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**Practicalities of using the methodology of the Europe's Environment — An Assessment
of Assessments report at the national level**

Report on Assessment of Assessments in the Republic of Moldova*

Prepared by the Regional Environmental Centre Moldova

Summary

The Working Group on Environmental Monitoring and Assessment welcomed, at its thirteenth session, the proposals from two Regional Environmental Centres to undertake pilot projects on assessment of assessments: in Kazakhstan and Kyrgyzstan, by the Regional Environmental Centre for Central Asia; and in the Republic of Moldova by the Regional Environmental Centre (REC) Moldova.

This report presents the assessment of assessments undertaken by REC Moldova in the Republic of Moldova.

The Working Group will be invited to discuss this document.

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Introduction

1. The European Environment Agency (EEA) has produced four pan-European ‘state of Europe’s environment’ reports in support of the United Nations Economic Commission for Europe (UNECE) ‘Environment for Europe’ process.¹ Over time, and in conjunction with a host of other reports (including the additional four five-yearly state and outlook reports produced by the EEA for its geographical area²) this has provided a comprehensive overview of environmental challenges across the region.

2. In order to complement the above, and in support of the 2011 ‘Environment for Europe’ Ministerial Conference in Astana, EEA has prepared *Europe’s environment – An Assessment of Assessments* (EE-AoA). As a part of that report REC Moldova, REC Russia, CAREC and REC Caucasus produced regional AoA reports, respectively for Belarus, Moldova, Ukraine, for Russia, for five Central Asian countries and for Armenia, Azerbaijan and Georgia. That assessment of assessments focused on the two themes of the Astana Conference: water and related ecosystems, and green economy.

3. In view of the previous successful collaboration, a new assessment of assessments, similar in objectives and tasks as the latter was prepared, focusing on four key themes: biodiversity, climate change, air pollution and waste. The AoA centered only on Moldova’s assessments, provides an overview of the respective fields, their thematic coverage, frequency and focus and is an important tool in understanding and generalizing the current situation in the respective domains, offers a mechanism of comprehension of the issues at stake and comprehensively assesses how the assessments relate to national and international policies at the subregional and pan-European levels.

4. This assessment of assessments exercise has resulted in a report, which is structured as set out below.

5. **Chapter 1 is a general chapter**, describing the overall setting for the assessment of assessments, including the landscape of environmental assessments and their context. It looks at issues that are reoccurring for all the assessments found across all the thematic chapters: the national and international organizations involved in producing assessments and their respective strengths and weaknesses, the methodology for environmental information collection, the environmental statistics and indicators that are utilized. It then provides a brief overview of the assessments, across all the thematic areas, offering graphic interpretations of how these assessments are available, in what languages and more generally discusses the types of assessments identified.

6. **Chapter 2 focuses on biodiversity**. It offers a short description of the current situation in the field of biodiversity, identifies some of the specific national agencies that are involved in collecting data and analysing biodiversity indicators, such as the state forestry agency Moldsilva and the Biodiversity Office. Then, according to the structure which is common to all the thematic chapters, the report details some of priority concerns, specific needs, emerging issues and options for future action that are directly linked to the biodiversity issue and finally presents a list of conclusions and recommendations for improving the assessments in the field of biodiversity.

7. **Chapter 3 focuses on climate change**. After presenting the status-quo in the field of climate change in the Republic of Moldova, the report presents succinctly some of the

¹ In 1995, 1998, 2003 and 2007.

² In 1995, 1999, 2005 and 2010.

identified reports on climate change, following the common structure for the thematic chapters. It identifies a list of priority concerns and offers recommendations for the improvement of the reports in this area.

8. **Chapter 4 focuses on air pollution.** The chapter identifies and presents a list of specific national institutions that are involved in producing air pollution assessments, such as the State Ecological Inspection, the State Hydrometeorological Service or the State Service of Public Health. It then follows the agreed common structure of presentation.

9. **Chapter 5 focuses on waste.** This chapter also identifies a number of national institutions that are involved specifically in the production of waste assessments, such as the POPs Sustainable Management Office or the Environmental Pollution Prevention Office. It then follows the common presentation structure.

10. **Chapter 6 is a set of recommendations,** based on the findings across the assessment of assessments, presented to help strengthen the overall suite of environmental assessments in support of the 'Environment for Europe' process.

Chapter 1

General information

1.1 Summary, key messages

11. The AoA process aims at contributing to and improving access to sources of information. All the assessments reviewed relating to the topics of biodiversity, climate change, air pollution and waste are included in the country fiche, developed by REC Moldova and available on the web sites of the Ministry of Environment (MoE) and REC Moldova.

12. The Republic of Moldova has published the latest State of Environment Report (SoER) in 2011, according to its obligations under the Aarhus Convention. The SoERs are published at intervals of four years, coinciding with the Ministerial Conferences Environment for Europe (Kiev 2003, Belgrade 2007 and Astana 2011).

13. Data contained in the reports on Multilateral Environmental Agreements (MEA) implementation, as a rule, are comparable with data from other countries, as these reports are prepared on the basis of formats developed by the secretariats of these MEAs.

14. Data reproduced in publications disseminated within the country – for instance, environmental bulletins – can also be considered to be comparable with data for other countries, when they are presented as absolute values – for example, data on emissions into the air, concentrations of pollutants in the atmosphere, water bodies, and soil – but are not comparable with data from other European countries if they are presented as units and fractions of maximum permissible concentrations. In particular, data on wastes are not comparable with data from the European Union (EU) countries since the waste classifications used do not match throughout pan-Europe.

15. The Republic of Moldova does not have a common national system of environmental information and there is no common information resource, which makes searching for information difficult. This complicates working on national SoERs, action plans, strategies, etc. Much information exists only on paper and is owned by different state institutions. Coordination and data exchange between agencies responsible for environmental monitoring is irregular and frequently the result of personal initiatives of experts.

16. Some state institutions and agencies have set up their own decentralised databases on the environment, following their own technical procedures and protocols.

17. Environmental information in the hands of other state institutions is not easily accessible by the MoE, although accessibility of this type of information is required by law and is contained in official agreements. Hence the ministry has to rely, to a great extent, on information collected by its inspectors.

18. In recent years a number of various environmental information systems have been developed in the Republic of Moldova to meet the requirements of the national legislation and international obligations. Most of these were set up within international projects developed with donors' support. This has led to a rapid growth of data systems based on different, mostly commercial, software not compatible one with another. As a result, there is no common national system, the data exchange has become more difficult, the software is outdated, and updating is costly.

19. The environmental monitoring network has recently been expanded and currently embraces a larger area and a larger number of environmental topics. However these measures are still insufficient for complying with the requirements of national legislation and international obligations. An integrated environmental monitoring system has not yet been introduced.

1.2 Introduction and background

1.2.1 Setting the scene

20. This chapter reflects on the current state of assessments' development, environmental information collection, national and international organisations involved in general in the assessments production. The final part highlights how the assessments analysed contribute to an understanding of the processes occurring in the environment and how they can be used to develop the assessment process.

1.2.2 National institutions involved in producing assessments

Ministry of Environment

21. MoE is the central public authority responsible for the development of legal and regulatory framework in the field of environmental protection, rational use of natural resources, including management of air, waste, water resources, water supply and sewerage system, ensuring compatibility of legal framework with the MEAs to which the Republic of Moldova is party, etc. Among its tasks, it is also included in the establishment of an information management system, the development of relevant databases and the development of a national records system on the state of impact on atmospheric air, air pollution monitoring, waste monitoring, etc.

State Ecological Inspection

22. The State Ecological Inspection (SEI) is responsible for the protection of natural resources with the focus on water, air and waste through issuing permits for special water use, water discharge and air pollution for economic actors. The SEI has four Environmental Agencies in Chisinau, Balti, Cahul and the Territorial Administrative Unit of Gagauzia as well as 31 territorial environmental inspections, located in each district of the country. SEI has the role of collection and validation of data for water, waste and air pollution and the preparation of related reports. The report on waste is passed later on to the National Bureau of Statistics (NBS) and reports on ozone are imparted to the MoE. The main report on the SEI activities is prepared yearly and is named "Environmental protection in the Republic of

Moldova”. This report is prepared in Romanian language and is published in print and also in electronic format on the websites of SEI and MoE.

