) of this Article shall particularly contain:

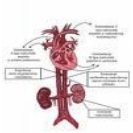
- national inventory of green house gas emissions;
- analysis and projections of green house gas emissions on reduction of the emissions;
- assessment of vulnerability and measures of adaptation;
- information and cartographical presentation of monitoring, research and systematic observation of climate change;
- action plan and measures for mitigation of climate change;
- economic analysis of the proposal measures for climate change prevention and mitigation;
- bodies, institutions and other legal persons responsible for implementation of the national plan, action plan and measures for climate change prevention and mitigation;
- description of activities and results from the public participation during the plant development;
- description of activities and the results from public awareness raising, education and professional training of the scientific, technical and management staff;
- information on the realization of obligations arising from international agreements related to climate change ratified by the Republic of Macedonia;
- other issues identified by the Minister managing the body of the state administration responsible for the affairs of the environment.

(3) The National Plan on Climate Change referred to in paragraph (1) of this Article shall be adopted for a period of six years.

(4) The National Plan on Climate Change referred to in paragraph (1) of this Article shall be adopted by the Government of the Republic of Macedonia upon proposal of the body of the state administration responsible for the affairs of the environment.

(5) The body of the state administration responsible for the affairs of the environment in consent with: the body of the state

- FINDINGS



Climate variability

In the most recent 20 years (1994- 2012) the mean annual temperature has been constantly higher than the multi-year average. Differences in the mean annual temperature in comparison with the period from 1961 to 1990 range from 0.2°C to 0.5°C

Macedonia has highly diverse climate ranging from Continental to Mediterranean and Mountainous thus, creating a challenging environment for the agriculture sector

- ↘ it is the continental climate that is prevailing, with relatively cold and humid winters and warm and dry summers.

Climate variability

Analysis of data on extreme weather events (1961-2012) indicated that the number of summer days has increased significantly in recent years compared to the number at the beginning of the analysed period.

Similarly, there has been a significant increase in the number of tropical nights in recent years.

An analysis of cold waves and cold weather concluded that cold waves occurred much less frequently than heat waves.

Climate change scenarios up to 2100

It is probable that there will be a continuous increase in temperature in the period 2025– 2100;

Compared with the period 1961–1990, the predicted changes for the period 2025-2100 will be most intense in the warmest period of the year;

It is possible that the average monthly temperatures at the turn of winter into spring will be levelled in this period;

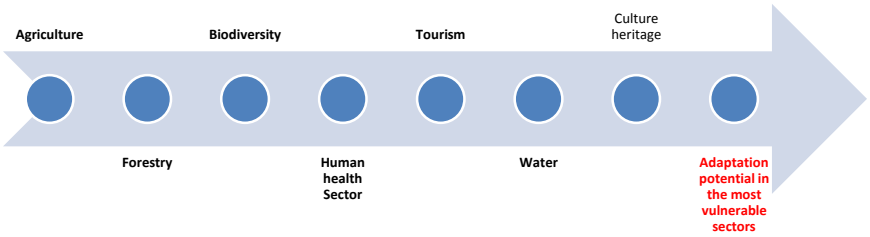
Climate change scenarios up to 2100

A decrease in precipitation is predicted in the period 2025–2100, in all seasons and at the annual level, with the maximum decrease in the summer season;

The intensity of changes is greatest in the warm part of the year (in July and August, there may be no precipitation at all); and

In the cold period of the year, decreases in precipitation of up to 40% of the average monthly quantities are predicted.

Vulnerability assessments in different sectors and adaptation



Sectoral vulnerability and adaptation analyses

- Total average **precipitation** is expected to **decrease** by 8% in 2075 and 13% in 2100. Reductions in available surface water for the Vardar River are estimated at 7.6% in 2025 and 18.2% in 2100 and for the Bregalnica River at 10% in 2025 and 23.8% in 2100. Groundwater recharge in the Vardar River Basin will decrease continuously, reaching approximately 57.6% of current recharge levels in 2100. **In conclusion, overall water availability is expected to decrease by 18% in 2100.**

Vulnerability assessment
Sector Agriculture-general

- Agricultural land covers 1. 2 million hectares that makes 49 percent of the country territory;
- Land is highly fragmented/average farm size is 1.8 ha;
- Average annual rainfall amounts to slightly higher than 700 mm per year;
- 70 000 ha of arable land are irrigated,
- Most of irrigation schemes are old, unsuitable for modern irrigation techniques;
- In terms of land degradation and erosion Republic of Macedonia is one of the most vulnerable Balkan countries;
- Dominant type is water erosion.

