DESK/CASE STUDY

ENVIRONMENT AND HEALTH

(Conditions and Status)

The Republic of Moldova

This desk/case study outlines the status of environment and health issues in the Republic of Moldova, and developed as a background document to facilitate the preparations and discussions for the national workshop to raise awareness and build capacities on the interlinkages of environment and health issues in the context of the implementation of the sustainable development goals (SDGs) in Moldova.

The information contained in this desk/case study, and the follow-up discussions, recommendations, and lessons learned from the workshop is expected to assist and support the efforts of governments and stakeholders to support the planning, implementation, monitoring, reporting, and review of policies and actions linked to the 2030 agenda at the national level, in particular the environment and health dimensions of the SDGs.

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Background

As part of the UNEP Regional Fora project, UNEP Regional Office for Europe (UNEP/ROE) is actively involved in the European Environment and Health Ministeral Process (EHP) to promote the interlinkages between environment and health, and to protecting the health and well-being of people from environmental hazards. UNEP/ROE works with a significant number of partners (WHO Europe UNECE, UNDP, OECD, World Bank), NGOs (REC, EEA, WECF, HEAL, ECO-Forum, EHYC and many others) to advance this agenda in the region.

In line with the decisions of its Governing body to support Governments' efforts to enhance institutional and human capacities towards effectively integrating and implementing the environmental dimension of the 2030 Agenda for Sustainable Development, UNEP provides targeted assistance to countries where there is a need, and also builds on partnerships that exists in mainstreaming environment sustainability in national development policies, priorities and frameworks.

Moldova recognizes environmental protection is an issue of global importance, which has to become a national priority as it directly concerns the life conditions and health of the population, the achievement of economic interests, as well as the capacities for the society's sustainable development. The existence of a clean environment contributes, undoubtedly, to ensure the fundamental human rights provisions of the Constitution of the Republic of Moldova: the right to life and the right to physical and moral health. This entails maintaining the quality of the main components of the environment (air, water, soil, flora and fauna) in terms of sustainable development.

Like the other countries in the region, Moldova is facing many significant environmental problems. Insufficient management of solid waste leads to soil, air and water pollution; inadequate management of forests and irrational agricultural practices result in soil degradation and biodiversity losses; small rivers and wells are heavily polluted due to agricultural activities, obsolete sewage infrastructure, illegal storage of waste and manure; industrial activities and a large number of old cars cause air pollution in urban areas, whereas the lack of renewable energy sources induces energy insecurity and contributes to climate change.

Moldova's current strategies and action plans adopted in many sectors reflect significant transformations and lessons that the country has learned. New development strategies approved or drafted in areas such as education, energy efficiency, sustainable agriculture, regional development, environmental protection, the social sphere and justice are a call to improve peoples' lives by adopting perspectives which are more centred on sustainable development.

These policy documents reflect the objectives of the United Nations Conference on Sustainable Development (Rio+20) document: "The Future We Want" and the outcome of the post-2015 development agenda "Transforming our world: the 2030 Agenda for Sustainable Development".

The implementation of the 2030 Agenda for Sustainable Development plays a central role not only to advance the environment and health priorities, policies, strategies and programs, but also offer an opportunity to build government capacities for integrating environmental sustainability into sectoral and inter-sectoral planning, including the involvement of non-governmental actors and the public to have a saying in the development and implementation of national policies coherent with Sustainable Development Goals (SDGs).

The findings of the case study can be used to inform and raise awareness on the interlinkages between environment and health with strategic partners, stakeholders and the public, as well as utilized to effectively enhance national implementation and actions on relevant environment and health goals and targets towards improving environment conditions and health status at the national level, and beyond.

Specific Outcomes:

- Identification of key environment and health conditions and status;
- Identification of key environment and health issues that require policy response/interventions;
- Collect lessons learned in the formulation and implementation of environment and health policies and programs that can be replicated;
- Identify potential bottlenecks, obstacles and challenges for implementing the of environment and health agenda;
- Define the necessary requirements for the effective involvement of different stakeholders in advancing the environment and health agenda; and
- Ensure the utilization of the findings to support the implementation environment and health priorities and programmes at the country level.

Several policy documents were used to develop this desk study including: The 3rd Environmental Performance Review of Moldova; the European Environment and Health Process Mid-term Review (EHP-MTR) report "Improving environment and health in Europe: how far have we gotten?"; The areas of priorities and needs of Moldova identified under the UN Development Assistance Framework (UNDAF); Outcome of the EaP green workshop on SCP, green economy and sustainable public procurement; Moldova's priorities reflected under the Post 2015 National Consultation; Moldova: Report on the national-level Dialogue on strengthening capacities and building effective institutions for a post-2015 agenda; UNEP Green economy work in Moldova; UNEP partnership on capacity building for improving the environmentally sound management of chemicals in the Republic of Moldova and the implementation of SAICM; and UNECE and UNEP administered MEAs with significant links to environment and health.

ENVIRONMENT AND HEALTH

Environmental health comprises the aspects of human health including quality of life, that are determined by physical, biological, social and psycho-social factors in the environment. It also refers to the theory and practice of assessing, correcting, controlling and preventing factors in the environment that potentially can adversely affect the health of present and future generations. This covers all human health issues related to environmental factors and all environmental factors that may affect health.[1] *In the course of this report, the relationship between environment and health will be denoted as "environment and health".*

Section 1: Introduction/ recent developments

Environment has been increasingly recognised as an important prerequisite of good health and policy actions to improve both of them have been undertaken. Environmental protection and sustainable water management as well as disease surveillance have been advanced and a reform to strengthen public health system is undergoing. Overall, country capacity to address human health and the environment has been advanced.

Progress in implementing and enforcing measures that bring substantial benefits to both health and environment has been limited. Strategies and legislation that address environment and health risks are quite comprehensive, but too general and not action oriented. They are often not accompanied by clearly stated targets and indicators. Integrated monitoring enabling assessment of environment and health situation as a basis for development of (mostly environmental) policy and regulatory actions and ensuring continuity has not been in place.

Last 10 years have seen substantial developments in legal and policy agenda in Republic of Moldova. A major strategic focus over this period has been the decision to align systems with those of European Union countries. In 2014 the country entered into a Partnership Agreement with the European Union. The country has embarked on an ambitious programme of policy development and profound socio-economic reform. Country situation specifics, available capacity and administrative staffing were not sufficiently considered.

Section 2: Population health status and environmental conditions

Population health status

Population development

The population of the Republic of Moldova has been estimated to be 3.56 million in 2017. The potentially economically active population (15--64-year of age) represents close to 75 per cent of the total population, a higher share than those of the Commonwealth of Independent Sates (CIS), the European Union (EU) countries and the European Region. The proportion of the population that is below 15 years old is similar to the populations in the rest of the CIS, the EU and the European region, while the proportion of people of 65 years and older is relatively small.

The Republic of Moldova is experiencing negative population growth inspite of the slight increase in birth rate in the second half of the 2000s. As the death rates remain somewhat unchanged, the negative population growth varies in small margins. The fertility rate fell down and is the lowest of all other country groups, most likely as a result of the recurring effect of the emigration of considerable number of people in active reproductive life span after 1990. The Population Division of United Nations Deparment of Economic and Social Affairs projects a population of 3.07 million in the Republic of Moldova by 2030.

[1] *Introduction to Health, Environment and Sustainable Development.* WHO. 1993. Available at: http://www.mcgraw-hill.co.uk/openup/chapters/0335218415.pdf

Table 1: Key demographic indicators: Republic of Moldova, and the averages for the Commonwealth of Independent States (CIS), the European Union (EU) and the European Region, most recent data available

	Republic of Moldova	CIS[3)]	EU[3)]	European Region[3)]
Mid-year population (millions)	3.6[1)]	281.7[2)]	505.8[2)]	908.6[2)]
Population aged 0-14 (%)	16[1)]	18.9	15.6	17.5
Population aged 65+ (%)	9.7[1)]	11	18.4	15.1
Live births per 1000 population	10.9[2)]	15.5	10	12.4
Deaths per 1000 population	11.2[2)]	11.4	9.8	9.9[4)]
Natural growth rate per 1000 population	-0.3[2)]	4.1	0.2	2.5
Total fertility rate (children per woman)	1.3[2)]	1.7	1.6	1.7
Urban population	42.7[1)]	64.2[5)]	73.8[5)]	70.2[5)]

Sources: WHO Regional Office for Europe. Health for All Database, April 2017; National Bureau of Statistics of the Republic of Moldova, May 2017.
Note: 1) data refer to 2016; 2) data refer to 2015 if not referred to otherwise; 3) data refer to 2014; 4) data refer to 2013; 5) data refer to 2010.