Environmental Information Centre

23. The Environmental Information Centre (EIC) works under the supervision of the MoE. It was established with Danish support in 2000. EIC holds an environmental research library and ensures links to web sites of more than 80 national and international environmental institutions. According to EIC terms of reference, the Centre shall focus its activity on the establishment of environmental electronic databases to satisfy the need for data of decision makers, specialists in the field and public at large. Unfortunately, until now there has been no electronic database established. This happens due to the lack of funding for the necessary software, equipment and training for specialists.

State Hydro meteorological Service

24. The State Hydro meteorological Service (SHS) is an institution subordinated to the MoE. SHS task is to lead the environmental quality monitoring, especially of surface water, atmospheric air, environmental radiological state and soil quality. SHS is also responsible to provide population, central and local public administration bodies, and other economic entities with hydro meteorological and environmental quality information. The national environmental monitoring system was established with the main focus being on monitoring of environmental quality and determining of pollution levels, detecting high pollution of surface water, air and soil, preventing and mitigating the anthropogenic impact on the environment and population, and informing systematically the public on environmental quality.

Environmental Quality Monitoring Department

25. The Environmental Quality Monitoring Department (EQMD) is a structure within the SHS that performs systematic ecological monitoring of the environmental components (surface water, air, soil, γ -radiation, etc.) on the basis of the monitoring network established on the entire territory of the Republic of Moldova. The Department holds an Accreditation Certificate according to international standard ISO/CEI 17025.

Institute of Ecology and Geography

26. The Institute of Ecology and Geography (IEG) is subordinated to the MoE and to the Academy of Science of Moldova. IEG is in charge of the study of the dynamics and trends in geo-and ecosystems' components under the influence of natural and anthropogenic factors, evaluation of factors which determine the occurrence of unfavourable geo-ecological situations and establishing the integrated information base for monitoring.

Agency “Apele Moldovei”

27. The agency is subordinated to the MoE with the main responsibilities including the development and implementation of water management resources policies, hydro-amelioration and water supply and sewage system services in Moldova. The Agency is responsible for the collection and processing of data on water use for statistical reports.

28. Additionally, seven so called “thematic offices” were created to support MoE in implementation of the National Sectorial Strategies, Action Plans, MEAs and in order to facilitate the fundraising for these purposes. They work on project-based approaches and besides their support activities, they are also tasked to establish and maintain relevant databases. Such databases are planned to be established, e.g. for biodiversity in the framework of the project “Improved coverage and effective management system of the

protected sites in the Republic of Moldova”, under which a draft plan for the biodiversity database is to be developed. The purpose of a database under the implemented projects is the collection of information on climate change, biodiversity, ozone, POPs etc., for the preparation of specific, often sectorial reports. As such no digital databases have been created yet through the projects. During implementation of some thematic projects, information included in the country reports, strategies, etc. is collected only on paper. The thematic offices are:

- (a) Biodiversity Office (<http://bsapm.moldnet.md>);
- (b) POPs Office (<http://www.moldovapops.md>);
- (c) Ozone Office (<http://www.ozon.md>);
- (d) Biosecurity Office (<http://www.biosafety.md>);
- (e) Climate Change Office (<http://www.clima.md>);
- (f) Carbon Finance Office (<http://www.cfu.md>);
- (g) Pollution Prevention Office (<http://www.eppo.md>).

29. Information related to environment and health is collected by State Service of Public Health (SSPH) within the Ministry of Health (MoH) and managed together with MoE. More detailed information about these “thematic offices” is given in respective thematic chapters.

1.2.3 International organizations involved in the production of assessments

30. The **European Union (EU)** is the largest donor in Moldova. It provides support to the national institutions in the environment sector, in terms of investment and technical assistance, through its main instruments, including the European Neighbourhood Policy Initiative (ENPI) and the East Regional Action Programme and Twinning Programme.

31. **United Nations Economic Commission for Europe (UNECE)** sets norms, standards and initiates legal instruments such as MEAs in order to facilitate international cooperation within and outside the region, its major goal being to promote pan-European economic integration. The area of expertise of UNECE covers such sectors as economic cooperation and integration, energy, environment, housing and land management, gender, population, statistics, timber, trade, and transport. The substantial support in the field of environmental monitoring is provided through the Working Group of Environmental Monitoring and Assessment (WGEMA) and Joint Task Force on Environmental Indicators (JTF). The Republic of Moldova also receives continuous support from UNECE for the implementation of its MEAs.

32. The **European Environment Agency (EEA)** assists the Republic of Moldova in the field of environmental indicators and reporting, and more recently in the gradual extension of the Shared Environmental Information System (SEIS). The latter is done through the activities offered to the EU neighbours, including to the Republic of Moldova. The EEA has also assisted countries in the Eastern Europe, the Caucasus and Central Asia to take part in the pan-European assessment process such as the Kiev and Belgrade pan-European assessments.

33. **United Nations Development Programme (UNDP)** provides support to the Government of the Republic of Moldova in the implementation of sustainable development and environmental policies. UNDP support focuses on the implementation of these policies at the national level in the following fields: climate change; renewable energy sources, energy efficiency; nature management and biodiversity protection. It supports the MoE in the development of climate change and biodiversity assessments on a regular basis and in

the production of the National Human Development Report, which contains detailed information on the main environmental topics.

34. **United States Agency for International Development (USAID)** provides training, technical support and information resources to individuals and organisations working on environmental issues in the region. These resources serve to build advocacy skills, increase public participation in environmental decision-making, and encourage community action on issues of environmental problem-solving. USAID is assisting in the production of biodiversity assessments that contribute to the conservation of biodiversity and help meet the environmental needs of the East-European countries.

35. **United Nations Environmental Programme (UNEP)**, together with other organisations and donors, is participating in addressing water issues in the Republic of Moldova. UNEP implements projects that assist countries in developing integrated water-resource management plans, creates awareness of innovative alternative technologies and assists in the development, implementation and enforcement of water resource-management policies, laws and regulations. UNEP implements projects that assist the country to ensure compliance with the provisions of the Cartagena Protocol. Furthermore, UNEP and Global Environmental Facility (GEF) are providing technical assistance to the Government of the Republic of Moldova to consolidate efforts towards establishment of the national biosafety system.

36. **Swedish International Development Agency (SIDA)**, together with other organisations and donors, is participating in addressing mainly water, solid waste and energy efficiency issues.

37. **German International Development Agency (GIZ)** promotes modernization in the agricultural sector and the food processing industries, as well as on improving municipal services such as water supply and waste water disposal, waste management and energy efficiency.

38. **Food and Agriculture Organisation (FAO)** is active in addressing mainly agriculture, biodiversity and climate change issues.

1.2.4 Environmental information collection

39. Currently the Republic of Moldova does not have a common national system of environmental information. There is no common information resource which makes searching for information difficult. This complicates working on national SoERs, action plans, strategies, etc. A lot of information exists only on paper and is possessed by different institutions. Coordination and data exchange between agencies responsible for environmental monitoring is irregular and these are frequently the result of personal initiatives of experts. Some ministries and agencies set up their own decentralised databases on environment following their own technical procedures and protocols.

40. In spite of the fact that national institutions in charge of providing information on environmental components, especially on water, air and waste, are making efforts to fulfil their obligations in the best possible way, the exchange of information is fragmented, sporadic and is done on a limited basis. This situation definitely has to be improved by strengthening the legal framework on this issue and ensuring its enforcement.

41. In the Republic of Moldova there are two main ways through which the environmental information is collected:

(a) Environmental Statistics

This source of collection of environmental information is described in the dedicated section 1.2.5 below;

(b) **Environmental Monitoring**

Currently, different kinds of monitoring (Air Quality Monitoring, Water Quality Monitoring, Soil Monitoring, Biodiversity and Forest Monitoring) are carried out in the Republic of Moldova embracing the quality of environment, the state of natural resources, e.g. land, forests and wildlife, as well as emissions and discharges of pollutants. MoE plays a key role in this monitoring and data collection from monitoring.

1.2.5 Environmental Statistics

42. NBS is the central statistical body subordinated to the Government of the Republic of Moldova, which conducts and coordinates, according to its mandate, all the activities in the field of official statistics in the country. The Bureau is responsible for (a) the development and adoption of methodologies for statistical research, (b) establishment of indicators, (c) approval of forms for reporting, and (d) data collection including for environmental sector.

