



# **BULGARIAN NATIONAL AUDIT OFFICE**

**Audit on the adaptation measures,  
undertaken by the Government  
of the Republic of Bulgaria  
in relation to climate change**

# Adaptation



- Adaptation of natural systems and man to actual or expected climate changes or to climate change impacts.
- The adaptation could mitigate the adverse climate change impacts or to contribute to the use of favorable possibilities appeared.
- The adaptation could be spontaneous or planned in response to climate change conditions or in anticipation of their occurrence.

# Reasons for carrying out the audit



- Climate change forecasts for Bulgaria
  - winters become milder and the number of days with lowest temperatures gradually decreases;
  - the number of hot days in most level countries in South Bulgaria to be increased by 30 % and the relative share of the summer days to be increased by 18-20 % per year.
  - increase of extreme meteorological phenomena like torrential rains, hails, storms and increased flood risk;
  - general drought in summer months, reduce of soil moisture and increased fire risk.
- According to the analysis and the developed scenario for the anticipated climate changes until the end of 21st century, the average annual temperature in Bulgaria may increase by between 2°C- 5° C.

# Climate change is a global problem



- This audit is a part of a coordinated audit carried out in compliance with the Action Plan of the EUROSAI WG on Environmental Auditing for 2011-2012.
- Participation of SAIs of Austria, Norway, the Netherlands, Russia, Bulgaria, Cyprus, Malta, Ukraine and the European Court of Auditors.
- The aim of the cooperative audit is to present to the governments, European Commission and the European Parliament a summarized information about:
  - the status of the those economic sectors in the countries assessed as vulnerable to climate changes;
  - measures and activities planned in relation to climate change adaptation of the vulnerable sectors, as well as their effectiveness

# Subject of the audit



- Analysis and evaluation of the performance of adaptation measures and activities in relation to climate change undertaken by the Government especially in the fields of water management, forestry and agriculture – part of the sectors identified by the European Parliament as vulnerable.
- Implementation of the measures and activities undertaken by the Government in the field of prevention of disasters and accidents and prevention of their impact with relevance to the National Early Warning and Alerting System for the Executive Bodies and the Population, including early monitoring.

# Audit scope



- Audited period- from 01.01.2006 until 31.12.2010 ;
- The Ministry of Environment and Water is responsible for conducting the national policy for water management. This responsibility is shared with:
  - The Ministry of Agriculture and Food – in relation to the water management and the water sites for irrigation and drainage out of settlements;
  - Ministry of Regional Development and Public Works – in relation to the management of drinking water in settlements;
  - Ministry of Interior and the National Institute of Meteorology and Hydrology to the Bulgarian Academy of Science – in relation to the flood prevention, monitoring and early warning population in case of disasters.

# In addition to the audit scope



- The activity of the Ministry of Regional Development and Public Works in relation to the water management of drinking water supply in settlements, since the ratification of the United Nations Framework Convention on Climate Change in 1995, the Government of the Republic of Bulgaria assesses the agricultural and forestry as the only sectors, vulnerable to climate change.

# The main audit question



- **Are the adaptation measures and activities for sectors vulnerable to climate change being implemented effectively ?**

# Specific issues



- Was a risk assessment performed with regard to identifying the socio economic sectors vulnerable to climate change?
- Have adaptations measures for sectors vulnerable to climate changes been planned, including preventive measures and actions in strategic, mid and short - terms planning and programming documents?
- Were the necessary financial resources provided for the implementation of the adaptation measures?
- Have the adaptation measures and activities to climate change adaptation being implemented effectively, including prevention from climate change impacts at the Ministry of Environment and Water, the Ministry of Agriculture and Food and the Ministry of Interior and have the expected results been achieved?
- Has a reporting and evaluation system for the results from the implementation of the measures and activities for climate change adaptation set in the strategies and policies of the Ministry of Environment and Water, the Ministry of Agriculture and Food and Ministry of Interior been established?

# Audit approach and methodology



- The result-oriented approach is used in the audit planning process.
- Methods for collecting information – research of documents (legislative, strategic, programming and reporting, etc.), interviews with officials and on-the-spot checks.
- Methods for processing the information collected - analysis and comparative analysis, systematization of information according to certain criteria, summarizing and comparing data.

# Audit samples



- Non-statistical audit samples have been used in the process of planning and implementation of the substantive tests according to criteria preliminary defined:
  - adaptation measures and activities performed by the competent structural units within the system of the Ministry of Environment and Water and the Ministry of Agriculture and Food which to have a result, subject to a physical check.
  - the main types of activities for each of the competent structural units within the system of the Ministry of Environment and Water and the Ministry of Agriculture and Food to be comprised.