With an economy dominated by agriculture and food processing, the population living in rural areas prevail over that living in urban areas. The proportion of people that lives in urban areas has even somewhat decreased.

According to the World Health Organization (WHO) estimates, a person born in the country in 2015 can expect to live 71.5 years on average: 75.5 years if female and 67.5 years if male. Although people in the country gained almost four years of live between 2000 and 2015, the European Regional average increased by four years in the same period. Life expectancy estimates are higher than those for considerably richer countries of the CIS group; this estimate is considerably lower than the average of the EU and the European Region.

Table 2: Selected population health indicators: Republic of Azerbaijan, and the averages for the Commonwealth of Independent States (CIS), the European Union (EU) and the European Region, most recent data available

	Republic of Moldova[)]	CIS	EU	European Region
Life expectancy at birth (years)	71.5	71.2[2)]	80.9[2)]	77.5[3)]
Infant mortality (per 1,000 live births)	9.7	9.3[2)]	3.7[2)]	6.6[2)]
Under-5 mortality rate (per 1,000 live births)	11.7	12[2)]	4.4[2)]	8.4[3)]
Maternal mortality ratio (per 100,000 live births)	31.1	27[3)]	7.5[3)]	14.7[3)]

Sources: WHO Regional Office for Europe. Health for All Database, April 2017; State Statistical Committee of the Republic of Azerbaijan, 2016; and WHO World Health Statistics Report 2015.
Note: 1) data refer to 2015; 2) data refer to 2014; 3) data refer to 2013

Table 3: Development of selected population health indicators, 1990-2015 (selected years)

	1990	1995	2000	2005	2010	2013	2014	2015	2016	2017
Mid-year population (thousands)	4359.4	4345.7	3644.1	3600.4	3563.7	3559.5	3557.6	3555.2	3553.1	3555.1
Population aged 0-14 (%)	28	26.8	23.8	19	16.7	16	16	16	16	…

Population aged 65+ (%)	8.3	9	9.4	9.9	10.1	9.9	10	10.3	10.7	…
Life expectancy at birth, female (years)	71.9	69.7	71.2	71.7	73.4	75.6	75.4	75.5	…	…
Life expectancy at birth, male (years)	63.9	61.8	63.9	63.8	65	68.1	67.5	67.5	…	…
Life expectancy at birth, total (years)	68	65.8	67.6	67.9	69.1	71.9	71.5	71.5	…	…
Total fertility rate (children per woman)	2.4	1.8	1.3	1.2	1.3	1.2	1.3	1.3	…	…
Birth rate (per 1,000 population)	17.7	13	10.1	10.5	11.4	10.6	10.9	10.9	…	…
Mortality rate (per 1,000 population)	9.7	12.2	11.3	12.4	12.2	10.7	11.1	11.2	…	…
Natural Growth Rate (per 1,000 population)	8	0.8	-1.2	-1.9	-0.8	-0.1	-0.2	-0.3	…	…
Infant mortality (per 1,000 live births)	19	21.1	18.3	12.4	11.7	9.4	9.6	9.7	…	…
Under-5 mortality rate (per 1,000 live births)	25.2	27.4	23.3	15.7	13.6	12	11.7	11.7	…	…
Maternal mortality rate	…	…	…	…	44.5	15.8	18.1	31.1	…	…
Urban population (%)	47.1	46.4	41.6	41	41.4	41.9	42.2	42.4	42.5	42.7

Source: National Bureau of Statistics of the Republic of Moldova, May 2017.

Child mortality

Under 5 mortality has decreased significantly, from 25.2 per 1,000 live births in 1990 to 11.7 in 2015 – close to the CIS countries but still considerably higher than the Regional average and more than triple the European Union average of 4.4 per 1,000 live births in 2014. Infant mortality went down from 19 per 1,000 live births in 1990 to 9.7 in 2015, indicating that the country has made substantial progress. Nevertheless, both the under-5 and the infant mortality rates are three times higher than the levels of the EU countries and significantly higher than the European Region average (Table 2). Congenital anomalies and pneumonia which could be partly attributed to environmental chemical hotspots and indoor air pollution from hazardous heating and cooking sources particularly in poor areas are among the main causes of mortality accounting for 36 and 18 per cent of all deaths.

Mortality by main causes of death

Non-communicable diseases continue to represent the major share of deaths and of years of life lost of Moldovans. Similar to the rest of Europe, ischaemic heart and cerebrovascular diseases constitute the leading cause of death followed by cancer (Table 4). Though incidence of liver cirrhosis has decreased over the years it still remains a very significant overall cause of death in the country killing.

Table 4: Standardized death rates (SDR) for the most important causes of death and their share per 100,000 population, most recent data available

	Republic of Azerbaijan[1)]		CIS-average[1)]		EU-average[1)]		European Region-average[2)]	
Causes of death	**SDR**	**%**	**SDR**	**%**	**SDR**	**%**	**SDR**	**%**
All causes	1,100.0	100	1,078.37	100	559.85	100	738.16	100
Diseases of circulatory system	635.7	57.8	602.18	55.8	192.05	34.3	332.69	45.1
Malignant neoplasms	165.1	15.0	146.94	13.6	161.73	28.9	154.94	21.0
Diseases of the digestive system	99.8	9.1	56.92	5.3	26.44	4.7	35.21	4.8
External cause injury and poison	82.6	7.5	96.26	8.9	33.13	5.9	52.67	7.1
Diseases of the respiratory system	48.0	4.4	47.79	4.4	40.21	7.2	45.08	6.1

Sources: WHO Regional Office for Europe. Health for All Database, April 2017

Note: 1) data refer to 2014; 2) data refer to 2013

The all-cause mortality rate started to consistently decrease in the second half of the 2000s. As regards to the changes in the age-specific mortality rate during 1990-2010 the greatest reductions were experienced by males aged <1 year while males aged 40-44 years saw the largest increase. In 2011 the diseases of circulatory system continue to be the top rank cause of mortality accounting for 58 per cent of all deaths, whereas their share is lower for the Region and much lower for the EU countries, most likely due to a more effective health system and prevention of health risks including environmental ones (Table 4).

The distribution of cause-specific mortality by external causes, respiratory diseases and communicable diseases was similar in all country groups. Nevertheless, standardised death rates caused by injuries and by respiratory diseases in the Republic of Moldova are comparable to those of the CIS countries and much higher than the EU and the Regional averages (Table 4).

Overall, the three risk factors that account for the most disease burden in the country are dietary risks, high blood pressure, and heavy alcohol and tobacco consumption. In 2010, the leading risk factors for children under 5 and adults aged 15-49 years were household air pollution from solid fuels and alcohol use, respectively.

Selected trends in morbidity

Communicable diseases remain a major public health priority in the Republic of Moldova. According to the regularly reported by the country morbidity data, respiratory and infectious diseases continue to be the main causes of hospitalization.

Morbidity due to infectious and parasitic diseases is high: the rates of hospital discharges double those of the EU: in 2010 the respective rates per 100,000 were 821 and 420.

Overall, Republic of Moldova faces significant public health challenges. Those include a high burden of diseases through rising prevalence of noncommunicable diseases, in particular cardiovascular diseases, leading to premature mortality and morbidity. At the same time, incidence and prevalence of some communicable diseases remain a concern; yet there is scope for improving health through an integrated approach addressing risk factors that span many different policy sectors beyond health.

Environmental conditions

Air Quality

In spite of numerous efforts for approximation of national standards with international requirements especially the EU directives, reliable data from air quality monitoring on particulate matter (PM_{10}, $PM_{2.5}$) relevant for population exposure and associated health impacts do not exist. Thus health aspects are not effectively integrated in environmental protection policies.

