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ECONOMIC, COMMERCIAL, TECHNOLOGICAL AND ENVIRONMENTAL AFFAIRS COMMITTEE

REPORT*

**“GLOBAL CLIMATE CHANGE: CAUSES, EFFECTS AND POSSIBLE CONSEQUENCES
FOR THE BSEC MEMBER STATES”**

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I. INTRODUCTION

1. During the four and a half billion years of our planet's history, the parameters that determine the Earth's climate have varied considerably. When the composition of our planet's atmosphere started to come close to its present-day characteristics, some three billion years ago, alternating warm and cold glacial and interglacial periods began to take place. The most recent geological period, the Holocene began 11,500 years ago, i.e. after the last ice age (18,000 years ago) and continues to this day.
2. Climate change and global warming are issues that should be taken very seriously as they have the potential to create far-reaching complications and problems that have the potential to affect our civilization. Addressing this matter by employing a conservative approach alone may prove to be far from effective, meaning that any attempt to arrest the process will need to employ next-generation technologies and solutions if it is to be effective. Greener energy sources and more sustainable industrial process may be the most effective tools we have at the moment, to stave off the most catastrophic effects of climate change.
3. While most technological options able to provide a long-term solution are still in their infancy, the resources needed to address the more specific and regional consequences of climate change may already be widely available. New construction and designs for buildings, infrastructure and even whole cities may be required to offset the effects of more severe weather and climate related problems and challenges. The most potentially successful efforts to address climate change problems are those that will utilize a mix of tools, resources and technologies in order to achieve the most effective level of results possible.
4. Climate change is a challenge now, not just a far-off problem for future generations. Existing and predicted climate problems are exacerbated by the challenge of population growth, urbanisation and migration. Climate change should be treated by governments as an issue of security and sustainable development, to be addressed with fairness and solidarity. Efforts to address climate change challenges should involve a broader base of participants and stakeholders, including, alongside governments and parliaments, local communities, civil society organizations, academia and business communities.
5. Addressing climate change is not solely about solving problems, but also about taking advantage of new opportunities. Tourism, for instance, may have benefits resulted from warming: the prolongation of the warm season near the Black Sea coast (a season relatively short compared with the Mediterranean similar locations); increased tourist demand in mountain resorts, following the need of urban inhabitants to escape the city heat waves.
6. In the 21st century environmental security is to be considered as an integral part of human welfare and well-being. Globalisation processes have entailed many problems related to environmental protection. Regional cooperation is key and thus regional bodies must be encouraged to work together more effectively on the challenges and opportunities related to climate change.
7. PABSEC welcoming BSEC Economic Agenda - Towards an Enhanced BSEC Partnership, adopted in Istanbul, 26 June 2012 by the ministers of the foreign affairs and the Joint Belgrade Declaration on Climate Change and Green Economy - BSEC contribution to Rio + 20, adopted in Belgrade, 23 April 2012 by the ministers of natural resources and environment of the BSEC Member States.
8. The Assembly has always been placing emphasis to the issue of environmental protection. The PABSEC debated on ecological problem in 1994 at the General Assembly in Tirana and adopted the Report and Recommendation 5/1994 on "Black Sea Environmental Health". In 2001 at the General Assembly in Baky the Assembly adopted the Report on "The Black Sea Environmental Health: New Challenges" and subsequent Recommendation 49/2001. In 2005 at the General

Assembly in Kyiv the Assembly adopted the Report on “Economic aspects of resolving environmental problems in the Black Sea countries” and subsequent Recommendation 81/2005. In 2007 at the General Assembly in Tbilisi the Assembly adopted the Report on “Global climate change: consequences for the BSEC states” and subsequent Recommendation 99/2007. These documents outline the basic strategy of the Assembly on this issue.

9. The present Report is based on the documents from the Commission on the Protection of the Black Sea against Pollution, competent NGOs, scientific researches and relevant Internet sites. The Rapporteur is also grateful to the national delegations of Armenia, Azerbaijan, Georgia, Greece, Romania, Russia, Ukraine and Turkey for providing necessary information concerning the situation in this field.

II. CURRENT CLIMATE CHANGE IN THE WORLD

10. There is a strong scientific consensus that most of the global warming in recent decades can be attributed to human activities and that the global climate change has already led to rising surface air temperatures, increasing average global sea levels, retreating glaciers and changing many physical and biological systems. This consensus is attested to by a joint statement signed in 2005 by 11 of the world’s leading national science academies representing Brazil, Canada, China, France, Germany, Italy, India, Japan, Russia, the United Kingdom and the United States. The Statement stresses that the projected changes in climate will have both beneficial and adverse effects, for example on water resources, agriculture, natural ecosystems and human health.
11. The larger and faster the changes in climate, the more likely it is that adverse effects will dominate. It is also noted that the major parts of the climate system respond slowly to changes in greenhouse gas concentrations and even if greenhouse gas emissions were to be stabilized instantly at today’s levels, the climate would still continue to change as it adapts to the increased emission of recent decades. The Statement concludes that the further changes in climate are unavoidable and that the nations must become prepared for them.
12. Human-induced climate change is caused by greenhouse gas emissions from industry, transport, agriculture and other vital economic sectors. Carbon dioxide makes the largest contribution to enhanced climate change. Fossil fuels (coal, oil and gas) are the greatest source of humanity’s carbon dioxide (and of black carbon, which is soot resulting from incomplete combustion) as well as significant quantities of methane and nitrous oxide. Deforestation and other land-use changes also release large amounts of carbon dioxide. Methane is produced by domesticated animals, rice paddies and the disposal and treatment of garbage and human waste.
13. Fertilizer use releases nitrous oxide. Industry has created a number of long-lived and potent greenhouse gases for specialized uses, such as CFCs, HCFCs and sulphur hexafluoride. Most energy from the sun reaches the Earth in the form of visible light, which either scatters back out to space or penetrates the atmosphere to warm the surface. Because the Earth is much cooler than the sun, it emits energy as infrared, or thermal, radiation. Infrared radiation cannot pass straight through the air like visible light, but most of the Earth’s infrared radiation does eventually escape to space, while some of it is blocked by greenhouse gases. As these gases increase, more infrared energy is trapped in the lower atmosphere, further warming the Earth’s surface.
14. The correlation between carbon dioxide concentrations and global temperature over the past 800,000 years has been well demonstrated. It is sometimes claimed that global warming results from changes in energy from the sun. Since 1750, the average amount of energy coming from the sun has either remained constant or increased slightly. However, if warming had been caused by a more active sun, then scientists would expect to see warmer temperatures in all layers of the atmosphere. Instead, they have observed a cooling in the upper atmosphere, and a warming at the surface and in the lower parts of the atmosphere. This is because greenhouse gases are trapping

heat in the lower atmosphere before it can reach the stratosphere. Climate models that include only changes in solar irradiance are unable to reproduce the observed temperature trend over the past century or more without including a rise in greenhouse gases.