# Government 's commitments according to international agreements



- Republic of Bulgaria ratifies United Nations Framework Convention on Climate Change, United Nations Convention to combat Desertification, as well as the Kyoto Protocol and in compliance with them it should:
- - ”...formulate, applies, publishes and regularly updates national, and if necessary, regional programmes, containing measures for mitigation to climate change..., as well as measures supporting the adequate adaptation to climate change.”
- - „...making efforts to mitigate the impacts by the tendency to drought through undertaking effective measures at all levels.”

# Government 's commitments according to international agreements



- Following the adoption of Bulgaria to the EU, the European legislation acts have binding force:
  - With the adoption of Directive 2007/60/EO, on the assessment and management of flood risks, Member States should identify those river basin districts for which they conclude that flood risk exists and to prepare flood hazard maps and plans for the management of those areas.
  - In 2009 the European Commission presented the White Paper on “Adaptation to climate change – Towards a European action framework for action to be adopted by the European Parliament.
  - Resolution of the European Parliament of 06.05.2010 was adopted defining the significance of incorporating adaptation into EU policies through horizontal cross sectoral approach, based on the ecosystem’s consistency.

# Key findings in the field of water management long-term planning documents.



- Following the ratification of the United Nations Convention to Combat Desertification, a Programme for undertaking the necessary measures in terms of tendencies towards drought covering the period from 2001 to 2010 was adopted.
  - The priorities set under the programme are: preserving water resources,; overcoming the water supply crisis; providing irrigation water; forming knowledge and consciousness for economy of water resources.
  - The total expenditure for the programme implementation amounts to BGN 4 790 million , and BGN 53 million of them are defined as expenditure made for taking immediate actions.
  - Specific measures under the Programme have been implemented only in 2001.
  - There are no data that the annual submission of information under the Programme to the Council of Ministers for the implementation of the measures and activities envisaged has been performed .
  - Report for the overall implementation of the Programme has not been drafted.

# Key Findings in the field of water management irrigation and irrigation farming

- Construction of hydro melioration systems and facilities is performed mainly to the end of 1989. The irrigable land is 26% of the total agricultural land.
- Till 1999 the irrigable land is reduced twice due to the bad management of the hydro melioration systems and the sharp reduction of financial resources allocated for their maintenance.
- In the period 2006 – 2010 the funds spent for maintenance of the hydro melioration infrastructure by the Ministry of Agriculture and Food are reduced 13 times.
- To 31.12.2010 the irrigable land comprises barely 17% of the arable land and 11 % of the used agricultural land.

# Key findings in the field of water management irrigation and irrigation farming

- In the period 2006-2010 there is a clearly defined tendency towards reduction of the use of the hydro melioration systems and constructions. In 2010 there is 19,4% reduction of total irrigable land compared to 2006 and at the same time there is 77.4% increase of the water quantity used for irrigation. For the same period the good irrigable land does not exceed 8.4%.
- The increased price of the irrigation water is one of the main reasons for the reduction of the total agricultural irrigated land. In 5 years the price for the pumping irrigation has increased three times and twice for the gravitation water supply.



# Key findings – flood prevention of agricultural land



- Hydromelioration infrastructure for protection of water harmful impact comprises protective embankments and correction of rivers, retentive dam lakes, drainage pumping stations, drainage systems and fields.
- In spite of the reduced financial resources, till the end of 2010, the total area of the good drainage fields has increased by 16 % for the period 1989-1999г.
- On the spot checks of two sites - „Correction of Osam River section in 105+300,km. completely destroyed left embankment 250 m.” at Yoglav Village, Lovech Municipality and “ Major Repair of the swift-flowing of dam lake “40 Springs” at Muldava Village, Asenovgrad Municipality, Plovdiv District.



# General water management performed by the Ministry of Environment and Water



- The functions assigned to the specialized administration at the Ministry of Environment and Water and the Basin Directorates are related to monitoring, control and coordination on the implementation of the measures and activities that should ensure:
  - Commitment between the water resources evaluation in the country and the process of issuance of water use license;
  - Performing an assessment of the status of water bodies;
  - Control on observing the requirements of the issued water use licenses;
  - Control for maintaining the conductivity of the river beds and the technical status of the hydro technical facilities;
  - Development, adoption, coordination and control of the river basin management plans and providing information to stakeholders for the implementation of the measures and activities set in them.

# General water management performed by the Ministry of Environment and Water



- The only measures and activities undertaken to climate change adaptation for the period 2006-2010 are set in the river basins management plans that were approved just in 2012.
- Most of these measures and activities are performed by third persons, and no order and procedure for exercising ongoing monitoring and control, gathering and analyzing of the information and the outcome of their implementation has been provided by the Ministry of Environment and Water.