The State Hydrometeorological Service (SHS) of the Republic of Moldova has put together an indicator on ambient air quality in urban areas following the guidelines of the UNECE Working Group on Environmental Monitoring and Assessment. Data are regularly updated and published on the SHS web site. The sub-indicator on annual average concentrations of total suspended particulate matter (TSP) from typical urban stations in the cities of Chisinau and Balti show that in the recent years the values from many of the stations correspond to PM_{10} and $PM_{2.5}$ levels which exceed WHO air quality guidelines of 10 $\mu g/m^3$ and 20 $\mu g/m^3$ respectively. For example, an annual average TSP of 70 $\mu g/m^3$ is, roughly equivalent to a PM_{10} of 42 $\mu g/m^3$ and to a $PM_{2.5}$ of 25 $\mu g/m^3$.

With the increasing number of vehicles and more frequent and longer trips as well as the number of old vehicles in use, traffic in urban areas is now a major cause of air pollution. The ban of import of cars older than 10 years in the Republic of Moldova to combat greenhouse gas emissions effective from 2013 will benefit urban air quality.

In rural areas the very high consumption of fuel wood due to a lack of alternative fuel supply is a significant source of ambient air pollution and also of poor indoor air quality especially using poor combustion technology appliances for heating. The health impacts associated with it have not yet attracted the due attention of the public health and environmental sectors.

Effective management of air quality through a concerted action of environment, public health, transport, land planning and housing, and energy sector is necessary to reduce health risks to a minimum. Up to 80 per cent of particulate air pollution in East European, Caucasus and Central Asian countries can be reduced with currently available technologies.

Concerning second-hand or passive smoking - the most important source of health-relevant indoor air pollution - the 2007 Law on Tobacco and Tobacco Products and its 2012 amendment, prohibits smoking in public places such as health care and education facilities, while restricting it in governmental offices, public transport, indoor offices and private workplaces. However smoking is permitted in public places such as bars, restaurants and discotheques. The Global Youth Tobacco survey (13-15-year age) on exposure to environmental tobacco smoke in and outside the home conducted in 27 countries of the European Region has shown very high exposure to second-hand smoking: about 63 per cent of the youth population in the Republic of Moldova has been exposed at home and outside home - almost every young person.

Table 5: Emission, per 1,000 tons

	2005	2010	2013	2014	2015
Transport	161.5	146.5	213.1	179	178.9
Stationary Sources	143.8	119.8	194.7	132.9	140.3
Emission of detrimental substances - total	20.3	15.5	15.6	15	15.8
of which:					
Solid	5.2	4.2	3.4	3.1	2.8
Gaseous and liquid	15.1	11.3	12.2	11.9	13

Source: National Bureau of Statistics of the Republic of Moldova, May 2017.

Table 6: Emission of some specific polluting substances in atmosferic air by stationary sources by Substances and Years, in tons

	2005	2010	2013	2014	2015
Metals and their compounds	6.5	9.6	6.5	5.3	4.8
Ammonia	141.3	68.4	64.2	9.9	8.9
Aromatized multiring hydrocarbon	9.2	29.8	6.9	2.9	19.8
Xylene	31.6	29.3	24.3	14.2	12.7
Styrene	0.2	0.2	0.2	0.2	0.2
Toluene	36.3	33.4	30.1	20.6	16.4
Formaldehyde	0.2	0.5	0.1	0.1	0
Chlorine	2	0.9	1.9	1.6	2.7
Persistent organic matters	2.1	0.3	0.3	0	..

Source: National Bureau of Statistics of the Republic of Moldova, May 2017.

Water and sanitation

Access to safe drinking water and sanitation is the top longstanding environmental public health priority in the Republic of Moldova. Population with access to improved water sources, in particular that of piped water supply on the premises has increased during the period 1990-2015 more pronounced in rural areas. For urban population the estimated 2015 coverage is 86 per cent up from 75 per cent in 1995, access to total improved water sources of 97 per cent remaining unchanged. In rural areas the access to total improved water sources in 2015 is estimated to 81 per cent up from 73 per cent in 1995. Enjoying piped water in the house or yard has been a matter of living in the cities: starting at 1 per cent in the year 2000, rural population with piped water supply on their premises has increased up to 28 per cent in 2015. There is a huge urban-rural divide: the Republic of Moldova is among the nine countries of the Region where urban-rural gap in access to piped water on the premises is more than 50 percentage points.

Management of small and very small drinking water supply systems is of paramount importance as they are actually in use by 50 per cent of the population. Republic of Moldova has started introducing the novel approach to water safety management of the water safety plans. A model water safety plan has been developed in the city of Orgeyev in 2007 and after a review and discussion the World Bank provided the city with a credit of US$2.5 million to pilot it. The experience gained usefully serves the implementation of the UNECE/WHO/Europe Protocol on Water and Health, to which the country is Party. Furthermore, it is very much in line with the post-2015 discussion on sustainable development goals and identifying metrics for monitoring and evaluating progress on water and sanitation.

Sanitation is a greater problem than drinking water: the values of the population coverage are smaller and the progress - slower. In 2015 the urban population coverage to improved sanitation is estimated at 88 per cent, up from 86 per cent in 1990; for rural areas the corresponding figures were 67 per cent and 51 per cent respectively. As concerning population access to communal sewerage systems the figures are even lower: in 2013 the national figure was 35 per cent of which 76.6 per cent coverage in urban areas and 10 per cent only – in rural (Chapter 7 of the third EPR). Having access to piped water or sanitation connected to sewerage is not only a matter of living in cities; household wealth can also influence access to improved technologies. The country was among the four countries in the Region, which succeeded to increase rural sanitation coverage while reducing the wealth quintile gap inequality during the period 1995-2010.

The WHO/UNICEF (United Nations Children's Fund) Joint Monitoring Programme (JMP) on water supply and sanitation has recently assessed the progress in achieving the MDG's global targets: Republic of Moldova has made a moderate progress as the change in population coverage for improved water sources and sanitation between the years 1990 and 2015 was 1/3 to 2/3 of the global target.

Lack of sewerage systems and wastewater treatment consitute a significant threat for microbial pollution of water in particular in small rivers used for irrigation and recreational purposes. Data on microbiological compliance show an increase in the period between 2004 and 2008 though with the various parameters monitored and the high level of data aggregation it is difficult to make any judgement of the severity and magnitude of the waterborne health risks. Those accute pollution problems continue to persist as building of sewerage systems and wastewater treatment is delayed from year to year because of financial reasons.

The notifiable gastro-intestinal infections in the Republic of Moldova, which tend to increase over time indicate a significant burden of ill-health associated to water pollution risks. Viral hepatitis, especially the most common Hepatitis A particularly frequent under poor sanitary and hygienic conditions seems to be of less public health importance in the country. To what extent this reflects the true situation or a failure of ascertainment and/or reporting as well as limited laboratory access and capacities requires specific investigation.

In 2007 two local waterborne outbreaks of shigellosis involving 138 and 88 cases were detected with the causal pathogen in the water supplies and the source of the outbreaks – identified. As is not possible to determine the proportion of background cases of acute gastrointestinal infections and outbreaks associated with poor water and sanitation it is likely that the vast majority of waterborne infections remain undiagnosed and many outbreaks - undetected. Furthermore, the specific causal pathogen in the water supplies or food products cannot be identified and so is the source of the outbreak.

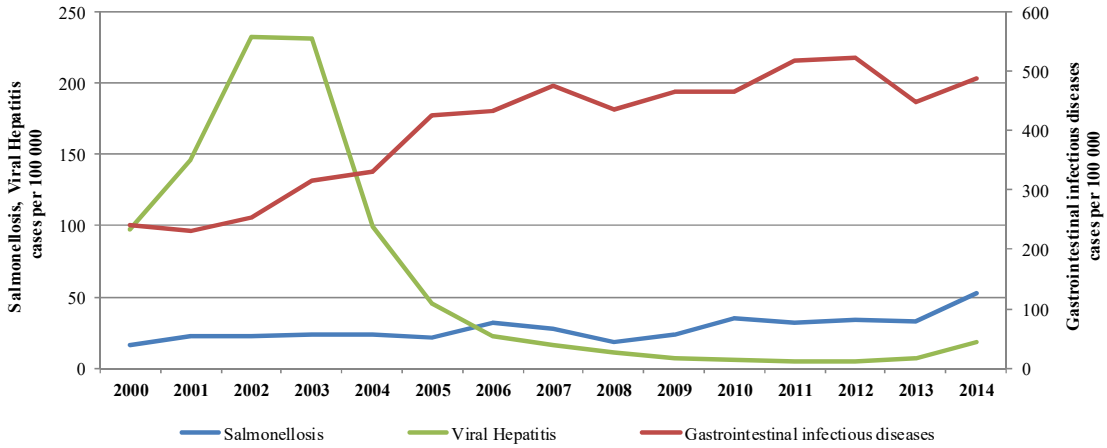
UNICEF Moldova conducted nation-wide survey on water safety in schools during the scholar year 2008-2009. Out of 1,526 schools 69 per cent had centralized water supply systems and 31 per cent used water from wells, springs or transported by tankers. Drinking water quality testing revealed the highest rate of non-compliance for nitrates followed by microbiological parameters caused by poorly sanitatised wells. In follow-up of the commitments to act taken at the Parma Ministerial Conference on Environment and Health, Republic of Moldova is taking part in strengthening national policies to ensure safe water and sanitation in schools.