43. Economic entities submit annual reports on air emissions, waste generation and on environmental protection expenditures based on reporting forms provided by territorial bodies of NBS. The filled out forms, in hard copies, are then forwarded to the territorial divisions of SEI where data is verified in accordance with the mechanisms of data validation. SEI sends back the verified data to NBS who digitalises them and processes further.

44. The collection of statistical data on water intake and waste water discharges is carried out by the State Enterprise “Basin water management authority” of the Agency “Apele Moldovei”. Economic entities submit annually filled out forms in hard copies to this State Enterprise, which verifies the data and transforms them into electronic format, processed and aggregated. The quality of data is provided by checking the incoming information at the report submission stage from water users. Aggregated data is then submitted to NBS which publishes these data.

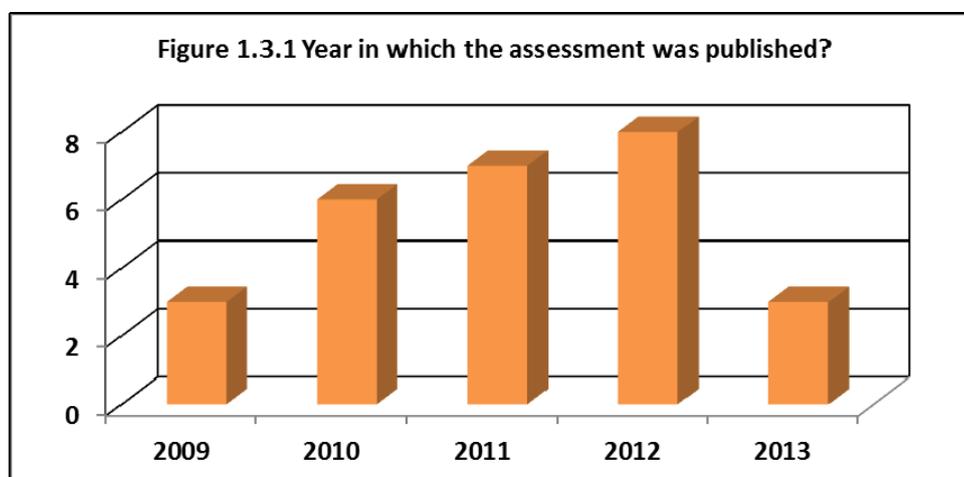
45. The NBS of the Republic of Moldova’s statistical yearbooks includes a chapter on the environment. Statistical data includes information on the situation and use of natural resources and the quality of environment as well as information regarding indicators of water, waste, air pollution, biodiversity, and is available online in Romanian, Russian and English. In addition, NBS published a statistical report, Natural Resources and Environment in the Republic of Moldova in 2010. It is the first thematic publication in the field of environmental statistics, developed by the NBS. It comprises data on atmosphere protection, use of aquatic resources, existence of land and forest resources, creation and use of production and consumption waste, protected natural areas, etc. One Chapter of the publication is dedicated to the environment situation in cities and towns. The publication also presents data characterising demographic situation and general health of the population of the country, the main economic indicators, hunting, violations of ecologic legislation, etc. It was produced by NBS on the basis of statistical reports received from economic entities and administrative divisions subordinated to ministries and other competent authorities: MoE, SEI, SHS, etc. The report is available on-line in Romanian.

1.3 Overview of assessments

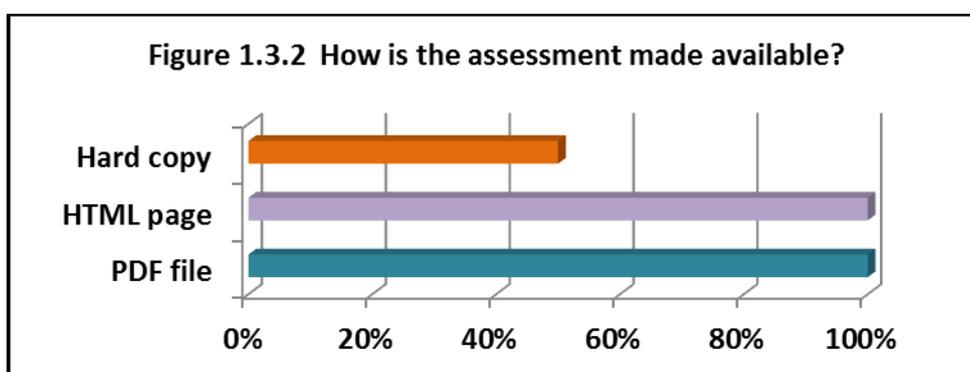
46. This chapter provides an overview of the assessments at the national and regional level in four themes, biodiversity, climate change, air pollution and waste, focusing on supporting policies, initiatives and targets.

1.3.1. Assessments as part of wider state of environment reporting

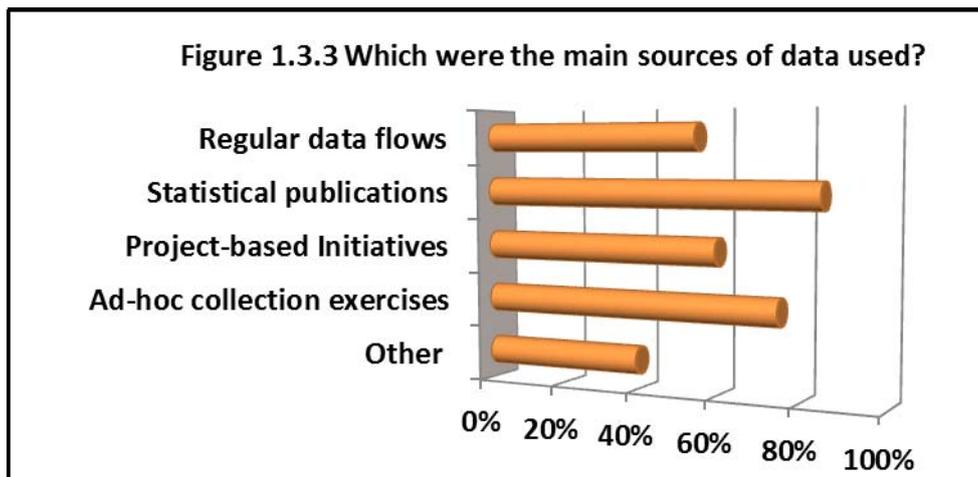
47. There are only a few assessments that cover all four thematic topics subject to this AoA, produced during the analysed period 2007-2012. Figure 1.3.1 shows the total number of assessments by their year of publication.



48. The national assessments produced by the State institutions are usually the result of a regular process. The frequency of reports varies: e.g. the Environmental Protection Report published by the SEI is produced annually; the SoER is published by the MoE with support from the Institute of Ecology and Geography every four years. The reports are made available as freely downloadable pdf files, and are also accessible to the general public as HTML pages. Hardcopy versions, in recent years, are produced in smaller editions – for example the SoER (2007-2010) is available as pdf and as a hardcopy in limited numbers. Figure 1.3.2 shows how the reports are made available.



49. The main data sources for reports are statistical publications, almost 80 per cent, *ad-hoc* collection exercises, more than 70 per cent; project-based initiatives, around 60 per cent, regular data flows around 50 per cent. The *ad-hoc* collection exercises and project-based initiatives are used mainly by international organisations such as UNECE, UNEP and OECD to produce national or regional reports. Regular data flows are mostly used in producing annual national reports such as the *Environmental Protection*.



1.3.2 State of Environment reports

50. The Republic of Moldova produces SoERs to meet its obligations under the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Article 5.4). The report is published every four years and includes information on the quality of the environment and pressures on it. It also takes into account the UNECE Guidelines on the Preparation of Governmental Reports on the State and Protection of the Environment and the Guidelines for the Preparation of Indicator-based Environment Assessment Reports in Eastern Europe, Caucasus and Central Asia, using international methodological guidance.

51. The SoER for the period 2007 – 2010 was produced in 2011 for the 7th Ministerial Conference in Astana. The report was prepared in Romanian by the MoE in cooperation with the Academy of Science and IEG. The main goal of the report is to point out the dynamics and the evolution of the environmental factors during the period 2007-2011. The synthesis of the report in English and Russian was produced thanks to support from UNDP and the National Ecologic Fund.

52. The report was produced according to the DPSIR framework, thus the analysis carried out is based on the national sets of indicators reflecting the DPSIR framework. The indicators address the following issues: air pollution and ozone depletion, climate change, water resources, biodiversity, land resources, agriculture, energy, transport and waste.