15. Today climate is directly observed by thousands of weather stations; measuring instruments carried into the upper atmosphere by balloons, kites, airplanes and rockets; merchant ships that take measurements of the atmosphere and the oceans; wind profilers, radar systems and other specialized sensors; a globally coordinated fleet of Argo buoys that monitor sea temperatures and currents; and remote sensing satellites that measure cloud cover, temperature, water vapour, atmospheric chemistry, sea level, ice caps, forest cover, and other global climate variables. High-speed telecommunications systems and the Internet distribute vast amounts of data from these instruments to data processing and research centers.
16. These climate observations show a clear warming signal that is greater than what can be attributed to non-human causes. They are gathered by agencies and networks that cooperate through the Global Climate Observing System (GCOS) and Global Atmosphere Watch (GAW) programme.
17. The climate system is extremely complex. The atmosphere responds to additional greenhouse gases by warming up, which leads in turn to changes in clouds, water vapour, snow and ice cover, and the oceans. Additional variables include pollution, deforestation, urbanization and other human activities. These diverse effects influence one another, and the resulting interactions can amplify or reduce climate change.
18. Global temperatures continue to climb. The global average temperature is estimated to have risen by 0.6°C over the course of the 20th century. Although the rate of warming varies from year to year due to natural variability, the human-induced warming trend has continued. 2001-2010 was the warmest decade on record since modern temperature monitoring began around 160 years ago. The global combined land-air surface and sea-surface mean temperature for the decade is estimated at 0.47°C above the 1961-1990 average of 14.0°C . Globally, 2010 is estimated to be the warmest year ever recorded since modern measurement began, closely followed by 2005. No single year since 1985 has recorded a below-average mean. The 2001-2010 decade was also the warmest ever recorded for each continent. Europe and Asia recorded the largest average temperature anomaly for the decade ($+0.97^{\circ}\text{C}$), while South America recorded the lowest decadal temperature anomaly among the continents ($+0.41^{\circ}\text{C}$).
19. The upper layers of the oceans expand as they heat up, while water from melting glaciers and ice caps add to the volume of the sea. Local variations in currents and in land movement mean that the rise in sea levels is not uniform, so some coastal regions are more affected than others. As warming penetrates deeper into the oceans and ice continues to melt, sea levels will continue to rise. Although the global average temperature is rising, some regions of the planet nevertheless experience unusual cold.
20. Recent trends in extreme events are consistent with the expected impacts of climate change. Human influences have likely increased temperatures of the most extreme hot nights, cold nights, and cold days, and it is more likely than not that human-induced climate change has increased the risk of heat waves. There have been statistically significant trends in the number of heavy precipitation events in some regions.
21. While climate scientists believe that it is not yet possible to attribute individual events to climate change, they increasingly conclude that many recent events would have occurred in a different way or would not have occurred at all in the absence of climate change. Studies are currently ongoing to determine what percentage of various types of extreme event can be attributed to climate change, and how climate change affects the probability of such events occurring.

III. INTERNATIONAL FRAMEWORK

22. The World Summit held in Rio-de-Janeiro in 1992 where for the first time the UN was called on to assist the governments in re-defining the principles of economic development and to seek the ways for reducing irrational management of nonrenewable natural resources that lead to global pollution serves as a starting point in contemporary consideration for ecological problems. The governments have recognized necessity for reorientation of international and national economic policies and economic decision-making by taking seriously into account the ecological factor.
23. Some other global conventions concluded in the field of environmental protection and to which a number of the PABSEC member states have adhered are of special importance: the UN Framework Convention on Climate Change (New York, 1992); Kyoto Protocol to the UNFCCC (Kyoto, 1997); the Geneva Convention of 1979 on Long-range Trans-boundary Air Pollution; Convention of the Protection and Use of Trans-boundary Watercourses and International Lakes (Helsinki, 1992). The need for the legislative harmonization and common political strategy in controlling pollution level in the Black Sea region is a key factor for launching the implementation of the plan of action.
24. The Bucharest Convention, signed in April 1992 and ratified by all states and entered into force in 1994 provides a legal basis for cooperation and liability framework, upon which the individuals can claim damages inflicted on their territories. It is of prime importance that the Convention acknowledges the need for closer cooperation with the competent international organizations based on a coordinated regional approach in the field of protection and utilization of the marine environment of the Black Sea area.
25. Following the conclusions of the Rio Earth Conference in 1992, the Ministers of Environment of all six Black Sea coastal states signed in Odessa in April 1993 a declaration on specific tasks, priorities and goals. This meeting resulted in launching a necessary formal government authorization paving the way towards beginning of cooperation in rendering assistance in developing strategies and initiatives for low waste technologies, health and environmental impact assessment and introduction of user fees.
26. In 1993 the Black Sea countries requested assistance from the GEF - The Global Environmental Facility established under the management of the World Bank, the UN Development Program and the UN Environmental Program. Following the three years' sponsorship by GEF in collaboration with the EU, Canada and Japan a coordinated Black Sea Environmental Program (BSEP) has been established. Given the fact that communication facilities and dissemination of information acquire significant importance in implementing priorities and facilitation of environmental management the Activity Centres were set up in the countries and the Program Coordination Unit (PCU) was established in Istanbul. The BSEP became a key element for the Black Sea region in providing analyses of environmental degradation.
27. The problem of nature conservation in the South Caucasus became the topic for discussions within the framework of Caucasus Initiative intergovernmental cooperation starting in 1999. Within this programme Armenia has concluded a number of agreements with Germany. Armenia leads close cooperation with Georgia, Greece and Russia through the framework of bilateral agreements in the field of environmental protection. Presently Azerbaijan has concluded more than 15 agreements with foreign oil companies for mining and production of oil. Realization of these contracts is carried out by many foreign oil companies jointly with Azerbaijani specialists. During mining and exploitation of the oil fields activity of ecologists and oil concerns is carried out in accordance with

internationally adopted standards and conventions and most advanced and modern technologies are to be applied.

28. The established cooperation between Bulgaria and Romania serves as a good example of bilateral cooperation between the PABSEC member states. Within the framework of the activities of the Intergovernmental Commission on environmental protection a number of important multilateral instruments were concluded, among them: Convention on Environmental Protection; Convention on Protection of Black Sea Against Pollution; Convention on Cooperation for the Protection and Sustainable Use of the Danube River; Protocol regarding the Meeting of the Ministers of the Environment of Romania and Bulgaria in 1999; Protocols regarding the Intergovernmental Meetings of the Ministers of the Environment of Romania and Bulgaria; Declaration on Cooperation among the Ministries of the Environment of Bulgaria, Moldova, Romania and Ukraine for the Creation of a Lower Danube Green Corridor; and a Five Years' Programme for the period 2000-2005 by the Ministries of the Environment of Romania and Bulgaria.
29. Special Agreement on environmental protection and rational management of natural resources (2003) regulates interaction in this field between the Ministries of the Environment of Ukraine and Bulgaria. At the same time, the regular discussions taking place within the framework of the Bulgaria-Ukraine Intergovernmental Commission on trade and economic cooperation bring additional contribution.
30. Given the fact that five PABSEC countries are at the same time the members of the CIS, it has to be noted that within the CIS framework the Agreement on Cooperation in the Field of Ecology and Protection of Natural Environment has been concluded and the Intergovernmental Ecological Council of the CIS functions based on this document.
31. The European Union, in its turn, is at the forefront of international efforts to combat climate change. The EU is taking serious steps to address its own greenhouse gas emissions. In March 2000 the Commission launched the European Climate Change Programme (ECCP) with a range of new policies and measures.
32. At the initiative of the European Union the Durban climate conference in December 2011 launched negotiations to develop a new international climate change agreement that covers all countries. The agreement will take the form of a protocol, another legal instrument or an agreed outcome with legal force applicable to all Parties. It will be adopted in 2015 and implemented from 2020. The agreement is being negotiated through a process known as the Durban Platform for Enhanced Action.
33. The Durban climate change conference acknowledged the urgent need to step up global action to cut greenhouse gas emissions before 2020 to address the gap between current emission pledges and the reductions needed to keep global warming below 2°C. The Durban Platform for Enhanced Action includes a work stream on raising the ambition of pre-2020 emission reductions.
34. In March 2013 the European Commission published a Consultative Communication which launches a public debate on how best to design the 2015 agreement. The paper raises a number of key questions and invites the views of stakeholders, Member States and EU institutions. At the Doha climate conference in 2012, a detailed work plan was agreed which sets out a schedule of events and suggests themes to be addressed in order to take this work forward in 2013-2014.