Vulnerability assessment
Sector Agriculture
sub sector Crop production

- In Stip region, where most important crop is winter wheat, yield decrease could reach up to 17% in 2050.
- In Bitola region, yield decreasde of alfalfa could reach 62% in 2050,
- Yield decrease of apples in Resen and grape in Kavadarci region could reach up to 50% in 2050.
- **Most dramatic are projections for yield decrease of tomato in Gevgelija region (81% in 2050**).
- Results are obtained under the assumption that crops would be planted without irrigation.

Vulnerability assessment

Sector Agriculture

sub sector Crop production

- The total **direct** economical damage for yield decrease of winter heat, alfalfa and grapes would be almost **€30 million** in **2025** and it would increase up to **€40 million** in **2100.**
- **Most vulnerable agriculture region is Central Povardarie (Kavadarci, Negotino, Gradsko, especially catchment areas of Crna Reka and Bregalnica).**

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Reducing vulnerability of the agriculture sector and increasing resiliency to climate changes

- Need for clear plan for aligning agricultural policies with climate change
- Developing key agricultural institution capabilities
- Making needed infrastructure and on-farm investments

Vulnerability assessment
Sector Forestry

- Decline of health condition for oak and fir , intensified forest dieback
- Increased population of pests (especially insects and fungi), due to the decline of health condition
- Migration of certain tree species at the highest altitudes and change of forest tree
- Increase of number of forest fires and burned area due to expected rise of air temperature

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Vulnerability assessment
Biodiversity Sector

- **Alpine zone is most vulnerable to climate changes.** Loss of the alpine belt can be expected; for example Mt. Pelister is expected to have lost its alpine belt within 50 years. Molika-pine forest belt will move upwards
- Dojran lake ecosystem and surrounding swamps can experience most negative effects form climate changes, especially in already disturbed water regime.
- Vertical movement of vegetation belts, problems in food chains of some vertebrates and their life cycle change

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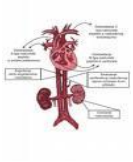

Vulnerability assessment
Human health Sector

- Increased risk from food or vector-translated diseases, increased frequency and duration of heat stress, increased mortality from cardiovascular diseases

- For some of the winter months decrease of total mortality (expressed as a monthly average) is expected in the country
- For the summer months increase of the monthly mortality rate in the country of 10% average is expected, compared to the period 1996-2000.

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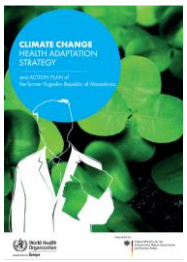
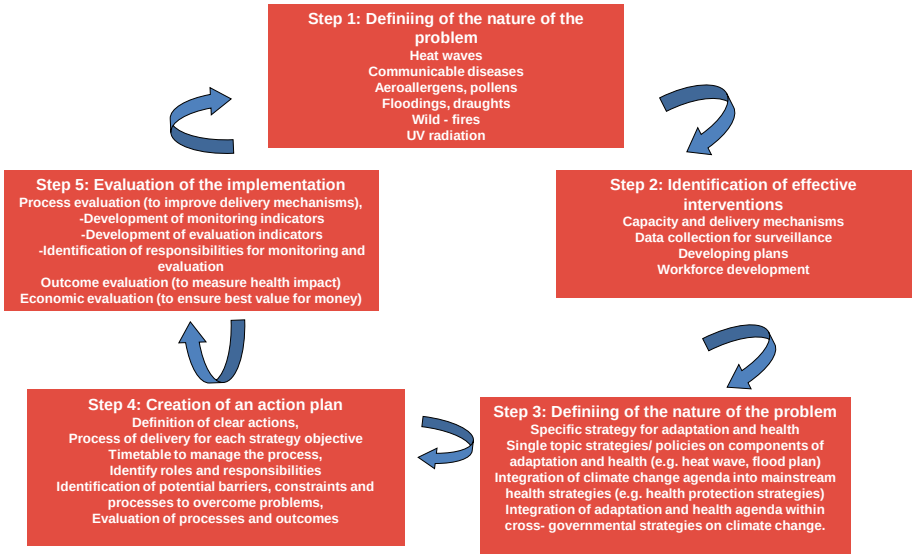
Climate change and health in Republic of Macedonia

Recognizing the magnitude of impact of climate change on health, since 2009 the country has implemented a wide range of activities with WHO support, including:

- National impact, vulnerability and adaptation assessment (2012);
- Development of the National Climate Change Health Adaptation Strategy (2011);
- Development of heat and cold waves action plans (2011);
- Economic analysis of the impact of air pollution and heat-waves in the city of Skopje (2015);
- Evaluation of the country's climate change health adaptation policy framework and heat-waves action plan, drawing lessons on institutional capacities and highlighting future focus on collaboration and coordination among various stakeholders (2015).
- Building capacity through national training workshops and stakeholders involvement with WHO support (2009 – 2016);