53. The SoER provides the assessments on biodiversity, climate change, air pollution and waste topics in a descriptive manner, usually as a separate topic chapter. It also analysed the status of the main components of the environment – water, air, soil, and biota – in relation to anthropogenic factors and their impact on the environment.

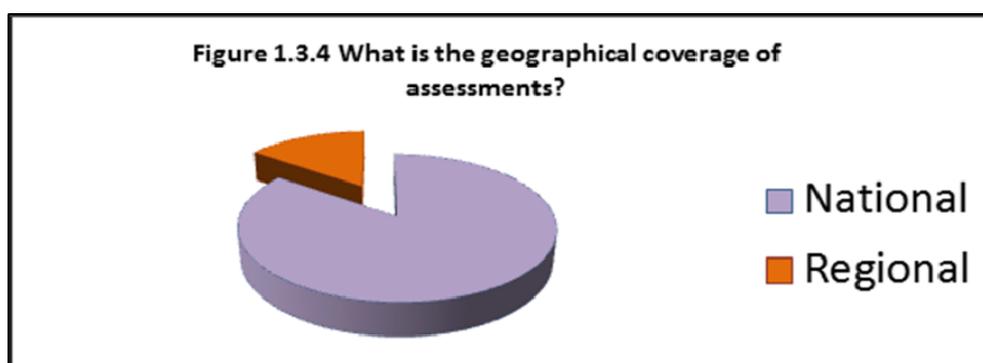
54. The chapter on biodiversity contains a core set of indicators, such as forest regeneration, number of species of flora and fauna, number of protected species, number of endangered species, etc.

55. In the chapter on air pollution the level of air pollution is assessed according to the value of the average concentrations compared to the maximum admitted concentration (MAC). The air quality is estimated based on the complex indicator of atmosphere pollution and contains the quality indicators: pH, alkalinity, acidity, PO₄³⁻, NO₂⁻, NO₃⁻, NH₄⁺, Cl⁻, HCO₃⁻, SO₄²⁻, fixed residuum, Ca²⁺, Mg²⁺, including the organic component and the level of the pollutants' charge, emissions of atmospheric pollutants from mobile sources, quantitative evolution of precipitation, etc.

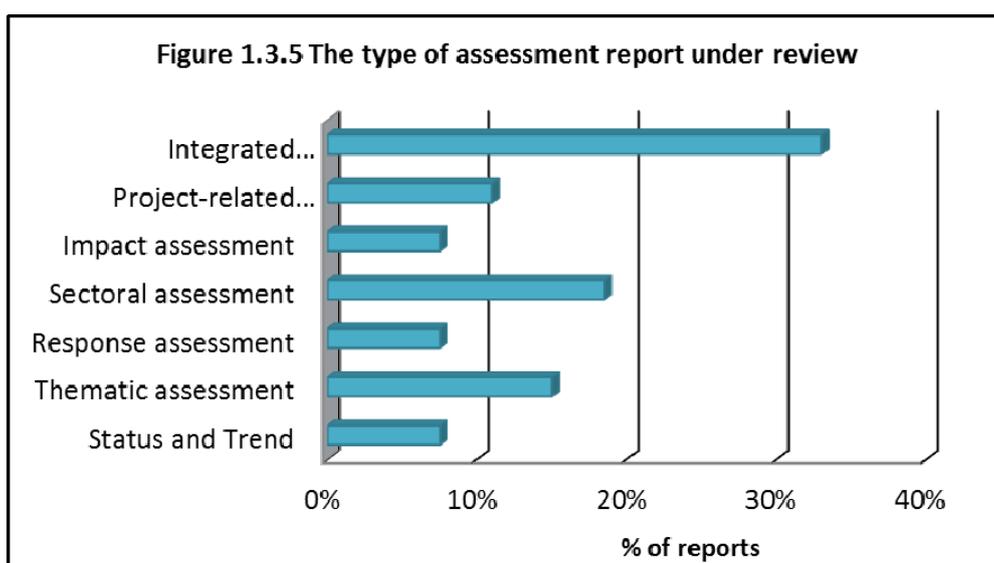
56. The chapter on waste contains such indicators as: the amount of waste generated by different production sectors of the economy, municipal and household waste, waste management by sectors, etc.

1.3.3 Type of analysis covered by the assessments

57. The majority of the biodiversity, climate change, air pollution and waste assessment reports in the Republic of Moldova were produced at the initiative of different international organisations and resulted from projects implemented in the country or in the region. Consequently some reports are regional ones covering a number of the Eastern European countries. Only a few assessments were produced at the initiative of the national institutions. Such are mainly produced in the framework of the regular reporting process, Figure 1.3.4.



58. The types of analysis vary significantly; Figure 1.3.5 shows the distribution of assessments by type. The process of collecting information for producing assessments used a mixture of data/expert opinion, and local knowledge. Only a small percentage of the reports used exclusively expert opinion or local knowledge. Few assessments used the DPSIR framework. The majority of assessments use different types of environmental indicators according to agreed national, regional or international methodologies which provide the basis of the assessments.



Chapter 2 Biodiversity

2.1 Summary, key messages

59. Today, there is increased scientific evidence of the importance of healthy biodiversity for the survival of the planet and humankind. The decline of biodiversity that has been happening with astounding speed in the past decades is further exacerbated by climate change. Situated at the intersection of three bio-geographic areas, Moldova plays an important role in the conservation of biological diversity in the region.

60. Biodiversity management is one of the priority assignments of MoE, promoted through the implementation of the National Strategy and National Action Plan in the domain of Biological Diversity Conservation and enforcement of legislation regarding Environmental Protection, Natural Protected Areas by the State, the Red Book, Ecological Network, Flora Register and others through the realization of the provisions established by MEAs and other treaties, which declare the achievement of stability and ecological balance in preserving biodiversity as a priority requirement.

2.2 Introduction and background

2.2.1 Setting the scene

61. This chapter reflects the current state of assessments regarding biodiversity in the Republic of Moldova. It analyses the biodiversity chapter included in SoER, national thematic reports and national reports produced with international support, including regional biodiversity assessments covering Moldova. The final part highlights how the assessments analysed contribute to the understanding of the processes occurring in the environment and how they can be used to develop the assessment process.

2.2.2 National organisations involved in producing biodiversity assessments

62. Assessments of biodiversity in the Republic of Moldova are carried out by MoE as well as other national environmental authorities (SEI, IEG). All of them are responsible for policy and legislative functions, management and operation systems, as well as control and monitoring of biodiversity. Besides the national organisations involved in providing the biodiversity assessments there are also a few “thematic organisation” dealing with biodiversity issues:

(a) **Agency “Moldsilva”** is subordinated to the Government of the Republic of Moldova and is the central public authority promoting state policy in the forestry sphere – extension, regeneration, conservation, ecologic reconstruction and rational use of forest resources, forest protection and development of national forest and hunting fund. The Agency implements the National Strategy for sustainable development of forestry sector in the Republic of Moldova, the State Program for regeneration and afforestation, as well as activities related to development of rural and forestry tourism, and the development of beekeeping.

(b) **The "Biodiversity" Office** of the Republic of Moldova, which was set up in September 2000, acts as the National Focal Point for a Clearing-House Mechanism. The Office’s main priority is to promote and co-ordinate the exchange of information between biodiversity data holders and users. The main duties of the office are: (i) assessing the general measures for in-situ and ex-situ biodiversity conservation and sustainable use of its components; (ii) assessing the capacity building needs on the mitigation of threats to forest

and agrobiodiversity; (iii) setting up the informational database and biodiversity monitoring system; (iv) assessing the capacity building needs of the governmental and non-governmental organizations in the field of agrobiodiversity conservation; (v) assessing and developing the incentives for sustainable development of the natural resources.

2.2.3 International organizations involved in biodiversity assessments

63. **UNDP** is currently supporting two big projects related to biodiversity: (1) Improving Coverage and Management Effectiveness of the Protected Area System and (2) National Biodiversity Planning. The first project aims at enhancing the coverage and the effectiveness of management of the protected area system in the Republic of Moldova by piloting – within the broader framework of the National Environmental Network – the establishment of the first National Park in Moldova, and by systemic strengthening the capacities at the institutional and individual levels to establish and manage a representative protected area system. The second project supports the Republic of Moldova in fulfilling its obligations under the Convention for Biological Diversity. It focuses on developing strategies for the conservation and sustainable use of biological diversity in line with the 2011-2020 Strategic Plan of the Convention and Aichi Targets, as well as on integration of biodiversity conservation concerns into relevant sectorial and cross-sectoral plan, programmes and policies.