Table 7: Main indicators of water use, 2005 – 2015, selected years

	2005	2010	2013	2014	2015
Number of water beneficiaries, units	2,547	2,495	2,372	2,439	2,501
Water collecting from natural wells - total	852	851	839	837	840
Water consumption (use) (without circular water and water used consecutively) - total	785	785	782	777	777
of which					
for production needs	583	581	580	579	579
drinking water	18	17	17	16	17
water supply for agriculture	35	39	38	38	39
water supply for households needs	120	118	118	113	114
Losses during transportation	67	66	57	60	63
Quantity of water in circulation and that one used consecutively	350	334	307	315	307
Volume of waste water discharged-total, million cubic meters	0.7	127.4	121.5	128.5	128.4 Bottom of Form

Source: National Bureau of Statistics of the Republic of Moldova, Statistical databank, July 2015

Figure 1: Gastrointestinal infectious diseases, viral hepatitis and salmonellosis, reported cases per 100 000 population, 2000-2014



Source: National Bureau of Statistics of the Republic of Moldova, Statistical databank, July 2015

Food safety and nutrition

Salmonellosis is a typical foodborne disease and the reported incidence keeps high through the years (Figure S.2).

Concerning acute diarrhoeal disease – one of the major diseases of the public health surveillance in the Republic of Moldova – 32,086 cases associated with food were reported between 2012 and 2014. Concerning chemical food safety, pesticide residue and nitrates are an issue of concern and capacity for pesticide residue controls in food and feed of plant and animal origin is to be built.

Traditionally well recognised water- and food-borne diseases such as salmonellosis and shigellosis are reported by the Republic of Moldova at rates considerably exceeding the EU, suggesting both the substantial dimensions of the actual public health problem, and the probable effectiveness of the systems for their recognition and reporting. However, other of those diseases, such as campylobacteriosis, hepatitis A, legionellosis, are reported by the system much less frequently than in EU member states.

Moldovans have an unhealthier diet than other European countries: proportion of energy from protein is lower than that of the EU and CIS countries and so is the daily available food energy content per person. They consume less fruits and vegetables than the other Europeans despite producing substantial amount of them. Surveillance of physical development of school children indicate insufficient consumption of meat and meat products, dairies, fruits and vegetables leading to a considerable proportion of children with protein and vitamins malnutrition. Programmes on combatting iodine defficiency through salt iodisation and on flour fortification with iron and other nutrients to prevent iron deficiency and anaemia are taking place.

Food safety and consumer protection is considered a priority in the Government's reform agenda and the food safety policy has been subject to important developments in the recent years. Currently a national action plan on food safety and nutrition is being developed.

Table 7: Gross agricultural production in current prices (per million lei), 2005 – 2015

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
8,268	8,646	9,474	10,354	11,819	12,688	13,734	12,825	16,503	13,300	19,873	22,619	19,922	23,814	27,254	27,193

Source: National Bureau of Statistics of the Republic of Moldova, Statistical databank, July 2015

Chemical safety

Chemicals in environment present important health risks yet there are no human bio-monitoring activities to estimate population's exposures to those hazards and to enable monitoring of potential effects of rehabilitation measures. In 2009 the Republic of Moldova took part in the UNEP-WHO coordinated global survey on Persistent Organic Pollutants (POP) in human milk in the framework of the Global Monitoring Plan under the Stockholm Convention. The results of the global assessment of the human exposure to POPs for the period 2000-2012 show relatively high levels for several POPs in the country taking into account that higher levels were detected in countries in the beginning of the period and were followed by a decrease. The highest perfluorooctane sulfonate (PFOS) levels in human milk (65.2 ng/g lipids) were in the Republic of Moldova. The high POPs in milk were most probably associated with high emission levels – the country was not compliant with the obligations of the POPs protocol under the Convention of Long-Range Transboundary Air Pollution having exceeded its 1990 emission levels in 2008–2009.

Despite the likely decrease in pesticide use in the recent years their import, storage and use remains a concern for environment and health. A number of activities have been undetaken aiming to reduce

health and environment risks. A national registration and evaluation system of plant protection products and fertilisers was established. Following a 2009 regulation on polychlorinated biphenyls (PCBs) a national inventory of PCBs is under way. An active inventory and mapping of sites contaminated with POPs were created by the Ministry of Environment in the framework of a project, funded by the World Bank/Global Environmental Facility (GEF). The POPs Management and Destruction Project implemented with the financial support of GEF in the period 2006–2010 resulted in incineration of 1,150 tons of obsolete pesticides from 12 warehouses in a licensed facility abroad. In cooperation with foreign donors, the Republic of Moldova succeeded in significantly reducing its stock of pesticides and PCBs; in total, 2,276 tons of chemicals were removed and disposed of abroad in 2007–2012 (Chapter 8 of the third EPR).

Climate change

The rise of the average temperature in the past 30 years in the country is an alert signal about the threat of climate change. Projected climate changes include higher air temperature; increased frequency of extreme weather events; warmer and wetter winters but hotter and drier summers and autumns; a continuous annual fall in average precipitation. Projections for Europe indicate that the risk of floods increases in northern, central and Eastern Europe and that today's 100-year droughts will return every 50 years (or less) in southern and south-eastern Europe (including the Republic of Moldova). Most of the Republic of Moldova's territory is characterized by a dry or sub-humid climate. Aridity, which leads to an increased incidence of drought, is predicted to be more pronounced from June to October during the plant vegetation period.

The country is prone to a range of extreme weather events such as heat waves and cold snaps, floods and associated landslides, droughts and storms. According to the database of the Centre for Research on the Epidemiology of Disasters (CRED) the most important natural disasters in terms of excess mortality and population affected in the Republic of Moldova during the period of 1990-2014 were floods, extreme temperatures (cold), windstorms and drought. Furthermore, during the heat wave of 2007 in Chisinau, the excess mortality (in particular cardiovascular and respiratory deaths) from April to September totalled 190 cases i.e. 6.5 per cent of the average of deaths for the same period of six reference years (2000-2008).

Climate change will further aggravate air quality related health problems in the major cities, in particular in Chisinau, contributing to the worsening of the respiratory consequences of groups of residents and also an increase in asthma and allergies. Heat waves-related deaths are expected to increase too. Climate change and variability will further increase the risk of droughts and water scarcity whereby that of hunger and malnutrition. The increase in floods frequency and intensity is associated with an increased burden of water- and food-borne diseases, the most vulnerable are the population in rural areas. The capacity of the country infectious disease surveillance in detecting and reporting high-epidemic potential diseases under changing climate is limited.

The vulnerability of the Republic of Moldova's population to both large and small-scale disasters is compounded by poverty, poor infrastructure and communications, a non-resilient agriculture and a range of environmental factors from rapid deforestation and poor watershed management to environmental pollution. Overall, the most vulnerable regions in the country under a changing climate are the city of Chisinau, the South, and partially the Central part of the country.

Waste Management

In 2013, the government of Moldova adopted the National Waste Management Strategy (2013-2027). The strategy aims at developing an infrastruction and services to adequatlely protect the environment from the effects associated with the management of waste generated in the country. This includes the establishment of a legal and institutional framework, based on the ones in the EU.