The approach in developing the Climate Change Health Adaptation Strategy



Climate change through Health 2020 lenses

In addition R. Macedonia is the first country in the WHO European Region to develop **national action plan for health and environment following the WHO European framework for health and well being Health 2020.**

- *The revised version of the Climate change health adaptation plan 2011 – 2016, has been updated and incorporated into the Action Plan for Health and Environment until 2020, thus allowing for whole – of a government and whole – of – a-society approach.*
- *The Health and Environment action plan has been aligned with the SDGs targets and indicators and is in process of endorsement by the Government.*

Vulnerability assessment
Tourism Sector

- Larger water consumption would require provision of a new potable water supply resources, and construction of new sewage systems for both households and industry, especially for the tourist destinations.
- The mountain tourism, whose main attraction was skiing, would suffer due to shortening of the skiing season, unless artificial snow-making takes place

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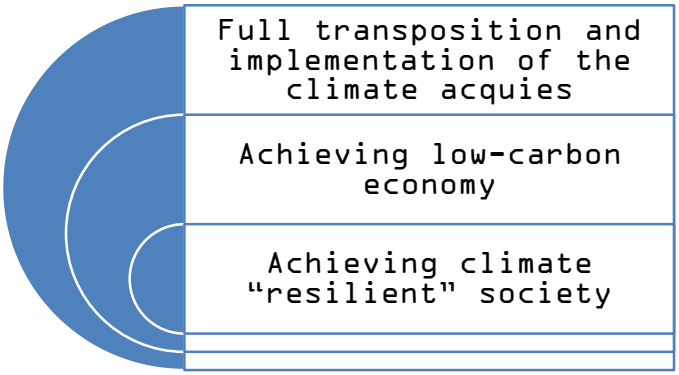
ANNEX 2:
POTENTIAL ADAPTATION MEASURES

Action	Type	Stakeholders	Timeframe	Financing (EUR where mentioned)	Constraints	Water resources	Agriculture	Health	Biodiversity	Forestry	DRR	Energy	Cultural heritage
Primary sector: Water resources													
Modification of existing water supply and irrigation systems to decrease water losses (drip, microspray, low-energy, measuring devices)	Policy	MAWFE, Public water management enterprises	Long-term	High budget		X	X					X	
Implementation technology for re-use of water (municipal, drainage, waste water)	Policy	MAWFE, Public water management enterprises	Medium-term	Medium budget	Finances, Technology aspect	X	X	X					
Inventory and GIS mapping the existing wells for groundwater use	Policy	MAWFE, Local municipalities, Public water management enterprises	Short-term	Low budget	Low public awareness	X	X						
Construction system for inter-basin water transfer	Policy	MAWFE, MOEPP, Public water management enterprises	Long-term	High budget	Finances, Access to International funding programs	X	X					X	
River basin management plan development including conjunctive surface and groundwater supply	Policy	MAWFE, MOEPP, Public water management enterprises, Local municipalities	Short-term	Medium budget		X	X					X	
GIS hazard events mapping and risk management (drought and flood)	Policy	MAWFE, MOEPP, Public water management enterprises, NGOs	Short-term	Medium budget	Lack of data	X	X	X	X	X	X	X	
Monitoring network improvement (surface water, groundwater, water use, water quality)	Capacity building, Policy	MAWFE, MOEPP, HMS, Public water management enterprises	Short-term	Medium budget	Finances	X	X	X	X	X		X	
Development of flood action plan and introducing Flood early warning system	Policy	National/local government, Ministry of Health, CMC, Red Cross, National public health institute, Centres for public health	Long term	EUR 50,000 (only for the plan)	Limited interest and understanding of nature of the problem; Current practice: wait for the impact then react	X		X			X	X	

Mainstreaming climate change

- National Strategy on adaptation on Health sector to Climate Change, 2010
- National Strategy on Agriculture and Rural Development 2014-2020 , 2015
- National strategy on waters, 2010
- Action Plan on sustainable development goals-ongoing

Goals



The work continues……..

- Set strategic and legal framework for coordinated climate action. This includes a legal base for set the responsibilities of institutions, their role and manner of exchange of information.
- Incorporation of climate actions in relevant sector strategies (e.g. energy, agriculture) and cross-cutting strategies (e.g. research and development).
- Optimise the benefits of and costs for the country, related to the costs and benefits of climate mitigation and the negative impact of climate change.
- Set intersectorial cooperation mechanism, raise awareness and strengthen cooperation among stakeholders.
- Secure participatory approach in policy development and implementation

NEEDS

- Preparation of Comprehensive adaptation strategy with financial action plan
- Preparation of sectoral adaptation action plans
- Clearing-house (web platform for shearing information on adaptation to climate change)

- Thank you for your attention

- Dr. Teodora O. Grncarovska,
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