64. **UNEP**, together with other organisations and donors, is participating in addressing biodiversity issues. The organisation implements projects that assist the country to ensure compliance with the provisions of the Cartagena Protocol. Furthermore, UNEP and GEF are providing technical assistance to the Government of the Republic of Moldova to consolidate efforts towards establishment of the national biosafety system.

2.3 Overview of biodiversity assessments

65. The Republic of Moldova has developed a Biological Diversity Conservation National Strategy and Action Plan, which are to provide the basis for improving policy, legal and institutional frameworks, territorial planning, research, monitoring, training and environmental education.

66. Despite the availability of the Strategy and the Action Plan, there are only few assessments entirely dedicated to the biodiversity issues in the Republic of Moldova. The USAID report, *Biodiversity Analysis*, was produced in 2007 in order to identify the needs for biodiversity conservation in Moldova. The report “*State of the Forestry Sector in Moldova 2006-2010*” was produced by “Moldsilva” in 2011. It presents the actual situation in the forestry sector for the period 2006 – 2010, the sector’s problems, priorities and proposed options for addressing the situation in the forestry sector. The World Bank report “*Integrating Environment into Agriculture and Forestry Progress and Prospects in Eastern Europe and Central Asia*”, produced in 2007, has a special section dedicated to the Republic of Moldova.

67. In order to comply with the requirements under the Convention on Biological Diversity (CBD), the Republic of Moldova is producing reports as part of its reporting obligations.

68. *The Fourth National Report on Biological Biodiversity* reflects the priorities set by the Republic of Moldova in the respective area, the barriers encountered in implementing the National Strategy, and in achieving the 2010 objectives regarding the protection of flora and fauna; research and monitoring programs, and conservation and sustainable use of biological resources in the country. It further provides information on the efforts of the Government of the Republic of Moldova in implementing the Global Strategy on Plant

Conservation; the requirements of Moldovan legislation regarding the Fund for Natural Areas Protected by the State, Flora and Fauna, Forest Code, requirements of the Law on Riparian and Water body Buffer strips and Buffer zones, the Law on Environmental Protection, and others.

2.4 Highlights of biodiversity assessments

69. According to the analysed reports the major problems in the field of biodiversity in the Republic of Moldova are:

(a) Lack of viable habitat due to historical agricultural pressures, clearing forests, and/or the degradation of aquatic ecosystems (the conversion of forests, steppe, and natural river and wetland systems for agricultural purposes resulted in limited and fragmented habitat);

(b) Soil erosion, with eroded landscapes becoming increasingly susceptible to further erosion, and creating a cycle of increasingly degraded landscapes and waterways;

(c) Limited protected areas network (Moldova's current protected areas network is less than two per cent of total land area so that it falls short of the ten per cent land coverage generally required for maintaining the biological resources);

(d) Ineffective implementation of legislation and measures preventing the degradation of biological diversity;

(e) Unsatisfactory integration of requirements on biological diversity conservation in economic and sectoral policies;

(f) Disturbance of ecological balance of landscapes due to high use of land for agricultural purposes;

(g) Pollution of natural habitats; intense exploitation of vegetal and animal resources;

(h) Significant reduction in budgetary allocations for the reproduction and regeneration of flora and fauna.

70. In addition, the protected areas are not only limited in coverage but also are not managed effectively. The regime of protected areas is violated in many ways: poaching, grazing, plant collection etc. These violations are increasing and the regulations can be hardly enforced because the personnel available in Moldsilva is too limited in number.

2.5 Conclusions and recommendations

71. According to the assessments there is a well-developed legislation to conserve nature and stop degradation, however, the legislation is not enforced. Therefore, it is vital that the Government takes all the necessary measure to strengthen the enforcement of the existing legal base on the protection of biodiversity. In addition, specific measures are recommended in the sectors of agriculture and forestry:

72. In the agriculture sector, the Ministry of Agriculture and Food Processing (MAFP) in cooperation with MoE should promote Good Agriculture Practices (GAP) for the conservation and expansion of agro-ecosystems with viable habitats for native species, especially in the steppe region. The adoption of GAP will have to go a long way to address the biological and economic threat from soil erosion. MoE should also address the issue of ineffective use of donor funds and lack of coordination between different projects. There should be a unified and coordinated approach implemented.

73. In the forest sector the viable forest habitat should be strengthened through implementation of National Ecological Network and better enforcement of the existing legislation. Furthermore, the management of protected areas should be improved, by earmarking resources for these activities to Moldsilva.

Chapter 3 Climate Change

3.1 Summary, key messages

74. Climate change is recognised as a priority challenge that humanity is facing in the 21st century, and it is no longer a distant prospect. Some of its consequences – like increased frequency and intensity of natural hazards – are already being felt. For the Republic of Moldova it has meant, most recently, the catastrophic drought in 2007 and devastating floods in 2008. While all countries are and will be affected by climate change, developing countries will suffer most. They tend to be more vulnerable to the adverse impacts, have fewer resources for adaptation to climate change and for recovery from losses caused by extreme weather events. These countries are in general more dependent on the environmental services for their citizens' well-being.

75. The problem of climate change can only be tackled with the joint efforts of all states in the world. To this end, the United Nations Framework Convention on Climate Change (UNFCCC) was developed. The Republic of Moldova signed this Convention on 12 June 1992 and ratified it on 16 March 1995.

76. The first step under the UNFCCC was the development of the First National Communication of the Republic of Moldova on Climate Change, a document that reflected national aspects of vulnerability and adaptation, emissions generated by the economic sectors and analysed climate trends in the country.

3.2 Introduction and background

3.2.1 Setting the Scene

77. This chapter reflects the current state of assessments regarding climate change in the Republic of Moldova. It analyses the climate change chapter included in SoER, national thematic reports and national reports produced with international support, including regional climate change assessments covering Moldova. The final part highlights how all the assessments contribute to an understanding of the processes occurring in the environment and how they can be used to develop further the assessment process.

3.2.2 National organisations involved in producing climate change assessments

78. **The National Office on Climate Change (CCO)** was established in 2004 within MoE. The role of the CCO is to monitor the trends and dynamics in climate change and formulate the necessary reports for the regional and international conferences of the UNFCCC. It has also the human capacity to elaborate the official national prognoses on future changes in the field and to assess the impacts of those changes on the main sectors of the country's economy.

79. **The National Carbon Finance Unit** has been created in 2005 for developing institutional capacities regarding the implementation of Kyoto Protocol. The Unit's main field of activity constitutes monitoring and implementation of Clean Development

Mechanism (CDM) Projects. It is granting technical and financial assistance to the beneficiaries of CDM projects; elaborating new CDM projects and their submission to the National Commission to implement the resolutions of the Convention-framework of the UN on climate change and also the mechanisms and resolutions of Kyoto Protocol; ensuring the realization of engagements stipulated in the subsidiary accords signed with donators and local beneficiaries, organizing regular examination of unities and monitoring of their work; as well as organizing other activities necessary for the efficient implementation of carbon financed projects including the elaboration and implementation of other environmental projects.

80. **The Biomass Office** was created in 2005 within MoE and has since initiated a pilot project for the promotion of renewable energy use from agricultural wastes. The project presents a new step for the country in using and application of clean technologies in the energy sector.

3.2.3 International organizations involved in climate change related assessments

81. A number of international organizations have been involved in assessing and providing recommendations for the government in the field of climate change.

82. **UNDP** assessed for its National Human Development Report, which concentrated specifically on climate change in 2009/2010, the socio-economic impact and policy options for climate change adaptation.

83. **FAO** has looked at the dimensions, impacts, mitigation and adaptation policies with regards to the climate change impacts on forest management in Eastern Europe and Central Asia.

84. **UNEP** have played an integral and vital role in the creation of the 2012 National report prepared by the MoE, which is an output of the project on Technology Needs Assessment.