Improper waste management had been affecting the local communities, threatening the environment, and contributing to global emissions of greenhouse gases in the years before. The National Waste Management Strategy (NWMS) aims at stopping that through the following techniques:
a) *Prevention:* prevention of waste production in the superior part of the hierarchy is the most wanted option. Prevention means a slow-down and inversion of the increasing rate of waste and the hazardous qualities of the produced waste;
b) *Reuse and recycling.* These techniques refer to the usage of waste as secondary type raw materials, either without additional processing (reuse) or with subsequent processing (recycling);
c) *Recovery:* This technique refers to the extraction of the value onwards (including the energy) from the produced waste. The recovery includes the utilization of the fuel fraction of waste as an alternative fuel in the production of electrical and thermal energy;
d) *Disposal:* This technique is based on the burning in waste storage facilities of waste components which can not already be sent for reuse, recycling and recovery and are thought to reduce considerably the emissions in the environment.

The awareness and public participation is critical to perform and support waste management at national and regional levels. Despite the increasing complexity of waste issues and changes in waste treatment systems, all the waste management strategies necessarily require the involvement of households, businesses and civil society in a broad public consultation to reach strategic goals. The civil society slogan "only together we can have a clean environment" is a boost for collaboration and development of public awareness on environmental protection. Moreover, the support of the international partners, including the European Commission, the International Financial Institutions and the Development Agencies, is vital for the realization of the development rhythm which is necessary for the approximation of European waste management practices.

The Moldovan Government undertakes efforts to develop a new legal and institutional framework on waste management regulation under the EU legislation, including the regulation of different flows of waste and operations of waste recycling, recovery and disposal, the creation of an efficient and progressive, institutional and administrative system of waste management, the monitoring, implementation and observance of the law on environment; however, the most difficult aspect would be attracting investors.

In spite of the ambitions of the government, 2015 was not a good year in terms of waste management (see tables 7 and 8). The total waste stock increased by about 18%, and the amount of toxic waste increased by almost 50%.

Table 7: Development of the total waste stock in 2015, x 1,000 tons

Existing at the beginning of the year	Generated	Inputs	Used	Supplied	Destroyed or transported to dumps	Existing at the end of the year
8,684.60	3,981.20	867.3	609.9	1,250.90	1,396.80	10,275.50

Source: National Bureau of Statistics of the Republic of Moldova, Statistical databank, July 2015

Table 8: Development of the toxic waste stock, 2000 - 2015, in tons

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
11.9	11	8.6	7.8	7.9	7.4	6.5	6.5	6.5	6.5	6.1	6.4	6.3	6.2	9.2

Source: National Bureau of Statistics of the Republic of Moldova, Statistical databank, July 2015

Section 3: Environmental health management

Policy framework

With the many policy programmes under development there is no integrated national programme on environment and health. The Government Activity Programme of European Integration: Freedom, Democracy, Welfare for the period 2011-2014 sets the policy agenda for economic and social development and integration into the European Union yet taking a clear sectoral approach on population's health and environmental protection.

The 2014 National Environmental Strategy 2014-2023 with its cross-sectoral and cross-cutting strands features the "core" of a national integrated programme. The overarching objective is through effective management to improve environmental quality in order to ensure the right of the population to a clean, healthy and sustainable environment. Main strands focus on harmonization of the legislation with the EU acquis, environmental sector reform, integration of environment concerns into other sectors policies as well as environmental impact assessment and strategic environmental assessment, with the aim to reduce risks to environment and human health. Specific objectives of the strategy of high relevance for population's health focus on air quality, water supply and wastewater treatment, waste management and remediation of industrial pollution hot-spots.

Concerning air quality, planned actions focus on its improvement and eradication of excess pollution at the source, putting in place a national air quality monitoring system complying with EU requirements, institutionalising a system of national and local air quality management and planning. Accountability mechanisms, however, are limited only to the compliance with environmental quality standards.

Concerning water resource management and safe water environments the river-basin management will be further reinforced and the flood hazard management plans – introduced. Further development of water supply and sanitation infrastructure to reach by the year 2023 that 80 per cent of country population have safe water supply systems and services, and 65 per cent - sanitation systems and services; the water supply and sanitation strategy undergoing revision. Strengthening the development and implementation of water safety plans throughout the country will further reinforce sustainable drinking water management ensuring a high level of health protection.

Environment strategy serves an umbrealla for strategic planning at all levels. It embeds two cross-cutting climate change policy programmes: the Low Emission Development and the Climate Change Adaptation (Chapter 6 of the third EPR). Those are draft policy documents pending Governmental approval. Within the draft Climate Change Adaptation Strategy, health sector measures would focus on: translating existing in the country scientific evidence and knowledge into a structured national assessment of the health risks of climate change and bringing it to the attention of policymakers; development of health measures and their integration into adaptation plans; review and upgrade of disease surveillance system to encompass extreme climate-related health conditions; identifying, monitoring and targetting risk groups and vulnerable populations; providing access to healthcare to remote communities and vulnerable populations under extreme weather events.

The National Health Policy 2007–2021 sets as one of its specific objectives the creation of a healthy and safe environment. Further, the 2013 National Strategy on Public Health 2014-2020 sets a vision for sustainable health through empowerement of public health system and high-quality services at the level of individual, community, and population. Essential public health activities include: (a) monitoring people's health status and trends in order to identify health problems and risk factors and to provide reliable and timely information to support relevant decision-making; (b) strengthening laws and regulations for health protection ensuring relevant capacities and controls; (c) planning, preparedness, response and crisis management in the face of public health emergencies.

The Strategy is accompanied by a detailed Plan of Actions with specific objectives and tasks related to the strengthening of preparedness and response to public health emergencies. Of particular relevance are the adjustment of the legal framework on public health emergencies of chemical, biological, radiological origin to the international standards; the establishment of a National Integrated System of all-hazard public health emergency preparedness and response for the health sector; and the periodical training of the intervention teams.

Cross-cutting activities include responsibilities for inspection, monitoring, and enforcement on food safety, environmental health monitoring and health and safety at work, which are all shared between health and other sectors. Furthermore, epidemiological surveillance and reporting, and information system on public health and its determinants, are at the core of the public health services package.

The National Public Health Strategy 2014-2020 envisions some policy measures to advance inter-sectoral collaboration. Those include development of cross-sectoral programmes involving health, agriculture and food industry, environment, education, transport and local authorities with specific, measurable objectives for communicable and non-communicable disease prevention through reducing environmental health risks. Next, setting organisational mechanisms in the form of National Coordination Council on public health to oversee cross-sectoral programmes with clearly defined responsibilities of each stakeholder. Finally, development of partnership at national and local levels involving different sectors and civil society through introducing the "Health in All Policies".

A parallel of the environment and public health strategies show a number of commonalities and overall, a good potential to underpin joint action in the field of environment and public health.

(a) In terms of processes both strategies feature an initial, relatively short phase (2014-2016) to align strategic, regulatory and legal framework to the European Community acquis, next, medium-term phase (2016-2020) to implement and enforce the regulations and to launch complex measures to reduce risks to environment and public health, improve quality of life and of services. A third phase (after 2020) for the environmental strategy only, where the benefits of all the measures undertaken would be assessed though how it will be done is to be decided in the future.
(b) Protection of environment and of public health by putting in place strategic environmental assessment and environmental impact assessment. General requirements are being defined for the environment without implications for environmental health impact assessment. This is the case both for the environmental and even more so - for the public health strategy. Integration of health aspects in environmental and sectoral policies is lacking. Multi-sectoral measures on transport, health and environment, integrating health concerns in urban planning and environmental quality management with considerably greater societal benefits, are not envisioned in the environmental or the public health strategy.
(c) Both environment and health sectors have identified areas for joint actions. For the environment, health sector involvement is in planning strategic actions and policy formulation, e.g. setting of health-relevant environmental quality standards setting and health protection measrues; for some issues like drinking water also monitoring for compliance and quality management. For health sector its involvement encompasses monitoring and evaluation of policy implementation through putting in place information system based on public health indicators. Key action of the environment strategy focuses on the establishment of an integrated information system based on a set of indicators. In any case information on the intersection of environment and health i.e. indication about population exposure to pollution or related health effects is not foreseen to be included in the system(s).
(d) Specific objectives of the strategies aim at advancing environmental monitoring and public health surveillance systems, strengthening reporting and data exchange obligations as well as information provision. Both strategies comprise action plans supplied with rather basic "business" (administrative) indicators to measure the progress of implementation.