IMPACT OF THE CLIMATE CHANGE ON THE DEVELOPMENT OF AGRICULTURE

35. Studies on the possible impact of global warming on agriculture, lead to different conclusions. There have been both positive results and dramatically negative scenarios. A number of experts point to the probability of a minor positive impact on grain yields in temperate zones mid-and high

latitudes due to a slight increase in temperature. But as the temperature increases further, the positive effects turn into losses.

36. The first tangible consequence on agriculture is the reduction of productivity, an effect that may be outweighed by the improved cultivation techniques and increased water demand. The Southern crops tend to develop more to the Northern areas, and therefore a dislocation of the usual area is noticed: the variability of the yield is larger, generally tending to lower production; there are soil alterations such as erosion and increased levels of salinity; and livestock diseases suffer from more pathological issues.
37. Small farmers are particularly vulnerable to climate change, as they have more difficulty dealing with economic and social hardship. Moreover, challenging environmental conditions increase their vulnerability and reduce their ability to adapt. Rural areas are the most exposed to climate change, especially poor rural areas, where agricultural activities are basis of everyday life.

INFLUENCE OF THE CLIMATE CHANGE ON HUMAN HEALTH

38. Health incidents during periods of extreme temperatures seem to be the most frequent manifestation of climate change effects on public health. The frequency of cardiovascular and infectious respiratory diseases has increased in the context of a warmer, more humid climate.
39. According to the World Health Organization for the past 100 years, world temperature has increased by about 0,75 °C. Over the past 25 years, the rate of global warming has accelerated, exceeding 0,18 °C per decade. The warming of the changing boundaries of habitats of animals and insects, including the peddlers of dangerous infectious diseases (tick-borne encephalitis, tick-borne Lyme disease, hemorrhagic fever, West Nile fever). Medical institutions in the BSEC region may not be ready to prevention, diagnosis and treatment of atypical for the area of diseases.
40. Among the other effects possible to mention: increase in deaths, injuries, accidents due to extreme natural events, especially in vulnerable groups; increase in pathogens infection incidence increases/expands range to more countries; diseases due to the contamination of water supply; increased health problems for the coastal population which is connected to sewerage systems discharging directly into the sea; indirect health consequences of extreme natural events, especially flooding (e.g. cholera, dysentery and hepatitis A). Vulnerable groups (e.g. migrants, people living in remote, isolated communities) are particularly at risk, as they have limited access to effective medical assistance.

IV. SITUATION IN THE BSEC MEMBER STATES

41. Right after signing the Bucharest Convention, providing the international legal basis for the joint action, ecological programmes have been elaborated within the framework of the BSEC Working Group on Environmental Protection in cooperation with the European Commission (PHARE and TACIS programmes), specialized bodies of the UN (UNDP and UNEP), the World Bank, etc.
42. The BSEC Working Group on Environmental Protection places importance on cooperation of the BSEC member states in the field of ecological protection based upon the Bucharest Convention and Odessa Declaration, as well as strengthening of the cooperation in four directions: monitoring air, water and soil pollution; elimination of ecological consequences caused by industrial catastrophes and natural calamities; nature conservation and management strategy with attention to the areas; development of tourism which has immense potential for the area only considering environmentally friendly activities.
43. The Black Sea Environmental Programme was signed on 31 October 1996 with participation of six BSEC member states: Bulgaria, Georgia, Romania, Russia, Turkey and Ukraine. This Programme is primarily oriented to realization of the Strategic Action Plan for the Rehabilitation and Protection of the Black Sea. The Strategic Action Plan envisages cooperation in three directions:

reduction of pollution, living resources management (fish spawning, protection of human health) and sustainable human development in the coastal zones. The cooperation has to be based on elaboration of national action plans in each country.

44. The new BSEC Economic Agenda “Towards an Enhanced BSEC Partnership” adopted in 2012, is set to be introduced to face the new challenges and opportunities in the global and local environment. This new regional strategy sets goals in 17 priority areas of action, including the issues concerning the environmental protection and conservation.
45. During the Working Group meeting on Environmental Protection took place in May 2013 in Istanbul Turkey has proposed a Work Program/Plan of Action of the BSEC Working Group on Environmental Protection (2012-2013). Besides the proposals concerning the strengthening the cooperation between the BSEC Member States in this field, there also was mentioned the importance of the preparation of the Meeting of Environmental Ministers of the BSEC Member States, which will assess the progress achieved in the implementation of the Action Plan and adopt new objectives and priorities to enhance the BSEC cooperation in the field of environmental protection.
46. The BSEC continues its cooperation with the UN on the issues of ecological safety in terms of agriculture and food. This cooperation is implemented through the technical assistance of the UN FAO. In 1997 the European Commission offered the BSEC to deepen its cooperation in four main fields including sustainable development, environmental protection and nuclear energy. Meeting this proposal the BSEC elaborated in 1999 “The Platform of Cooperation between the BSEC and the EU”. This document states that the cooperation in the fields of sustainable development and environmental protection including nuclear safety should be deepened.
47. The BSEC Member States endorsing their intention to proceed with European integration underlined that establishment of the common market with the EU could speed up resolution of the environmental problems. Realization of this strategy requires from the candidate countries immense investments both from state and private sector supported by the external assistance from the international financial institutions. The EU is the main donor in this area and cooperation between the BSEC and the EU could become a foundation for coordination of the activities in environmental policy.
48. In the light of further accession to the European Union, Romania and Bulgaria have adopted long-term ecological strategy within the framework of the provisions of the Maastricht Treaty. These countries adopted two main directions in their activities: legislative harmonization (compatibility with the European acquis) and institutional reforms requiring development of adequate institutional framework with the capacity to monitor and implement the body of the European law.
49. In addition, in conformity with the EU legislation the candidate states have to take up the following measures: establishment of operative Ecological Foundation, functioning as an economic instrument for main investments in the environmental sector; publication of the special assessment of expenses and relevant financial plans for implementation of main directives.