3.3 Overview of climate change related assessments

85. There is only a limited number of climate change related reports produced for the analysed period, which are the following:

(a) *The Technology Needs Assessment for Climate Change Mitigation Report II Barrier Analysis and Enabling Framework:*

This report is not discussing in detail the effects and impact of climate change in the Republic of Moldova but goes into great depths with regards to climate change mitigation technologies, the investments necessary for developing such technologies and how to implement them. It does look at the current situation in the forest sector, utilises indicators such as forest regeneration and ecological reconstruction as well as pointing out the risk factors conditioning forest vulnerability. It then provides information on adaptation measures to new climate conditions with reference to the forest ecosystem;

(b) *The Moldova Country Report (Moldova-ENPI Benefit Assessment):*

This report is a 2011 publication by independent experts, looking not only at climate change elements, but as well to the air quality, waste collections and treatment and biodiversity. The chapter dedicated to climate change discusses and looks at the potential for renewable energy sources, at current levels and trends of CO₂-emissions and then analyses the potential environmental improvements, in relation to the National Energy Strategy. The report also ponders the monetary assessment of the benefits of increasing the

uptake of renewable energy sources (RES), deducing that the total monetary benefits from reduced emissions due to increased uptake of RES would vary from 80 to 115 million Euro;

(c) *The Climate Change in Eastern Europe (Belarus, Moldova, Ukraine):*

This report is a publication prepared by the Zoï Environment Network, in cooperation with UNEP/GRID-Arendal (Norway) under the Environment and Security Initiative (ENVSEC) in 2012. The report analyses climate change in the above mentioned region, presents the greenhouse gas emissions and mitigation options, as well as discusses the impacts of climate change and adaptation. Being a regional report, it utilises indicators which are more diverse, such as population dynamics, tropical nights in the region, temperature, precipitation, heat waves, energy production and consumption, carbon dioxide emission and absorption, key sources of energy and many others. It bases its information on Governmental information, as well as international reports, such as the previously discussed National Human Development Report (UNDP, 2009);

(d) *The Climate change impacts on forest management in Eastern Europe and Central Asia:*

This is a 2010 assessment prepared by FAO of the United Nations, co-sponsored by FAO's Sub-Regional Office for Central and Eastern Europe, the University of West Hungary, and the Northern Eurasia Earth Science Partnership Initiative. The report provides an overview of forest and climate change issues, actions and areas for cooperation in the Eastern European and Central Asian countries. It includes a section on Moldova;

(e) *The Environment and Climate Change Policy Brief for Eastern Europe and Caucasus Region:*

This report prepared by SIDA's Helpdesk for Environment and Climate Change in 2013, seeks to briefly present key environment and climate change challenges and opportunities in the region and in relation to the alignment to EU *acquis communautaire*, and assesses the needs for institutional reforms. The study itself is based on other assessment reports, progress reports and scientific evidence. It utilised governmentally approved statistics and other internationally trusted reports (UNECE 2012; EU 2006, 2012). The Republic of Moldova is allocated a small section of this 43 page report, that also looks at Belarus, Georgia and Ukraine but it does discuss aspects that other reports have not taken into account, such as what are the actors (donors, intergovernmental and international actors, the civil society organisations and the public-private partnerships) that are involved in the climate change activities, either on a regional or country basis;

(f) *The National Human Development Report on Climate Change (NHDRCC):*

This is a 2009 report that aims to inform decision makers and the public about the impact of climate change on the environment, the key sectors of the national economy and the social issues. It is a vast report, of over 240 pages, which was prepared by a team of 15 experts. The report was commissioned by UNDP. During its preparation extensive stakeholder consultations were conducted. The report's target group are policy makers at the national, regional and local levels, civil society and academia, donors and providers of technical assistance, and the general public. The report emphasises the importance of individual behavioural changes that are needed to support the national climate change agenda without incurring major costs. It looks initially at the human development, and draws on analogies with countries in the region (Romania and Bulgaria). It addresses the climate challenges for the Republic of Moldova, looking at the water resources (water quantity, quality, use and disposal), at the impact of climate change on the agricultural sector, on transport infrastructure and the energy sector. The report also provides a good overview of the effects of climate change on Millennium Development Goals and human development.

3.4 Highlights of climate change assessments

86. According to the reports the main concerns for the Republic of Moldova in the area of climate change are:

(a) Food security: the severe drought of 2007 validates this concern, when both the overall quantity and the composition of food available to rural inhabitants declined. Large families, single-headed households and families with disabled members have been indicated as being the most vulnerable to droughts.

(b) Transport infrastructure: Moldova's transport infrastructure is perceived as the worst in the group of the transition countries and worst in Europe and with the impact of climate change its quality can deteriorate further. This in turn will lead to further marginalizing those communities that already suffer from a lack of access to the national labour and product markets because of the transport infrastructure.

(c) Health of forest: the increase in the frequency of extreme weather events will change forest growing conditions and affect the physiological processes of forest flora and fauna.

87. It is notable that despite awareness of the potential impacts of climate change in general terms, assessments contain little information about observed effects of climatic changes on forests. Although details on the extent of climate change experienced in the last century are mentioned, impacts of increasing aridity in the second half of the twentieth century on the vitality or stability of forest ecosystems were not discussed. Similarly, detailed references about changes in the status of forest health (i.e. incidence of insect pests and diseases) in connection with climatic extremes are limited. The absence of such references indicates that either forests are not being negatively affected, forest monitoring is not sufficient to detect the changes, or that its priority accorded to impacts analysed on climate change is low. Impacts of climate change (albeit compounding other, non-climatic stresses) on forests are evident in other regions, so it is unlikely that the Republic of Moldova is an exception.

88. In general, the regular assessments help to improve the quality of the data and information. An important flaw that can be observed in many of the assessments concerning climate change, is that they are generally rich in statistical data but are of limited use in relation to policymaking and decision taking. To improve this, an enhanced process is needed that supports integrated assessments and that ensures exchange of data and information.

3.5 Conclusions and recommendations

89. The analysed reports provide a number of recommendations to improve the mitigation of the climate change impact as well as the climate change development of assessments for the Republic of Moldova:

(a) Good governance is critical for ensuring that political objectives are effectively delivered on, especially for those objectives that include integrated actions across sectors. Due to weak state institutions in the Republic of Moldova, international institutions can play an important role in providing guidance for the development and implementation of climate change scenarios. However national adaptation and mitigation programmes should involve all interested stakeholders in order to address local characteristics and specific challenges and opportunities.

(b) There is no detailed weather/climate database in the Republic of Moldova nor climatological knowledge necessary to downscale large-scale predictions to finer, local

scale. The development and use of regional climatic and impact models are preconditions for effective identification of climatic impacts and for planning adaptation measures in the forest sector.

(c) The issue of insufficient data is persistent. For instance, there is not exhaustive information about the number of the population who suffers from extreme phenomena of climate change and places where the events are happening. It would be helpful, in order to overcome such barrier, that in periods of heat waves information about the number of the population who suffers from extreme phenomena of climate change is collected in all towns and cities.

90. At the same time, given that climate change is a topic that has ramifications in all the branches of a country's economy and social aspects, it would be useful to see in the reports a cross-cutting analysis of the impact that climate change presents. The recommendations should touch upon and prescribe collaborative actions by all the stakeholders involved.

91. Furthermore, one recurrent topic that pervades through a number of analysed assessments is the lack of awareness about issues related to climate change and technological solutions. The issue at stake is that whilst the reports do mention this existing problem, the usual solution that is being proposed – information and awareness – is of an unsatisfactory and inefficient standard. More concrete actions and recommendations would be more welcome, both in the view of the direct target groups of the written reports, as well as to the policy makers who will have to ponder how to reach the different actors involved: consumers, farmers, businesses and great industries. This would also help with the incentives necessary in order to attract investments in climate change technologies in the agriculture sector, for instance.

Chapter 4

Air Pollution

4.1 Summary, key messages

92. The monitoring of atmospheric air quality in the Republic of Moldova is undertaken by the specialized services under the SHS and SEI. The quality of the atmospheric air in the Republic of Moldova is influenced by the emissions generated by three types of polluting sources: fixed sources (stationary), mobile sources, and transboundary pollution sources.

93. In the Republic of Moldova, air pollution is a critical issue mainly in urban areas, where pollution is caused by mobile sources (vehicles). The stationary (industrial) sources of air pollution are limited in number: there is a cement factory Lafarge and the energy production facilities, using mainly gas.

94. Chisinau and Balti are cities having the most significant air pollution problems in the Republic of Moldova. The limit values for NO₂, total dust and formaldehyde are exceeded on a regular basis in these two cities. According to the SHS, the air quality in urban areas has been deteriorating since 2004-2006.