The National Programme on Sound Management of Chemicals of Moldova endorsed in 2010, takes stock of the recommendations from the first national profile for chemical management, developed through UNEP-Moldova partnership project in the framework of the Strategic Approach to International Chemical Management (SAICM) and sets a two-phase process. The 1st phase (2010-2015) has focused on strengthening of the legal, regulatory and institutional integrity for chemicals management, alignment to international standards, strengthening of human and technical capacities, initiation of activities to reduce risks associated with priority hazardous chemicals. An operational mechanism of coordination among the sectors and devolved administrations on chemical management has been developed and a proposal for a Government resolution on the establishment of a National agency for chemical safety – prepared. The 2nd phase (2016-2020) will deal with the assessments of the effects of the chemicals management measures and cleaner production implementation in terms of the chemical safety risk reduction though how it will be done and which institutions will be mandated is to be determined in the future.

In those deliberations public health "argument" is just a subject of general consideration without specific assessment of and use of the information on environmental health impacts nor specific provisions on the health sector. While the economic sectors operate at the level of the upstream determinants of the cause-effect chain, the sectorial activities should be accountable for achieving a common goal of reducing and eliminating population's exposure to hazardous chemicals in the environment.

The 2007 GD No. 33 on the procedures and rules for the elaboration of policy documents requires, inter alia, monitoring and evaluation of implementation of those documents. Despite this, it is rather difficult to find information on the status or a report on the implementation progress of the different strategies and policy programmes.

Legal framework

To bring into life the strategic integrated approach and coordinated action on cross-cutting issues several key pieces of environmental legislation are currently under development and some -- under major revision.

The 2007 Law on the National Environmental Network, No. 94-XVI, creates the legal framework for the establishment, development, management and protection of the network, as part of the Pan-European Ecological Network and of local environmental networks.

The 2009 Law on State Surveillance of Public Health, No. 10-XVI, sets out the content of public health surveillance, (as a broad activity involving also health promotion, disease prevention and control programmes), and the competencies and powers of government, the Ministry of Health, other central and local government authorities. It regulates surveillance of communicable and non-communicable diseases, disease control and prevention, including investigation of outbreaks, and authorises the principal functions of the state public health information system. A dedicated chapter relates to the approach, responsibilities and management of public health emergencies. In the context of the International Health Regulations (2005), the law sets out special "empowerment" articles for specific actions that can be required to be taken during public health emergencies.

Further by-laws determine mandatory notification of defined diseases and public health events, including outbreaks, development of the public health laboratory surveillance network. Those also set definitions, classifications and evaluation criteria for emergency situations, as well as methodology for data collection and information flow. Data exchange between veterinary service and public health surveillance is also underpinned by regulation.

The Law stipulates provisions for public health such as planning and construction of human settlements, defining sanitary zones to reduce health effects of physical and chemical stressors in different

environments (air, soil, water), as well as in different settings (houses, workplaces). It also sets out rules for sanitary authorisation of products, services and certain type of activities of public health relevance.

To some extent the 2009 Law serves an intermediate document for the National Strategy on Public Health 2014-2020, which puts public health at the core of policy, making a shift from disease treatment to prevention by acting on the health determninants.

The draft law on chemical substances currently under revision to ensure a strict connection to the relevant EU regulations includes provisions for an integrated chemicals management throughout their lifecycle, the classification, packaging, labeling, registration of substances and mixtures, evaluation, authorization and restriction of certain chemicals. The legal framework on control of accidents related to dangerous substances is being drafted but needs further effort to strengthen the preparedness and response aspects. The regulation on industrial accidents notification is at an early stage.

The 2007 Law No. 93 on Civil Protection and Emergency Situations Service establishes the Civil Protection and Emergency Situations Services, defines its roles and responsibilities at national and sub-national levels, as well as the conditions of service.

The 2012 Law No. 113 on general principles and requirements for the provisions in the field of food safety sets out areas of competences for foodstuff monitoring and control.

The 2011 Law on Water No. 272, in force from October 2013, includes provisions on river basin districts, the establishment of administrative arrangements for international waters, analysis of river basin district characteristics, undertaking preliminary flood assessment, preparation of flood hazard maps and flood risk maps, establishment of flood risk management plans, establishment of water quality monitoring programmes, river basin management programmes and consultation with the public.

Penalties for infringements of the legal provisions are the primary enforcement measures in case of non-compliance; those are regulated through the 2008 Code on Offences No. 218 (“Contravention Code”). Remedial measures to minimize the risk of non-compliance and restore the environmental quality with priority given to rectifying problems at the source or specific actions aimed at protection of the population at risk are lacking.

During the last five years and with the support of foreign aid agencies and international organisations, the Republic of Moldova has significantly advanced the implementation of the Protocol on Water and Health to the 1992 UNECE/WHO/Europe Convention on the Protection and Use of Transboundary Watercourses and International Lakes. In connection with relevant national and international policy dialogues (integrated water resource management and water supply and sanitation) targets and target dates were set for the quality of drinking water and discharges, and for the performance of water supply and wastewater treatment as well as for reduction and prevention of water-related diseases and outbreaks. Those targets together with measures to achieve them were endorsed by the Ministers of Environment and of Health.

A concise Action Plan defining specific activities to achieve the targets and target dates, their financial requirements and sources, as well as the necessary human resources is under way. The process also provides useful inputs to the revised Government strategy on water supply and sanitation, and to the national adaptation strategy to increase water and sanitation resilience to climate change. A report on the implementation process is expected in 2016.

The Pollutant Release and Transfer Register, which is to be established in adherence to the UNECE Protocol on Pollutant Release and Transfer Registers of the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, is an effective policy instrument for pollution control at the source and at the same time an information service on the emissions of pollutants into the environment. This service is of particular health relevance as it provides

important signals for preventive actions on hazardous releases before the effects on health have taken place as for example in the case of POPs.

Institutional framework

Ministry of Health

The Ministry of Health is responsible for developing and monitoring the implementation of public health policies, legislation and regulation in the field, promoting the inclusion of health-related action in all public policies, and supporting their efficient implementation in other sectors.

The State Public Health Service (PHS) -- an integrated set of entities from the Ministry to the National Centre for Public Health and Centres for Public health at municipal and district/rayon level is accountable to and directly financed by the Ministry of Health. It is headed directly by a Deputy Minister being the Chief State Sanitary Doctor of the Republic, and coordinated by the Ministry through its Directorate of Public Health. Numerous reforms of sanitary-epidemiology services, as well as revision of the legislation on public health have brought profound organisational changes. The sanitary-epidemiology infrastructure was first transformed to Centres of Preventive Medicine, and further reorganised in 2009 into PHS similar to European practices and in accordance with WHO recommendations.

The PHS infrastructure comprises the National Centre of Public Health (NCPH), 36 Centres of Public Health (CPH) at district/ rayon level and two Centres in Chisinau and Balti municipalities.

The NCPH is directly accountable to the Ministry of Health, and is responsible for most core public health functions at national level. Those encompass monitoring and assessment of public health and health risks, provision of expert health policy advice including measures for their mitigation and development of programmes and measures for disease prevention. The Centre also works on the professional development of public health experts, and performs public health research.

It is mandated to assess and report on implementation of national public health policies, and to produce annual reports “State Public Health Surveillance in Moldova” using principal health indicators and results on compliance from sanitary-hygiene monitoring to describe the situation and the developments of the most recent (usually three) years.

The rayon/municipal centres of public health (CPH) are accountable directly to the Ministry of Health, and rely on NCPH for technical and methodological support; with NCPH serving a training centre. They coordinate the implementation of national public health policies in their jurisdictions; undertake core public health functions related to monitoring, prevention, health protection and promotion, and report to NCPH.

Rayon CPH structures and organisation vary with size of the population served, but all have divisions or departments for communicable disease surveillance and control, health promotion and non-communicable disease surveillance, health protection (including environmental health, occupational health, child and adolescent health) and public health management. These services are underpinned by microbiology and environmental laboratories, IT and administrative and logistics support. Microbiology and sanitary-hygiene/environmental laboratories exist in each of the 36 rayon or municipal centres for public health (CPH), together with the equivalent laboratories at NCPH. In addition there are two radiological laboratories, located in Chisinau and at the NCPH Balti. Despite existence of electronic surveillance some centres still use paper format for reporting; the paper and electronic surveillance run in parallel.