ARMENIA

50. The research that began in the early 90ies and continues up to present day shows that the rate of average annual increase of air temperature on the territory of the Republic of Armenia steadily run ahead the global temperature increase by about 50% (according to the latest data the temperature on the territory of the Republic of Armenia was raised by 1,03°C while the global temperature was raised only by 0.70°C). If such a tendency continues then the raise of the global temperature by 2°C will entail the increase of the temperature in Armenia by 3°C that will lead to rather undesirable consequences. According to the Armenian scientists it is necessary to aim at limiting the raise in the global temperature by no more than 1.5 degrees.

51. Adaptation to global climate change is a priority task for Armenia due to the high level of vulnerability of its mountain ecosystems to climate change as well as its geographical location in the arid zone with no access to the sea. Given this circumstances, Armenia participates in the UN Framework Convention on Climate Change within the informal negotiating “Group of Mountain Landlocked Countries”. The most vulnerable sectors for the Republic of Armenia are agriculture, water resources and natural ecosystems.
52. In the framework of the adaptation measures, Armenia has declared and continues to adhere to the “ecosystem approach”. This approach, among other things, provides synergies with other global and regional environmental conventions. The Government of Armenia in its Resolution N1594 of 10 November 2011 expressed its intention to adopt the National Adaptation Plan (NAP) by 2015.

AZERBAIJAN

53. Azerbaijan did not escape the impact of global climate change either. On the territories of Azerbaijan over the past 100 years the annual average temperature has increased from 0,4°C up to 1,3°C. On the territories of Azerbaijan the distribution of increase of temperature is rather unequal in the regions. Thus, in the Great Caucasus high mountain regions the increase of average annual temperature varies from 1,1°C up to 1,3°C. Over the past 10 years frequency and strength of floods in smaller mountain rivers of the country has increased. One of the reasons for this is a monthly norm of rainfall in these regions in a single day. In the past years, especially in the period 2003-2010 due to the heavy floods in the Kura and Araz rivers damaged the adjacent villages, greatly affected agricultural lands and livestock farms. As a result of the strong winds on the territories of Azerbaijan great number of electric power lines was broken.
54. In recent years in the Republic of Azerbaijan considerable work has been done in the sphere of fighting against the consequences of climate change. In 2012 the “Support to Energy Market Integration and Sustainable Energy in the NIS (SEMISE)” project was launched in the countries of the Commonwealth of Independent States (CIS) in the framework of the INOGATE program. This project is one of the key issues in the context of the energy efficiency.
55. In the auspices of the Organization of the Black Sea Economic Cooperation the Azerbaijan Oil and Gas Institute and the Scientific Research Institute of Geotechnological Problems of Oil, Gas and Chemistry in cooperation with the Energy Policy and Development Center of the National University of Athens have prepared a Report on the mitigation of the climate change consequences in Azerbaijan under the program “PROMITHEAS-4”.
56. With the support of the European Union Azerbaijan participates in a regional technical assistance project “Clima East”. With the support of the Foundation for the Non-Governmental Organizations the work is carried out to raise public awareness regarding the programs on alternative energy resources.
57. With the active participation of NGOs the work is carried out in the sphere of adaptation response to climate change impact for conservation, protection and sustainable use of agro-biodiversity in arid and semi-arid ecosystems of South Caucasus. Regional climate scenarios of the South Caucasus are elaborated for the period until 2050 and also the areas vulnerable to climate change are identified on the territories of Azerbaijan, also maps of the territories are prepared in case of deluges and floods.
58. For Azerbaijan adoption of measures of adaptation to climate change is the priority. With this purpose it is planned to adopt in coming years the National Action Programme within the framework of the Third National Communication on Climate Change. This program will include elaboration of the program for the implementation of the effective adaptation strategy. Among the main issues included in this program are: improvement of scientific basis for decision-making; development of methods and instruments for evaluation of adaptation measures; and development

of educational programs. One of the most topical issues is setting up of an automated notification system in the event of dangerous weather situations.

59. Azerbaijan acceded to the United Nations Framework Convention on Climate Change in 1995. In 1997 the State Commission on Climate Change was set up in Azerbaijan. Since 2000 Azerbaijan is a party of the Kyoto Protocol but is not a party of the Annex 1 of the UN Framework Convention on Climate Change. By the Decree of the President of the Republic of Azerbaijan in 2005 the Ministry of Ecology and Natural Resources was appointed as the executive body of the Clean Development Mechanism of the Kyoto Protocol. In Azerbaijan the State Agency on Alternative and Renewable Energy Sources has been set up in the energy field.

GEORGIA

60. Global Climate Change in Georgia is expressed in changes in basic climatic parameters: annual average and extreme temperatures, precipitation, relative humidity, precipitation patterns and wind. Rise of temperatures and precipitation as well as changes in precipitation pattern is observed in both - West and East parts of Georgia. These changes are causing multiple impacts on human health, life quality, ecosystems and economy. Heavy rains, extreme weather events, often accompanied with floods, mudflows, avalanches, landslides have been frequented for the last 20 years. Changes in precipitation pattern – long heavy rains with consequent long-lasting dry periods, changes in seasons have been observed. Glaciers melting, desertification, degradation of land and water-marine ecosystems, forests, mountains, abrasion of coastal zone, desertification and the decrease of biodiversity are incomplete list of climate change impacts in Georgia.
61. Agriculture is the field most affected by global warming as it is related with various ecosystems each impacted in their specific way, causing combined problems to the husbandry. Rising temperature accompanied with changing precipitation patterns with prolonged periods of heavy rains and droughts are heavily affecting water resources and agriculture: agricultural soils are degrading due to changing ratio of humidity and temperature, shifted seasons and frequented extreme weather events, leading to decrease of humus of the soils with consequent reduction and deterioration of quality of crop yields.
62. Georgia is a part of the UNFCCC since 1994 and is leading its climate-related policy in accordance with the principle of the Convention and the commitments to it. So far, Georgia has submitted two National Communication reports to the Convention, reflecting, as required by the Convention, the results of serious studies on climate change impacts, vulnerable areas of the country and possible measures. Georgia is making consistent steps in directions of mitigation of and adaptation to climate change. In both directions, Georgia is implementing various projects. Special attention is made on technology renovation as one of the most important means for success of A/M measures. On the basis of technology needs assessment study conducted lately several technologies for CC adaptation and mitigation have been identified. Re-equipment of observation stations and early warning systems is also considered as a priority area for technology.
63. Regardless the fact that Georgia's national global greenhouse gas (GHG) emissions have been drastically decreased since 1990s the country aims at keeping the low level of its emissions despite the growing economy. In parallel to concrete projects aiming at GHG emission reduction, preference for systemic approach led Georgia to the intention of elaboration of a policy document embracing GHG mitigation actions: In June 2011 Georgian Government has approved the concept of low emission development strategy (LEDS) and in January 2013 a project aiming at elaboration of the LEDS, based on the Memorandum of Understanding signed between the Georgian and USA Governments in December 2012 was launched. The Strategy is expected to be prepared in 2015, and it will serve as a basis for elaboration of concrete actions and projects for GHG mitigation. Technology renovation and energy efficiency will be priority directions in Georgia's mitigation efforts.