95. The pollution peaks occur mainly during hot periods of the year with no wind. There is no problem with smog though.

4.2 Introduction and background

4.2.1 Setting the scene

96. This chapter reflects the current state of assessments regarding air pollution in the Republic of Moldova. It analyses the air pollution chapter included in SoER, national thematic reports and national reports produced with international support, including regional air pollution assessments covering the Republic of Moldova. The final part highlights how the assessments analysed contribute to the understanding of the processes occurring in the environment and how they can be used to develop further the assessment process.

4.2.2 National organisations involved in producing Air Pollution assessments

97. There are three main organizations dealing with air monitoring, two of them are under subdivisions of MoE: SEI and SHS and the third one is SSPH under MoH.

98. **SEI** is responsible for limiting industrial emission by issuing operation authorizations. Furthermore, the central office of SEI is in charge of calculation of pollutants emissions into the atmosphere from mobile sources including: automobile transport, railway transport, airlines, river transport. It also calculates the consumed fuel for transport utilities: gas, diesel, liquefied petroleum gas. SEI prepares the report on ozone protection: "Production, consumption, import/export of substances that are depleting the ozone layer, regulated by Montreal Protocol". The information for this report is collected from the economic entities by SEI specialists and after verification of data; information is presented to MoE Ozone Office for processing and generalization.

99. **SHS** is in charge of the monitoring of air quality through a network of 17 fixed stations located in 5 industrial regions: Chisinau – 6, Balti – 2, Bender – 4, Tiraspol – 3 and Ribnita - 2. On a daily basis, three times per day samples of ambient air are collected and analysed on pollutants such as sulphur oxide, carbon oxide and nitrogen dioxide. The ambient air quality activity is carried out based on the Guidelines for atmosphere pollution control, developed in 1991. Automated monitoring station located in Mateuti performs automatic recording of air quality data. Precipitation monitoring is carried out at meteorological stations in Chisinau, Cahul, Cornesti, Balti and Leova. Data on air monitoring is used for the elaboration of the "Activity report" by the SHS. Starting from the fourth trimester of 2011, monitoring of particulate matter PM₁₀ and of other inorganic components of Persistent Organic Pollutants (POPs) was initiated.

100. In addition, MoE is the National Focal Point for the UNECE Convention on Long-range Transboundary Air Pollution (LRTAP). In order to meet the provisions of the Convention and especially under the European Monitoring and Evaluation Programme (EMEP), there are regular samples of atmospheric precipitation taken at the transboundary stations Leova and Chisinau, to determine the level of heavy metals such as lead, cadmium, copper, zinc, chromium, and nickel in ambient air. MoE shares the collected information on air pollution in transboundary context with the Norwegian Institute for Atmospheric Research (NIAR) in accordance with the requirements of the LRTAP Convention. Also, information on air temperature is shared each month with the Global Centre on Climate Data (USA), European Centre on climate data (Germany) and Regional Meteorological Centre (Russia).

4.2.3 International organizations involved in air pollution assessments

101. **The Norwegian Meteorological Institute** is providing support for the development of reports on transboundary air pollution by main pollutants (Sulphur, Nitrogen, Ozone)

and PM (2010 and 2012 assessments). Data is presented in the form of maps, pies and bar-charts, with only some commentary.

102. **The European Commission** supported an analysis of social and economic benefits of enhanced environmental protection in the 16 countries covered by the ENP and in the Russian Federation. The result is a 2011 publication entitled *Moldova Country Report (Moldova-ENPI Benefit Assessment)* which contains a chapter on air pollution. The regional ENPI project „Air Governance in EECCA countries” was launched in 2011. It is to be implemented in the period of 2011-2014. Main project objective consists of improvement of sustainable management of natural resources, including diminution of climate change effects, and amplification of cooperation in this field. The project also deals with convergence of national legal framework to European legislation on air quality and implementation of these provisions, increasing the information and awareness level through cooperation at regional and sub-regional level of decision makers, representatives of industry and civil society.

103. **UNECE** provided assistance through the project “*Support to the Implementation of the Convention on Long-range Transboundary Air Pollution (CLRTAP)*”. The objective of the project was to promote implementation of the Convention in the Republic of Moldova (mainly, the provisions of the Gothenburg Protocol). The project helped to build a high quality national emission inventory in accordance with the requirements of the EMEP/CORINAIR Guidebook and the EMEP Emission Reporting Guidelines and to build capacity for integrated assessment modelling. The project was funded by the Czech Republic.

4.3 Overview of air pollution assessments

104. There are a number of assessments that look into the issue of air pollution, air quality and protection policies.

105. *Transboundary air pollution by main pollutants (Sulphur, Nitrogen, Ozone) and Particulate Matter (TAP)* are 2010 and 2012 reports as part of a series of country-specific reports, complementary to the EMEP Status Report 1/2010. They present overview information on transboundary pollution of main pollutants, ground level ozone and PM relevant for the Republic of Moldova. As complex, data-filled and graph-orientated reports, they look at emissions, trends in depositions and air concentrations, transboundary fluxes (deposition of oxidised sulphur, depositions of oxidised nitrogen, and depositions of reduced nitrogen), transboundary ozone concentrations and transboundary concentrations of PM.

106. The SEI is producing an annual report entitled “*The Protection of the Environment in the Republic of Moldova*”. The report contains a chapter on air with a description of the ambient air protection in the Republic of Moldova, detailing main sources of emissions and impact of air pollution on the environment, etc.

107. *The Moldova Country Report (Moldova-ENPI Benefit Assessment)* is a 2011 publication by independent experts, looking not only at air quality elements, but also at the climate change, waste collections and treatment as well as at biodiversity. Created within the framework of an EU-funded project “*Analysis for European Neighbourhood Policy Countries and the Russian Federation on social and economic benefits of enhanced environmental protection*”, the aim of the report was to identify issues of importance which (a) are sufficiently representative for the five environmental themes covered by the project, i.e. air, water, waste, nature and climate change (as a horizontal area), (b) are common across the countries under study and (c) are sufficiently simple to be assessed rigorously.

4.4 Highlights of air pollution assessments

108. The monitoring network for air quality in Moldova is considered insufficient by SHS and MoH. In total, there are only 17 stations (of which 6 in Chisinau), only 1 automatic station for PM₁₀ (where at least 3 are needed), and there is no station measuring the background concentrations. These stations are monitoring the following parameters (3 times a day): total dust, carbon monoxide, sulphur dioxide, nitrogen oxides and formaldehyde.

109. There are 4 laboratories but only one, which belongs to the SHS, is accredited according to ISO requirements. In order to have a clearer picture of air pollution, there is a need to purchase and install in Chisinau an automatic station to investigate the air quality. Also industrial pollution and pollution from mobile sources should be monitored with automatic stations. Furthermore, it is required that the monitoring process be a continuous one.

110. The main issues identified in the reports are as follows:

(a) Toxins in the annual precipitation originate mainly from transboundary pollution sources, according to the data from EMEP;

(b) The level of the critical load for sulphur dioxide in some forest ecosystems is close to the maximum limit;

(c) Financial incentives do not exist for economic entities to help them improve their conformity with environmental standards and requirements;

(d) The budgets of the local public administration are insufficient to finance, to a satisfactory extent, environmental protection measures related to air pollution;

(e) Targets for air quality that would correspond to WHO limit values have not been adopted yet.

4.5 Conclusions and recommendations.

111. The available data on air pollution and ambient air quality are insufficient, because limited number of parameters is monitored in priority areas. To change this situation, a comprehensive, integrated network for air monitoring, including on air quality, needs to be developed. For this it is necessary to create a structure of databases, location schemas of stations and monitoring stations.

112. SEI should to be equipped with mobile laboratories that will be used in various places in the country in order to determine concentrations there of sulphur dioxide, nitrogen oxide and carbon oxide and carbon dioxide, ammonia and other harmful gases into the atmosphere.

113. The legal framework is considered deficient in the area of air protection against pollution. For example, existing legal framework (the 1997 Law on Atmospheric Air Protection) is regulating air pollution from mobile sources, but the established limit values for pollution are those originating from soviet times with limits applying only to pollutants such as carbon dioxide, hydrocarbons for the gas vehicles and fumigation level for diesel cars.