The core laboratory functions are to provide detection and confirmation of cases of infectious disease, and of wider public health hazards (biological, chemical, radiological). Clinical and environmental (e.g.

food, water, vector) samples are tested in public health microbiological laboratories, at both national and rayon level.

Through their laboratories the Centres conduct monitoring vis-à-vis hygiene-health norms of: (a) water quality of several surface water bodies, which are used for drinking water supply; (b) drinking water quality of communal water supply and that of wells in rural areas; (c) bathing water quality at designated bathing sites; (d) soil quality in recreational areas, human settlements (in particular, schools and playgrounds) and areas around drinking water intakes (Chapter 4 of the third EPR). Sanitary-hygiene laboratories are in charge of the monitoring of air quality in urban areas, but methods are not in line with the international requirements for environmental health protection such as WHO Air Quality Guidelines. Furthermore, the data collected mostly in the form of exceedances of outdated air quality standards and reported as aggregated figures do not provide indication about the related health risks.

Only laboratories at NCPH and the Centres of Public Health in Chisinau and Balti municipalities in larger rayons are equiped with technical facilities and capacity for monitoring risk factors; within the country there is a lack of up-to-date equipment and qualified personnel. This is even more the case for sanitary-hygiene laboratories which have rather basic equipment.

Ministry of Environment

The Ministry of Environment (MoE) is the central public administration body that develops and promotes the State policy on environmental protection and rational use of natural resources. Its key functions are secured by the four departments: (i) analysis, monitoring and policy evaluation; (ii) water management; (iii) pollution prevention and waste management; and (iv) natural resources and biodiversity. In addition, the Ministry oversees the activity of several dedicated offices and project implementation units.

The MoE has a number of subordinate institutions with regulatory, policy implementation and control functions, of which of particular relevance for environment and health are the following. The Agency "Apele Moldovei" is the administrative authority in charge of the implementation of State policy on water resources management, hydroamelioration (land improvement) and water supply and sanitation. The National Agency for Regulation of Nuclear and Radiological Activities regulates the nuclear and radiological activities (Chapter 1 of the third EPR). The State Hydrometeorological Service (SHS) is responsible for monitoring of hydrometeorological conditions and environmental quality, in particular of ambient air, surface water, and soil, the radioactive situation, and to conduct weather forecasting (Chapter 4 of the third EPR). The State Ecological Inspectorate (SEI) issues the authorizations in respect of emissions into the air and concerning the special use of water, and performs the State ecological expertise and State control regarding compliance with environmental legislation requirements. It produces voluminous annual reports which combine state-of-the-environment aspects with the results of inspection work during the year. At present the country infrastructure integrates 31 ecological inspections in rayons/ districts, 4 ecological agencies in the cities of Chisinau, Balti, Cahul and the administrative Territorial Unit Gagauzia (Chapter 2 of the third EPR).

With the institutional infrastructure involving several instituions without clearly stated responsibilities there is some overlapping of functions, in particular on water issues, at the same time no clear responsibility on air protection. Furthermore, there is a lack of clear distinction of the competences in between the Ministry of Environment and its subordinated institutions, namely, the competences of environmental policies development, their implementation and control for compliance with the legislation. Currently, an institutional reform within the environment sector has been undertaken with the aim to separate control and enforcement from the policy process.

Monitoring landscape within environment and public health remains fragmented with many institutions involved, lack of coordination of the monitoring networks falling under different authorities and limited information sharing. Aggregated figures on compliance i.e. proportion of exceedances of environmental quality parameters vs. pre-defined norms and standards most often used in public health reports do not

provide indication about the magnitude of environmental health risks, population affected or potentially "at risk". Neither do they provide information about changes in the risks as a result of interventions. Despite the availability of the GIS tools both as a part of the electronic health surveillance system and as a web-based environmental portal application there is no attempt for linking environmental and public health data.

Other institutions

The National Food Safety Agency (FSA) has been recently set up by merging the General Inspectorate for Phytosanitary Surveillance and Seeds Control and the Agency for Veterinary Health and Animal Products Safety. The Agency is a separate entity from the Ministry of Agriculture and Food Industry, reporting directly to the Government; its organisational infrastructure is currently being established. Its main responsibilities focus on ensuring food safety throughout the food chain 'from farm to fork', including animal health, control of zoonoses and cooperation with the Ministry of Health on food safety. The Ministry of Health is responsible for the prevention of foodborne diseases, and for leading primary and secondary prevention interventions, as well as epidemiological investigation of foodborne outbreaks. National foodborne disease surveillance is currently being built within the State Public Health Service.

Liaison with the newly established National Food Safety Agency as well as with the Consumer Protection Agency under the Ministry of Economy appears limited. Although provided by the regulation, there is no data linkage between databases for human and veterinary infectious disease surveillance, or coordinated information exchange.

Chemical safety management

Responsibility on hazardous chemical management is spread across a number of ministries with unclear and overlapping responsibilities. The national register of chemical substances as well as monitoring and control of environment for compliance with hazardous management legislation is with the Ministry of Environment. The Ministry of Economy and Commerce is responsible for the chemicals, as material used in industry, including import/export; the Ministry of Agriculture and Food Industry is responsible for management and control of plant protection products and fertilisers. The Ministry of Health is in charge of biocides, pharmaceuticals and chemicals in hospital waste, as well as of setting norms and standards and approval of pesticides and chemicals for use in the country, the Ministry of Labour, Social Protection and Family - of control and prevention of exposure to chemicals at workplace. Monitoring of chemical hazards is also spread among different institutions without clear responsibilities including information exchange. For example monitoring of chemicals in soils has been conducted by the SHS through its dedicated Centre for Monitoring Soil Quality and by the National Centre for Public Health under the Ministry of Health.

During the development of the first national profile for chemical management in the framework of the SAICM Quick Start Programme, a multisectoral group has been established involving stakeholders from economy, agriculture, health, labour and social sectors, academia and NGO led by the Ministry of Environment - the national focal point for SAICM. The Ministry of Health has created a centre for chemical safety and toxicology within the NCPH in order to strengthen health sector involvement and work on cross-cutting issues. The Group was upgraded to a cross-sectoral body to coordinate the implementation of the national programme on sound management of chemicals in the form of Interministerial Working Group. It involves representatives of the central administrations from agriculture, economy, health, labour, transport, defense, finance, emergency situations, and those of local public authorities, as well as stakeholders from environment, industry, and academia.

The responsibilities for occupational health are shared between the labour and health administrations: the Ministry of Labour, Social Protection and Family is in charge of the legislation and the Ministry of Health – of monitoring occupational health and control of risk factors in work environment. The State Public Health Service controls a number of workplace factors such as toxic substances, radiation, noise,

vibrations, inadequate microclimate and report on compliance in highly aggregated format. It also diagnoses and confirms occupational diseases. The Labour inspection reports on work-related accidents and casualties however without specification of the type of injury and the potential cause. The occupational health and safety infrastructure is currently under reorganisation: responsibilities and mandates of the institutions involved are to be clarified and so are the employer-employee relations.

Management of public health emergencies

Emergencies with potential public health impact, in the context of this chapter, refer to chemicals and extreme weather events under climate change. The Republic of Moldova has in recent years developed a substantial body of legislation and capacities for a solid public health preparedness and response system, with shared responsibilities between civil protection and public health.

Health emergency planning and response involves a number of organisations at Governmental, Ministry of Health and local levels. The Governmental Commission for Emergency Situations is the main body responsible for implementing preventive measures, verifying emergency preparedness and managing emergency situations, generated by all hazards. It is chaired by the Prime Minister and involves representatives from all ministries and departments. The State Service for Civil Protection and Exceptional Situations under the Ministry of Interior is responsible for coordinating the activities of all authorities involved in response to disasters, including the health authorities. The Service maintains and regularly updates a national, multi-sectorial plan for disaster risk reduction which includes components of all plans prepared by the various ministries and government agencies, including the health sector. The National Extraordinary Committee on Public Health is responsible for an integrated approach on prevention and management measures, multi-sectorial mobilization and coordination of response to public health threats and emergencies.

Under the Ministry of Health the involved bodies comprise: (a) the Ministry of Health Commission for Emergency Situations, (b) the National Centre of Public Health – the implementing body of the National Extraordinary Committee on Public Health in collaboration with the relevant services of other ministries and central authorities, and (c) the National Scientific and Practical Centre of Emergency Medicine providing emergency medical care.