64. Georgia ratified UNFCCC (United Nations Framework Convention on Climate Change) on 29 October 1994 and has accessed to the Kyoto Protocol on 16 June 1999. From the three flexible mechanisms defined by the Kyoto Protocol, Georgia, as a Non-annex I party to the UNFCCC can participate only in Clean Development Mechanism (CDM) projects. Nowadays Georgia has registered 5 CDM projects, several proposals are in different stages of their way to registration. By the Decree of the Government of Georgia dated 20 January 2005 the Ministry of Environment Protection and Natural Resources of Georgia was appointed as Designated National Authority (DNA) for CDM.
65. Georgia's Black Sea coastal zone is one of the most vulnerable ecosystems to global warming in the country. Because of current global warming, several major hazards were revealed for the Black Sea ecosystem: the rate of eustasy (sea level rise relative to land) has accelerated to 2.6mm/yr; the intensity and frequency of storms for the last 20-30 years has increased almost by 50-70%; and the increasing intensity of sedimentation processes in the deltas of glacier-fed rivers and changing thermal features of the sea.
66. Besides these indicators directly linked with the marine ecosystem, an important role is played by air temperature changes and the growing probability of heat waves during the touristic season.

GREECE

67. The regions around the Mediterranean basin have a particular type of climate, known as 'Mediterranean', characterized for the most part by mild to cool wet winters and warm to hot dry summers. Situated at the southern end of the Balkan Peninsula (Aemos Peninsula), Greece has a complex topography which, together with the prevailing weather systems, accounts for a strong spatial variability of climate conditions. As a result, the climate can vary from Mediterranean to alpine within just a few dozen kilometers. Another predominant feature is Greece's extensive coastline, which along with the topography influences a number of local climate characteristics, sometimes causing significant differences from what is considered a typical Mediterranean climate.
68. The deterioration in urban air quality as a result of human activity warrants particular interest. Air pollution can be defined as the perturbation of the atmosphere's natural chemical composition, due to increased concentrations of some of its components and/or to the introduction of additional substances, mainly of anthropogenic origin. Almost all megacities have some degree of air pollution, due to the activities of their populations (industry, traffic, energy and heat production, with pollutants classified as primary or secondary.
69. Primary air pollutants are emitted directly into the atmosphere from the pollutant source and can include soot, sulphur dioxide, carbon monoxide, nitrogen oxides, hydrocarbons and other organic gases, lead oxides and various suspended particles of organic and inorganic compounds of anthropogenic or natural origin. Secondary air pollutants are not directly emitted as such, but form when primary pollutants react in the atmosphere (physico-chemical transformation), especially in areas and time periods with abundant sunshine. One such secondary pollutant is tropospheric ozone.
70. Agriculture is the sector that will suffer the strongest impacts from climate change. Changes in climatic conditions due to the carbon dioxide concentrations in the atmosphere will significantly affect crop growth rates as well as water availability, thereby negatively affecting agricultural productivity. According to the findings of the agriculture study carried out using the AQUACROP model, crop yield changes will vary, depending on the crop type and the geographic location, from -75% to +26% by 2100.

71. Also directly dependent upon the climate are the production activities related to forests and water ecosystems. The production of timber will be negatively affected, while predominant drought, combined with higher temperatures, will considerably increase fire frequency. The impact on the fisheries sector is expected to be negative, but of relatively limited magnitude. As estimated in the sectoral analysis, a 3.3°C rise in sea temperature by 2100 would cause fishing yields to drop by 2.5%.
72. The coastal systems, where a considerable share of the population and production activities (indicatively, 80% of all industrial activities, 90% of the tourism industry and 35% of agricultural activities; are concentrated, will suffer from the gradual rise in sea level, as a result of the deterioration to coastal infrastructure and of capital losses. According to the analysis of the coastal systems sector, a 0.5 m rise in sea level would result in land loss (i.e. loss in tourism, residential and agricultural usage land, forests and wetlands) of a total value of €355.76 billion. To this, one would have to add the damage costs to port infrastructure and the cost of gradually relocating the coastal populations.
73. A series of sectoral studies analysed the biophysical impact of the anthropogenic (human-induced) component of climate change and estimated the costs of climate change, disaggregated by sector, across time horizons extending to 2050 and 2100. The findings of the sectoral studies were then incorporated into a general equilibrium model of the Greek economy, in order to estimate the overall cost of climate change in terms of changes in GDP, social welfare and sectoral output. The sectoral studies also helped define the scope for adaptation to climate change through preventive measures. The next step was to assess the total cost for the Greek economy of adaptation measures, as well as the cost savings that can be achieved thanks to these measures, given that the damage from climate change would be reduced.
74. Future studies will have to look deeper into the fundamental strategic question of how dealing with climate change and reducing emissions can help boost growth in all sectors of the economy. This opportunity, if properly seized, could help reduce the costs of the mitigation and adaptation policies. New technologies, new activities, new standards for buildings and means of transportation, as well as the reorganization of production activities need to become the focus of the new growth effort aiming at a low-emissions economy and protection against possible climate change-induced damage.
75. It is important, in further examining the impact of anthropogenic climate change, to take the sectoral studies deeper, by disaggregating their analysis by geographical area and focusing on the more vulnerable areas and the more vulnerable social groups. Pursuing this research in greater depth, enlarging its scope and disseminating its findings could all contribute decisively to creating a “critical mass” in society, which would, whenever necessary, push for proper policy decisions on climate change on the basis of long-term planning, and not in a myopic manner dictated by short-term political cost-benefit considerations, which would only multiply the burden on future generations. The continuation of this project will provide both a challenge and an opportunity.

ROMANIA

76. Romania’s territory, as a whole, has experienced a 0.50C increase in average annual temperature since 1901. Annual quantities of precipitations have been steadily decreasing, especially in the centre and SE of Romania. Tropical days are more frequent, and winter days are increasingly rare. The thickness of snow layers has decreased significantly in the NE, centre and W of Romania while, across the country, the annual frequency of white frost, glazed frost and soft rime has significantly increased.
77. Climate forecasts for Romania in the medium to long term reveal that average annual temperatures will continue to steadily increase, especially in summer and winter. Thus, despite the fact that the country will continue to have a temperate climate and four seasons, the temperate climate will be

significantly different in the next 50-100 years. At country level, there will be a 2OC increase in average winter temperatures and over 3OC increase in average summer temperatures. Heat waves will be a common occurrence, and will mostly impact cities – in urban areas the heat will be accentuated by the building environment, thus endangering the health of the population.