# General water management performed by the Ministry of Environment and Water



- Taking into account the drought tendency, the control exercised in relation to the use of water resources is of great importance.
- In the period 2006-2010 the number of water use licenses has increased which is an indicator for the broadened scope of the regulated water use resources in the country.
- The number of checks performed on maintenance of the conductivity of the river beds and the status of the hydro technical facilities, supporting the audit finding that the Ministry of Environment and Water has undertaken preventive measures aimed at reducing the flood risk increases .

# General water management performed by the Ministry of Environment and Water



- Within the framework of the water management policy, the Ministry of Environment and Water monitors and reports the indicator “Value/Benefit”.
- The indicator defines the ratio between the total number of licenses issued for water quantities for drinking water supply per year for the population and for the economy of the country (according to data of the water use licenses issued) and the annual quantity used (supplied) water (according to data reported by the National Statistical Institute). The status and change of the monitored indicator has not been analyzed, nor the reasons for its change in the annual reports of the MOEW have been monitored and analyzed.

# General water management performed by the Ministry of Environment and Water



- The data available for the measures and activities related to water quantity preservation as to issuance of the relevant licenses and the control exercised for observing conditions of these licenses are not enough to assess the effect of the MOEW water management policy.
- Lack of commitment among the objectives, priorities and evaluation indicators, envisaged in the long-term plans and documents in the water management sector and the indicators reported by the MOEW on the implementation of the approved policies and programmes in the field of water management.

# National System for Monitoring, Early Warning and Alerting in cases of disasters



- The National System for monitoring, early warning and alerting is introduced in the period 2007-2008.
- The system consists of two subsystems - monitoring system, realized with the establishment and functioning of the Space Monitoring Centre and the system for early warning and alerting.
- The Space Monitoring Centre comprises the activities on: monitoring, evaluation and analysis of natural processes and phenomena. The results are used for prevention and limitation of damages in case of disasters and accidents from a national significance, and the received and interpreted information allows risk and damages to be assessed.

# National System for Monitoring, Early Warning and Alerting in case of disasters



- The Space Monitoring Centre has:
  - geographical information system, digital map, three-dimensional model of terrain and specialized software for processing of images;
  - methodology for approximate evaluation of the likely quantities of rain based on the meteorological satellites database;
  - System designed for last and future flood, etc.
- The national system for Early Warning and Alerting in case of disasters is composed of two subsystems
  - for early warning and alerting the executive authorities and the components of the Integrated Rescue System
  - for early warning and alerting the population in case of disasters

# National System for Monitoring, Early Warning and Alerting in case of disasters



- To 31.12.2010. the Early Warning and Alerting System for population comprises two siren systems – an old and a new one. The new siren system could be activated by a remote control, which increases its effectiveness. However, the new siren system is still not completed and for the moment comprises only ten regions which covers only 33,18% of the whole population in the country.

# System for Reporting and Monitoring



- Significant underestimation of the processes on reporting, monitoring and control since:
  - Monitoring and reporting on the implementation of the Programme for undertaking the necessary measures in a situation of drought tendency 2001-2010 have not been performed.
  - On-going monitoring on the implementation of most of the strategic, programming and planning documents has not been performed and reported yearly or periodically;
  - The results from the national reports in accordance with the implementation of the UN Framework Convention on Climate Change (UNFCCC) requirements have not been announced.

# Recommendations



The Bulgarian National Audit Office recommends to the **Minister of Environment and Water** to:

- Initiate the assignment and development of:
  - vulnerability assessment for the sectors defined in the White Paper “Climate Change Adaptation –Towards the European Action Framework” according to the expected climate scenario for the country;
  - national strategy for climate change adaptation of vulnerable sectors to be suggested for adoption by the Council of Ministers.
- Undertake measures for providing ongoing monitoring, periodical assessment and annual reporting and announcement of the implementation of the long - term planning and programming documents, including in the field of water management.

# Lessons learnt as a result of the problem analysis in the audit implementation



- Lack of a common understanding for the subject of the audit additionally increases the risk of an ineffective communication between the auditors and audited entities.
- Planning an audit which requires a horizontal approach in studying the problems is a challenge to auditors' qualification, professional experience and knowledge in different fields.
- The tendency, noticed in Bulgaria, the implementation of activities subject to the state policy of the central bodies of the executive power to be outsourced, leads to a broadened scope of performance audits, regardless of the relationships of an administrative subordination. This creates additional risks for the audit implementation.
- Cooperative audits do not complete with the handing of the report, but for some of the auditors in the audit team they continue longer and require additional resources for the respective national SAI.

**THANK YOU FOR THE ATTENTION !**

**The report is available at the following link:**

**<http://www.bulnao.government.bg/index.php?p=2062&lang=en>**