The Moldova public health emergency preparedness system has a number of strengths. National multi-sectoral and sectoral/district-level plans are in place to manage emergency situations, and committees are appointed at all jurisdictions to coordinate activities. Rapid response teams at all health system levels are designated and trained in first response to disasters. The communicable disease surveillance system is well equipped to monitor occurrence of infectious diseases and identify unusual and unexpected health events clustering by place, time and population groups, allowing early detection, risk assessment and response actions.

In accordance with International Health Regulations (2005) requirements that call upon countries to strengthen their capacities on early detection, assessment and communication on public health threats, a unit monitoring public health threats at regional, national and international level was created in 2009 at the National Public Health Centre.

The National Statistical Bureau is the central administrative authority which manages and coordinates the activity in the field of statistics. It organizes, following the programme of statistical work, annually approved by the Government, statistical surveys on economic, social, demographic development of the country. It caries out the work related to the collection, processing, storage and dissemination of statistical data. Statistical databank provides user-friendly access to vast arrays of statistics.

Intersectoral collaboration

Working groups composed of experts as well as policy-makers from different sectors are being involved in development of policy programmes and legal acts thus in inter-sectoral collaboration during policy

preparation phase. Sustainable partnerships involving different sectors for implementation of policy and legislation in the field of environment and public health are however rather limited. At operational level each authority manages its own laboratory network without coordination and cooperation as well as without data exchange of environmental data even if stipulated by law.

There are some good examples of intersectoral collaboration. When there is a common goal, mechanisms of inter-institutional communication, a clear definition of the tasks including information activities as in the case of the process under the Protocol on Water and Health the environment and health sectors collaboration has been successful. Management of public health emergencies presents another case of successful intersectoral collaboration. The system has taken good advantage of international support in modernising a structure inherited from past administrations and built on a wide multi-sectorial network from central down to local level to prepare and respond to emergencies and disasters to which the country is prone.

Section 4: Conclusions and recommendations

Environment and health sectors have put forward different policy action programmes; information about their status and progress is difficult to assess, despite the legally binding requirements for monitoring and evaluation of policy implementation. It is not possible to assess the performance of the countrypolicy and legal system in improving environment and health conditions.

Comprehensive reports on public health and environment are prepared annually by the NCPH and SEI but they do not provide critical assessments of the current situation and trends and their format do not meet the needs of decision-makers or the general public. Transforming public health and environment reports by applying a set of policy-relevant environmental health indicators would enable baseline assessments, monitoring progress of implementation of strategies and regulations, and evaluation of their potential effects.

Recommendation S.1
The Ministry of Health in cooperation with relevant Government departments of environment, agriculture and food safety, transport and others, should establish an integrated information system to enable assessment of the performace of environment and health policies and of priority environmental health risks as well as to provide information to the public by:

- *(a) Putting in place measures for a stepwise process on development of methodology and establishment of information-base linked with strategic analyses and reporting mechanisms, as well as sharing and dissemination procedures, with the support of international expertise;*
- *(b) Setting up intersectoral mechanisms involving stakeholders from Governmental authorities, civil society, and multidisciplinary expertise to steer the process and to evaluate the system products such as reports, assessments, newsletters, etc.*
- *(c) Secure sustainable operation of the system for a timely and reliable information support to environment and health policy-making and to inform citizens through, inter alia, secure capacity (human resources, time, and skills) and potential for its increase;*
- *(d) Ensure substantial capacity building and training in modern methods of integrated assessments, paying a greater attention and resource commitment to data analysis and presentation, interpretation of epidemiological, toxicological and other scientific knowledge into a useful information that can be understood by environment and health practitionners, policy analysts and the public.*

Environmental monitoring is conducted independently by a number of different institutions, maintaining an extensive monitoring scope and using sometimes outdated quality standards. Besides serving as a tool for controlling compliance with the existing norms and regulations, the results of monitoring are used to describe the health status and the environmental conditions where there is little information about population exposure to environmental health risks.

Recommendation S.2:
The Ministry of Environment and the Ministry of Health should:

- *(a) Undertake a critical revision of environmental monitoring systems and reporting obligations to enable monitoring of the common and widespread in the country environmental health risks, their time trends and the way they change due to implemented policies and programmes. Throughout the revision clarify institutions' roles and responsibilities thus avoiding monitoring duplication and streamlininig reporting to usefully serve risk assessments;*
- *(b) Introduce the monitoring of outdoor particulate matter PM_{10} and $PM_{2.5}$ and WHO air quality guidelines as a matter of priority as well as dissemination of air quality*

information to the authorities and the public.

Environmental impact assessment is a major accountability mechanism of environmental protection policy, legally defined and the strategic environmental assessment law is currently under development. At the same time health aspects of degraded environmental conditions are only generally considered. Public health strategy introduces "Health in All Policies" in order to create a platform for effective intersectoral action on health using accountability mechanisms in the form of health impact assessment. Environmental impact assessment can provide useful entry point for a progressive implementation of health impact assessment thus ensuring stronger and more explicit integration of health concerns in policy plans and legislation. Further specification of the public health legislation e.g. potential revision of the public health law, by-laws and other regulatory mechanisms are necessary to define responsibilities, advance implementation of health impact assessment and coherence with environmental assessments.

Urban development plans aiming to reduce adverse effect on health of accelerated growth in the number of vehicles, creating healthy and environmental friendly alternatives of the use of private cars and promoting healthy life styles of walking and cycling present opportunities for good practice examples of introducing health impact assessment.

Recommendation S.3:
The Ministry of Health with the involvement of the Ministry of Environment and through international collaboration with WHO and UNECE, and in line with the internationally agreed procedures should:

- *(a) Identify a core set of procedures and qualitative, quantitative and participatory techniques for health impact assessment in cooperation with the relevant government bodies;*
- *(b) Prepare necessary regulations and consider their endorsement at strategic level;*
- *(c) Carry out health impact assessment in policy documents, projects and plans which are subject to Strategic Environmental Assessment when those have an impact on human health.*

Intersectoral collaboration on health with the involvement of several economic sectors and governmental administrations as well as diverse stakeholders requires a whole range of measures as well as specifics at national and local levels. Establishment of a national coordinational council on public health to oversee development and implementation of cross-sectoral programmes aimed at improving public health will certainly facilitate working relationships between government bodies and stakeholders. Its structure can be involved in institutional infrastructures to a greater or lower extent and be based on more or less formal arrangements. Preferred options would imply a body with a clear (presumably greater) mandate involving dedicated departments from relevant institutions and stakeholders' representatives, or working group(s) with a clear, although limited, mandate involving representatives of different sectors; what matters is the existence of a clearly stated mandate. Further, it is necessary to devise within institutional arrangements and to identify responsibilities for effective intersectoral collaboration on health issues.

Recommendation S.4:
The Government of the Republic of Moldova should endorse mechanisms for intersectoral collaboration and the necessary organizational arrangements, as well as some financial resources.

Beyond specific projects implemented with foreign financial support intersectoral collaborative activities are rare. The country lacks an incremental project-oriented process, starting with relatively simple areas of work that involve few sectors and progressively moving to more complex areas and collaborative efforts. Activities which benefit both public health and the environment such as those under the Protocol on Water and Health or in the framework of international policy processes e.g. SAICM present very good opportunities for advancing intersectoral collaboration.

Recommendation S.5:
The Ministry of Health, the Ministry of Environment, the Ministry of Agriculture, and other relevant Governmental bodies should:

(a) Ensure continued implementation of the Protocol on Water and Health and in particular of water safety plans throughout the country;
(b) Conduct update of the national profile on chemical management to assess the progress.

The vertical, hierarchical and resource-intensive organization of environment and health services makes intersectoral collaboration at local level, difficult. Joint activities with specific goals for example improving air quality and health with involvement of local governments are currently lacking. Also there is no regular exchange of information and experiences as well as lessons learned from cross-sectoral projects between public health service, environment, food safety authorities etc. or conducting joint inspections e.g. between public health services and labour inspections.

Recommendation S.6:
The Ministry of Health and the Ministry of Environment should:

(a) Foster exchange of experiences, information and data between environment and health practitioners at different levels through diverse fora thus gaining a better understanding of the role of environmental conditions in shaping population's health;
(b) Improve conditions for continuous development of capacities of personnel involved in public health and environment actions.

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