78. Sectors identified to be directly affected by the temperature increase and modification of the precipitations regime and extreme weather include: biodiversity, agriculture, water resources, forests, infrastructure, tourism, energy, industry, transport, health & recreational activities. While adaptation measures are needed for all these sectors, agriculture is a priority as it regards the security of food supply.
79. The primary legislation contains mainly multilateral environmental treaties in the field of climate change and the strategies and action plans developed for the implementation of these treaties. The general environmental legislation including climate change aspects refer to: environmental protection, with special chapters on atmosphere protection, climate change, emissions trading, national registry, national inventory and the general requirements concerning the environmental permit, the control procedure, and others; integrated pollution prevention and control.
80. Some specific legal acts related to energy, transport, agriculture and waste include or refer to climate change aspects. Among those, the laws/Government decisions on: the establishment, organization and operation of the Romanian Energy Efficiency Fund; the efficient use of energy; electric energy; the promotion of energy produced from renewable sources; land filling of waste; the limitation of emissions from large combustion plants; the Forest Management Code; the protection of new plant species; drinkable water; mountain area; Romania's inner sea waters etc.
81. The Ministry of Environment and Climate Change is the main responsible for policy making in the field of climate change, through: developing national policy on climate change and coordination of the activities pertaining to the implementation of this policy at central, regional and local levels; coordinating the development, implementation and updating of the National Strategy on Climate Change and the National Action Plan on Climate Change; ensuring the integration of policies on greenhouse gas emission reductions into other sectoral policies; coordinating the national system for estimating emissions/removals; acting as UNFCCC focal point and representing the Romanian Government in UNFCCC negotiations and other international meetings on climate change; coordinating the implementation of the flexible mechanisms as required by the Kyoto Protocol; participating in the transposition and coordination of the implementation of EU emission trading legislation.
82. The National Commission on Climate Change, established in 1996, as advisory body, aims to support the integration of climate change policy in other sectoral policies and to provide advisory services related to the approval of the National Communications and GHG inventories, as well as the approval of JI projects and emission trading activities.
83. According to the current environmental regulations, almost all ministries are integrating environmental protection measures (including climate change) in their sectoral policies; therefore, those ministries are part of the institutional framework.
84. In Romania's first National Climate Change Strategy for the period 2005-2007, climate change adaptation issues were highlighted in the chapter "Impact, Vulnerability and Climate Change Adaptation", which briefly detailed the effects of climate change adaptation on the following sectors: agriculture, forestry, water management, and human settlements.
85. In response to the EU Green Paper "Adapting to climate change in Europe - options for EU action", in 2008 Romania developed the Guide on the adaptation to the climate change effects. The guide provides recommendations to reduce the risk of the negative effects of climate change in 13 key sectors as follows: agriculture, biodiversity, water resources, forests, infrastructure,

construction and urban planning, transportation, tourism, energy, industry, health, recreational activities, and insurance.

86. The new National Climate Change Strategy for the period 2013-2020, currently under final approval procedures, addresses both mitigation and adaptation to climate change. The adaptation component aims to provide an action framework and guidelines to enable each sector to develop an individual action plan in line with national strategic principles. It updates the 2005-2007 National Strategy and the National Guide on the Adaptation to Climate Change Effects by integrating new key information, such as: results of interviews with representatives of priority sectors; results of the interactive climate change adaptation workshop attended by climate change adaptation stakeholders; updated selection of priority sectors and recommendations for each priority sector; an inventory of key national climate change adaptation stakeholders, and assessment of the current state of climate change adaptation awareness and information within the public sector.
87. The impact climate change is dependent on the vulnerability of different economic, social and environmental sectors. In Romania 13 priority sectors were identified, which need to be approached in view of climate change adaptation: industry, agriculture and fisheries, tourism, public health; infrastructure, construction and urban planning; transport; water resources; forests; energy; biodiversity; insurances; recreational activities; education.
88. As far as agriculture is concerned, solutions on short and medium term include: adapting the periods of agricultural activities' development; drafting technical solutions, such as protecting fruit gardens against freezing or improving the airing and cooling systems of animal shelters; choosing cultures and species better adapted to the growth season and the water available, as well as the resilience to the new weather conditions and humidity; adapting crops with the help of existing genetic diversity and new opportunities offered by biotechnology; increasing the efficiency in fighting against pests; efficient use of water through: reducing water losses, improving irrigation techniques, recycling and depositing water; a better management of soils by increasing water retention in order to maintain soil humidity; management of landscape by maintaining landscape elements offering shelter to animals; introducing species of animals resistant to heat and adapting the nutrition regimes of the animals within stress caused by extreme weather.
89. Mitigation and adaptation, as main components of the draft Strategy, are correlated in order to set up the most cost effective and economically efficient measures to minimize the combat climate change effects in a reasonable horizon time and costs. Also, they are harmonized to meet the international and European commitments to reduce GHG emissions and to develop sectoral adaptation strategies to reduce the impact of climate change both on the natural and human systems.

RUSSIA

90. More than half of the territory of the Russian Federation is in the permafrost zone. It's thawing or, on the contrary, the expansion may affect the implementation of the development strategy of the country. By the rivers of the eastern part of Russia increased the frequency and power of flooding caused by ice jams. A feature of modern seasonal changes in river flow is to increase the water content in the winter season is almost on the whole territory. The growth of the winter flow can be traced to the European territory of Russia from the upper basin of the Northern Dvina to the lower reaches of the Don and Volga.
91. In the case of global warming will be further melting of mountain glaciers, which will lead to more intense floods flowing down from the mountains and the rivers flood, for example, in regions such as the North Caucasus, Primorye. Strengthening runoff can lead to accidents underwater passages of oil and gas pipelines built in the last century and not designed for the new conditions.

92. Water inflow to major reservoirs will affect the operation of hydropower, this should be considered when planning the construction of hydroelectric power plants. The consequences of changes in the intensity of water flows can be elevated groundwater, settlements, increased fog. Lack of water, deterioration of its quality to the greatest extent will be felt in the regions of southern Russia. Fresh water reserves in Russia are generally sufficient. Only in the Lake Baikal contains one-fifth of the planet's reserves. The main problem is the decline in the quality of fresh water.
93. Russia will also suffer from global warming. Widespread melting of snow will lead to a change in reflectance and cause additional warming. Climate change will impact on the industry as a crop and the livestock, can lead to serious social and economic consequences, including: price fluctuations due to drought, crop failures, natural disturbances; quit of business by farmers; failure to achieve the purposes of the Doctrine of Russia's food security; neglect of rural areas, the growth of unemployment in rural areas; and the growth of the budget burden of the financing of measures to neutralize the adverse effects of climate change.
94. Currently the main policy instruments that provide for direct or consequential directions to accelerate agricultural adaptation to climate change in Russia are: the State Program for Development of Agriculture and Regulation of agricultural markets, raw materials and food for the years 2008 – 2012; the Federal Law "On state support in agricultural insurance"; Federal Target Program "Conservation and restoration of soil fertility of agricultural land and agricultural land as a national heritage of Russia, 2006 - 2010 and for the period up to 2013" etc.
95. Prediction of long-term socio-economic development of the Russian Federation for the period up to 2030, prepared by the Ministry of Economic Development of the Russian Federation, defines climate change and the increasing importance of new energy sources and energy-and resource supply as one of the major global trends, including scientific and technological trends that will shape the future face of the world.
96. Questions of prediction of global and regional climate changes are the responsibility of the Russian Federal Service for Hydrometeorology and Environmental Monitoring (RosHydromet) under the Ministry of Natural Resources and Environment of the Russian Federation. Functioning also a network of research institutions, including the Institute of Global Climate and Ecology of "RosHydromet" and the Russian Academy of Sciences. "RosHydromet" and other agencies, and academic institutions in the framework of existing programs, perform a significant amount of systematic observations for climate and its elements.
97. In 2010, the Order of the Government approved the Strategy of Russia in the field of hydrometeorology and related fields for the period up to 2030 (including aspects of climate change). The implementation of the strategy should ensure the reduction of economic losses from natural hazards, to benefit from the favorable development of the natural and climatic processes.
98. In accordance with the basis of a strategic goal of the state policy in the field of environmental development is defined solving social and economic problems providing green growth economy, maintaining a favorable environment, biodiversity and natural resources to meet the needs of present and future generations, the right of every person to a healthy environment Wednesday, strengthening the rule of law in the field of environmental protection and ecological security.
99. State policy in the field of environmental development is carried out in accordance with the plan of action for implementation of the Framework, approved by the Decree of the Government of the Russian Federation from 18.12.2012, № 2423-r. Ministry of Natural Resources and Environment of the Russian Federation in conjunction with the relevant enforcement authorities work out on the State Program of the Russian Federation on "Protecting the environment" for 2012-2020, as approved by the Federal Government of 27.12.2012 № 2552-p.