114. The inter-sectorial cooperation for combating air pollution is absent. There are problems in collaboration between institutions under MoE subordination and other governmental structures, especially for the data exchange.

115. Databases exist mainly in paper form and only a few databases are available electronically.

116. The reports analysed offer the following recommendations regarding air pollution prevention:

- (a) The observation network for environmental monitoring should be further optimized by identifying stations for monitoring of additional pollutants, as it was suggested under the EMEP;
- (b) Technical equipment for monitoring and for analytical purposes should be upgraded and modernised;
- (c) Communication equipment and software should be upgraded;
- (d) New automatic stations should be added to the monitoring network.

Chapter 5

Waste

5.1 Summary, key messages

117. Waste is considered one of the main environmental issues in Moldova, and in particular municipal waste is a problem, since waste collection does not cover half of the population. The waste is insufficiently segregated, and almost all is being landfilled.

118. Moreover, existing landfills are overloaded and not equipped with the necessary protection for soil and methane capture. A large part of the waste is being dumped in unauthorized places.

119. The lack of proper waste management is causing environmental and health impacts such as soil and groundwater pollution (in some cases used as drinking water), air pollution with dioxins and furans (most of dumpsites are burning permanently) and odour nuisance.

120. In rural areas, there is no central collection system of waste. Spontaneously created unauthorised landfills are polluting soil and water. Storage of manure and municipal waste near wells is polluting the drinking water.

121. MoE developed a National Waste Management Strategy of the Republic of Moldova in order to gradually introduce the EU standards to the domestic waste management. The focus of the strategy is on the prevention, reuse, recycling, recovery and disposal of waste.

5.2 Introduction and background

5.2.1 Setting the scene

122. This chapter reflects the current state of assessments regarding waste in the Republic of Moldova. It analyses the waste chapter included in SoER, national thematic reports and national reports produced with international support, including regional waste assessments covering Moldova. The final part highlights how the assessments analysed contribute to the understanding of the processes occurring in the environment and how they can be used to further develop the assessment process.

5.2.2 National organisations involved in producing waste assessments

123. Two organizations are involved in waste monitoring mainly: SEI with the main responsibilities of collection and verification of the waste data, and NBS with the main responsibilities of processing, publishing and sharing of the waste data. There are also two specialised offices dealing with the waste, which are involved in preparation of the waste assessments. These are:

124. **POPs Sustainable Management Office** that was created in March 2006 within MoE. Its main aim is to facilitate the promotion of the National Strategy for reduction and elimination of POPs and to implement the National Implementation Plan for the Stockholm Convention.

125. **Environmental Pollution Prevention Office (EPPO)** is an unit established under MoE in 2010 which is coordinating environmental pollution prevention projects, including facilitating the promotion of sound management of waste and chemicals, in accordance with international treaties and the EU Directives.

5.2.3 International organisations involved in producing waste assessments

126. **SIDA** is becoming one of the major donors in the field of waste. With the financial support of the Swedish Government a number of projects on the development of the infrastructure for the waste management are implemented. SIDA supports the development of the Waste Strategies for the Development Regions of Moldova (North, Centre and South) in the field of waste and water. SIDA is also supporting the development of reports and assessments, especially at the regional level on waste and water.

127. **The EU ENP waste governance project** which is implemented within the framework of the ENPI East aims to improve co-operation within, and between, countries for reducing the risks arising from inappropriate waste management throughout the region. Countries involved in the project are Azerbaijan, Armenia, Belarus, Georgia, Moldova, Russia and Ukraine.

5.3 Overview of waste related assessments

128. A number of reports were produced during the analysed period in the field of waste, these are:

(a) *The Problems, Achievements and Trends in Waste Management in the Republic of Moldova*: this is a 2011 paper written by an independent expert looking at the various issues and developments in the waste collection in the Republic of Moldova.

(b) *First national report on radioactive waste in the Republic of Moldova*: this is a 2012 report by the National Agency for Regulation of Nuclear and Radiological Activities. The report describes management of radioactive wastes from civilian application, and from disused sealed sources. It was prepared in compliance with requirements contained in the International Atomic Energy Agency Information Circular INFICIRC/604/Rev.1 of 26 July 2002.

(c) *Republic of Moldova Country Report*: this is a 2012 report whose purpose was to consider the requirements for introducing the ENP Instrument Shared Environmental Information System (SEIS) in the Republic of Moldova. This report reflects the current situation in Moldova regarding inter-institutional cooperation and responsibilities, monitoring management and exchange of data, and public information for the main three priority areas identified within the project – water, air and waste.

(d) *Protection of the Environment in the Republic of Moldova*: this is an annual synthesis of all activities of SEI, for the 2008-2012 period, available only in Romanian. It is a more general report, with much broader scope than waste.

5.4 Highlights of waste assessments

129. The waste monitoring network does not exist in the Republic of Moldova. The collection and processing of information related to the types and amounts of waste are performed in accordance with Soviet standards.

130. According to the assessments analysed the priority problems in waste sector are the following:

- (a) Legal framework for waste management is underdeveloped;
- (b) The financing for waste management, both at state and private levels is insufficient;
- (c) No system of technical and environmental regulation in the field of selective collection for recycling, recovery, waste disposal and storage is established;
- (d) No network for collection and incineration of medical waste is established;
- (e) No adequate capacities for waste disposal and collection are assured – there is no waste collection at the community level and there is no collection or composting of organic waste;
- (f) Final waste storage facilities constructed and operated in accordance with the environment standards are not available;
- (g) Some 4,000 tonnes of obsolete pesticides are landfilled on clay layers or stored in warehouses;
- (h) Manure is stored near the shallow wells providing for drinking water causing its pollution with ammonia, nitrogen tetraoxygen, nitrogen trioxide, etc. and leading health problems;
- (i) Disposal of packaging and tires is not regulated. Tires are often burned causing a dioxin problem.

131. The assessments suggest the following:

- (a) To invest into construction of sorting facilities for waste;
- (b) To encourage separate collection of waste at source of production;
- (c) To collect manure to a centre for biogas production, to be financed by state institutions.

5.5 Conclusions and recommendations

132. Development of new standards and new reporting forms is needed. The revision of the standards, development of new reporting forms, introduction of new software for information processing, and the development and improvement of methodologies for establishment of statistical indicators on waste have already started with support of the Norway Statistical Office.

133. The current statistical system of waste management reflects just partially the situation of the waste management by households. Information about the flows of specific

hazardous waste such as used oil, tires, accumulators and batteries, electronic equipment, end of life motor vehicles, electrical waste is not available.

Chapter 6 Recommendations

134. The environmental monitoring system of the Republic of Moldova covers ambient environmental quality, state of natural resources such as soils, forests and wildlife, and pollution emissions and discharges. MoE plays a key role in environmental observations and data collection whereas the main network of environmental quality monitoring stations is maintained generally by SHS. Also a number of other organizations mentioned in this report are involved in water, air and waste monitoring, data and information collection and management. The cooperation and coordination of monitoring activities is however very limited between those institutions. Therefore, and in accordance with the assessments analysed, **it is recommended that Moldavian Government develops a clear scheme for cooperation and coordination for data collection and management between relevant state institutions. The Government should further review the responsibilities of different governmental institutions with the objective to eliminate overlapping functions between them.**

135. Furthermore, to introduce efficient management for integrated environmental monitoring and a Shared Environmental Information System in the Republic of Moldova, the Government is recommended the following:

- (a) Ensure approximation of national legal framework to EU acquis communautaire for the areas where the law is least developed, in particular for air protection (establish emission limit values) and waste management;
- (b) Introduce integrated environmental authorizations/permits;
- (c) Develop and improve methodologies for setting-up statistical and environmental indicators and procedures for relevant data collection, sharing, processing and storing, and
- (d) Establish electronic databases based on a common platform principle.

136. The Government is also recommended to produce SoERs in accordance with UNECE Guidelines, which should allow enhancing their use for environment and some sectoral policy development in the country.

137. The international organizations are recommended to provide support to the Republic of Moldova in:

- (a) Building national capacity in air protection and waste management and for the development of statistical and environmental indicators, processing of information and data collection;
- (b) Application of modern technologies such as Geographical Information System, ARC VIEW;
- (c) Development of databases based on common platform principle;
- (d) Introduction of new software for data collection, processing, accession and reporting;
- (e) Integration of E-Governance Centre;
- (f) Development of Shared Environmental Information System.

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