100. The main task of the State Program is defined reduction of the total anthropogenic impact on the environment by improving the environmental performance of the economy. A number of legal acts aimed at energy saving and improving the economy, among them - the Federal Law "On energy saving and energy efficiency," Plan of measures for energy conservation and energy efficiency. The task is to reduce the energy intensity of production by at least 40% by 2020.
101. Under consideration of the State Duma of Russia a package of environmental bills aimed at reducing the negative impact on the environment, waste management, to promote the use of best available technologies. The principles of sustainable development are taken into account in the implementation of major projects of international importance, such as the construction of energy infrastructure and training of the Olympic Games in Sochi.
102. It should be noted the contribution of Russia as a major "environmental donor" (at the expense of forests - the main greenhouse gas sinks) in the preservation of the global climate balance. Russia on a permanent basis hosting a large-scale international events, which affecting the environment and the climate. Among them - the Nevsky International Ecological Congress, organized by the Federation of the Council and the Baikal Economic Forum. The Russian Federation is actively involved in major international projects and programs of climate research, in the events organized by United Nation Framework Convention on Climate Change and the Intergovernmental Panel on Climate Change.
103. It should be also noted, that the Russian Federation is actively involved in all activities undertaken in the framework of international agreements. "RosHydromet" as the lead agency on climate change creating a comprehensive delegation to participate in the activities.

TURKEY

104. Turkey, being conscious that the climate change is a multi-dimensional and complex problem capable of causing grave environmental and socio-economic consequences and the results of the climate change has become one of the most important challenges that will threaten the lives of the future generations, is aware of the importance of reducing the greenhouse gas emissions that cause the climate change and of the international cooperation within the scope of fighting the climate change. Turkey was removed from the Annex-II list, and the Parties invited Turkey, with the resolution no 26/CP.7 adopted in 2001 at the 7th. Conference of Parties of United Nations Framework Convention on Climate Change (UNFCCC) held in Marrakech, to acknowledge the special conditions that elevate Turkey to a different position than that of Countries listed in Annex-I.
105. Subsequently after this resolution, on 24 May 2004 Turkey became a part to the UNFCCC. The Law no. 5836 on Ratification of Republic of Turkey's Accession to Kyoto Protocol was promulgated with no. 27144 in the Official Gazette dated 17 February 2009. The "Accession Document" was submitted to Secretary General of United Nations (UN) on 28 May 2009 following the promulgation of the relevant Resolution of the Council of Ministers in the Official Gazette dated 13 May 2009, and Republic of Turkey became a party to the Protocol on 26 August 2009. Turkey has no target on reducing its emissions within the scope of Kyoto Protocol.
106. Nevertheless, Turkey focuses its activities in order to reduce the emissions in fields such as energy efficiency, encouraging renewable energy sources, transportation and waste management. In addition to this, Turkey is actively participating in generalizing the voluntary emission markets and integration to the obligatory emission markets, and carrying out projects aimed at determining the emission reduction potential.
107. Above mentioned Communication document is the Second, Third, Fourth and Fifth National Communication since Turkey became a party to UNFCCC, and the First National Communication since Turkey became a party to Kyoto Protocol. The Communication was drawn up in line with the

Guide for Preparing the National Communications for Annex-1 countries (FCCC/CP/1999/7), and reporting requirements set forth in Article 7.2 of Kyoto Protocol.

108. The First National Communication (FNC) of Turkey was presented to UNFCCC Secretariat on 10 February 2007 and it was assessed by the Expert Evaluation Team (EET) between September 2008 and August 2009. The findings in the detailed evaluation report prepared by the EET were taken into consideration in preparation of the FNC (Fifth National Communication). The focus in FNC was the changes made since the FNC.
109. In order to coordinate the efforts for tackling the climate change and taking into consideration the obligations of Turkey within the scope of UNFCCC, the "Climate Change Coordination Commission (CCCC)" was established in 2001. In addition to the relevant public bodies, representatives from public sector and non-governmental organizations as well were included into the commission, which was underwent reforms in 2004, 2010 and 2012.
110. The main policy document regarding the climate change is the National Climate Change Strategy Document (NCCSD), which was drawn up with the active participation of all relevant public institutions, representatives of public sector, non-governmental organizations and universities together with the member institutions and organizations of CCCC, under the coordination of Ministry of Environment and Forestry. The Strategy Document covering the 2010 - 2020 period was approved by the Higher Planning Council in May 2010.
111. The Strategy Document, which will be represented as a guide in the efforts for fighting the climate change, includes the reduction, adaptation, financing and technology policies to be realized by Turkey within its national capacity and level of access to the international funds and grants, within the scope of "common but differentiated obligations" principle of UNFCCC.
112. The National Action Plan on Climate Change (NAPCC), which was envisaged in NCCSD and 9th Development Plan and published in July 2011, was prepared by the members of CCCC and a large group of participants under the coordination of Ministry of Environment and Urban Planning. NAPCC provides sectorial subactions under the main title of greenhouse gas emission control and adaptation to climate change for the targets and actions in the Strategy Document, and defines the responsible institutions/organization and timing in regard to the realization of these actions.
113. The issues such as renewable energy supports, state incentives in investments, European Union (EU) accession process, carbon markets, research and development (R&D), educations and raising awareness are common topics that provide benefits to more than one sector.
114. Although Turkey is not benefiting from the flexibility mechanisms of emission trading of Kyoto Protocol, projects regarding the Voluntary Carbon Market, which operates independently from these mechanisms and was established within the principles of environmental and social responsibility, are being developed and implemented since 2005. By the end of 2011, the greenhouse gas reduction potential of 178 projects, which were developed within the voluntary market, is around 12 million tons of CO₂.
115. The registration of the projects that are developed and being implemented for the Voluntary Carbon Markets was aimed with the Communiqué on Procedures for Registration of Greenhouse Gas Emissions Reduction Projects prepared by the Ministry of Environment and Forestry (MoEF). There are also targets and actions defined in the İstanbul International Finance Center Strategy and Action Plan that entered into force in 2009, and NAPCC, in order to conduct studies regarding the establishment of a Carbon Market.
116. According to Turkey's National Inventory on Greenhouse Gas, in 2009 the share of the emissions caused by the burning of fuels within the total emission amount was 75.3%. The distribution of this amount is as follows; 17% for transportation; 19.9% for manufacture and construction industry; 26.2% other sectors; and 36.9% for cycle and energy sector. The main policies for controlling the emissions stemmed from energy consumption are increasing the energy efficiency and the share of the renewable energy sources in power generation.
117. The policies on environment are designated through supporting transition to low carbon economy and clean manufacture processes in the industry and focusing on education activities, as

well as generalizing the implementation of eco-efficiency programs throughout the country. The legal regulations regarding eco-design and eco-tagging are partially completed.

118. The works for establishing a "National Clean Manufacture and Eco-efficiency Center" in Turkey were carried out as one of the objectives of MDG-F (Millennium Development Goals Achievement Fund) 1680, which was realized between 2008 and 2011, and United Nations Joint Programme on Enhancing the Capacity of Turkey to Adapt to Climate Change by United Nations Industrial Development Organization (UNIDO), Turkish Foundation for Technological Development (TFTD), and Ministry of Science, Industry and Technology, under the coordination of MoEF. The efforts regarding the establishment of the center are carried out by the Directorate General of Efficiency established under Ministry of Science, Industry and Technology.
119. In order to determine the technology need of the industry sector, the Technology Need Assessment (TNA) Project was initiated by the Ministry of Science, Industry and Technology in 2012.
120. The R&D studies on the issues of climate change and agriculture are carried out chiefly by Ministry of Food, Agriculture and Livestock, and with participation of other relevant public institutions, international organizations, universities, municipalities and non-governmental organizations.

UKRAINE

121. The responsibilities for the development and implementation of the state policy in the field of climate change were vested with the Ministry of Ecology and Natural Resources of Ukraine. On 29 October 1996 the Verkhovna Rada of Ukraine ratified the United Nations Framework Convention on Climate Change and in conformity with the UN procedures Ukraine became a party to this Convention on 11 August 1997. Ukraine signed the Kyoto Protocol on 15 March 1999 and it was ratified on 4 February 2004 by the Verkhovna Rada of Ukraine.
122. At present there are two laws operating in the area of climate change in Ukraine, namely the Law on the Ratification of the United Nations Framework Convention on Climate Change and the Law on the Ratification of the Kyoto Protocol to the United Nations Framework Convention on Climate Change.
123. The First National Action Plan on implementation of the provisions of the Kyoto Protocol to the United Nations Framework Convention on Climate Change was adopted by the Resolution № 346 of the Cabinet of Ministers of Ukraine of 18 August 2005. This document was prepared under the auspices of the Ministry of Ecology and Natural Resources and implies the measures particularly aimed at: improvement of the national system of evaluation of the volume of anthropogenic emissions and greenhouse gases absorption; proper preparation and submission to the Secretariat of the United Nations Framework Convention on Climate Change of the reports on the national inventory of anthropogenic emissions and greenhouse gases absorption; creation of favorable conditions for the application of the general mechanism of implementation in Ukraine; setting up of a national system of monitoring of anthropogenic emissions and greenhouse gases absorption; development of electronic national data bank maintenance of anthropogenic emissions and greenhouse gases absorption, etc.
124. In 2010 the Verkhovna Rada of Ukraine has discussed the draft Law № 4750 on Regulation and management of emissions and removals by sinks of greenhouse gases dated by 23 September 2010. The draft law aimed at creating the legal, economic and organizational bases of setting up and functioning of national greenhouse gas emissions trading and is the result of implementation by Ukraine of its obligations arising from the United Nations Framework Convention on Climate Change and the Kyoto Protocol. This draft law on 21 October 2010 was decided to be included in another draft law.

125. In 2013 the State Environmental Investment Agency elaborated the draft Law of Ukraine on some issues of organization of monitoring, reporting and verification of greenhouse gas emissions. At present, this draft Law is being agreed upon central bodies of the executive power.
126. A number of laws and regulations provide the regulatory framework for realization of respective measures in the areas of energy saving, increase of energy efficiency, use of renewable energy sources, including the Law of Ukraine on Energy Conservation, which provides the legal, economic, social and environmental foundation for energy saving for all enterprises, associations and organizations located on the territory of Ukraine, as well as for the citizens; the Law of Ukraine on Introducing Changes into Some Acts of Legislation of Ukraine with Objective of Energy Conservation Measures Incentives, Law of Ukraine on Alternative Types of Fuel, the Law of Ukraine on Alternative Energy Sources, the Law of Ukraine on the Combined Production of Heat and Electricity (Cogeneration) and Use of Waste Energy Potential, etc.
127. Within the framework of the Law of Ukraine on the Ratification of the Protocol on Ukraine's Accession to the Treaty Establishing the Energy Community at the end of 2012 Ukraine assumed obligation under the Energy Community to reach 11 % renewable energy share of total energy consumption by 2020.
128. Since 2011 the Ukrainian enterprises are obliged to pay an environmental tax, which, in particular, is the fee for emissions of carbon dioxide and air pollutant emissions including greenhouse gases, namely methane and nitrous oxide. At the same time, according to Article 243.4 of the Tax Code of Ukraine the tax is fixed for the carbon dioxide emissions at a rate of 0.2 UAH per 1 ton of emissions, which does not encourage enterprises to reduce the emissions.

V. CONCLUSIONS

129. The global nature of climate challenges dictated by the need to find answers to them at the international level. Realizing the importance of joint efforts, in 1992 the international community adopted the United Nations Framework Convention on Climate Change (UNFCCC), which became the first international agreement aimed at fighting global warming and its consequences. In 1997, in addition to the Convention was adopted by the Kyoto Protocol, under which industrialized countries and countries with economies in transition have made specific quantitative commitments to reduce or limit the national anthropogenic emissions of greenhouse gases in the first period its validity (2008-2012.) as compared with the 1990, base year. The Kyoto Protocol establishes that after the first commitment period followed by a second, for which negotiations are actively underway.
130. At the same time, solution of the problem of mitigation of climate change requires action not only at global, but also at national, regional and local levels, mobilizing the joint efforts of governments, business, science and public. Many countries are developing national and regional climate programs aimed at reducing greenhouse gas emissions and adapting to the adverse effects of climate change, which provide for their involvement of all stakeholders.
131. Today in order to take effective measures towards decreasing the climate change affects in the world its necessary strong international cooperation within the international framework. Cooperation at the trans-national, regional and local levels is of significant essence for efficient and effective address to the issue of climate change. The BSEC states along with the international organisations and civil society must engage in a constructive dialogue which yields tangible results.
132. Efficient ecological policy in the BSEC Member States has to be applied for the rehabilitation of polluted areas, especially for the prevention, mitigation and abatement of environmental problems.