



National Report

for UN CSD 2012 Rio+20



■ Chisinau, 2012



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General Information

This report was developed as part of the National preparatory process of the Republic of Moldova to the United Nations Conference on Sustainable Development 2012 “Rio+20” (UN CSD 2012). The document was prepared within a broad participatory process, coordinated by the National Working Group Rio+20 (formed from representatives of the Office of the President, Parliament, Governmental Agencies (ministries), representatives of major stakeholders and NGOs and chaired by the Ministry of Environment and State Chancellery), followed by national consultations of the draft report and recommendations and launching of the report at the National Conference on Sustainable Development, organized by the Ministry of Environment, UNDP Moldova and a number of environmental NGOs on June 5, 2012.

Acknowledgements

For the contribution to the development, methodological support and coordination of this report we express our gratitude to the National Working Group Rio+20, to UNDP Moldova and United Nations Department of Economic and Social Affairs (DESA). Special thanks for main contribution go to the Ministry of Environment, Ministry of Economy, Ministry of Foreign Affairs and European Integration, and to the environmental NGOs: EcoContact, National Environmental Centre, Eco-Tiras, BIOS and EcoCim.

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National Report for UN CSD 2012 Rio+20

Tipografie: Bons Office, 2012 – 60 pag., 500 ex., var. Eng.

ISBN ???????

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FOREWORD

In 1992 the Republic of Moldova signed the Rio de Janeiro United Nations Declaration on Environment and Development, proving its willingness and commitment to be part of the global process of a transition to a sustainable development model.

Later, in 2002, at the Johannesburg Summit, Moldova reaffirmed its commitment to promote the Rio Principles in the field of Integrated Water Resources Management, Environment and Health, and Human Rights to a Cleaner Environment. As we are about to celebrate the 20th Anniversary of the Rio Conference on Sustainable Development, the Republic of Moldova is very much forward looking to further integrating social, economic and environmental dimensions of sustainable development into the country's development agenda.

Like other Eastern European countries, Moldova follows a double-track transition: the first track is the transition to a state based on the rule of law, market economy principles, a functioning democracy and strong civil society; the second one signifies Moldova's contribution to the transition of the entire humankind to the sustainable development paradigm. In the era of globalization, no country can solve the risks and challenges posed by growing environmental footprint, changing climate, growing population and depleting natural resources by itself. In this respect, the integration of countries into regional and global organizations which are necessary to streamline national efforts and resources and to achieve common global ends is both essential and inevitable. This explains why Moldova's European integration choice is a fundamental priority of its domestic and foreign policies. Moldova sees this choice as the only way to modernize and transform itself politically, economically and socially by Europeanizing its domestic institutions, standards and policies. Pursuing and eventually achieving this objective will enable the country to become part of a system of security, stability and prosperity governed by democratic values and intrinsic respect for fundamental human rights.

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 documents reflect the objectives of the UN Document developed for Rio+20 - "The Future We Want," including energy efficiency, institutional strengthening to promote sustainable development, and Green Economy promotion.

Considering its relatively poorer endowment with natural resources, for Moldova to adopt a sustainable development perspective is a strategic imperative. Saving its own and imported resources, using them more efficiently, conserving the environment and nature and contributing to the global reduction in emissions will allow Moldova to transform its economic growth pattern into a more sustainable and 'greener' model, better adapted to future challenges, providing more decent and well-paid jobs, a cleaner and healthier environment and a more just and inclusive economic development.

This Report summarizes Moldova's major results and lessons which have been learned in the past ten years since the Rio principles were implemented and elaborates a clear vision for the country's future priorities to promote sustainable development and a green economy. The timing of this Report could hardly be more opportune, as Moldova is

currently at the crossroad of defining its future development model. It is a time where deliberate decisions on whether to follow “business as usual” or adapt its development model to future national and global challenges towards a more sustainable development path are being taken.

We would like to use this opportunity to reaffirm our gratitude to the United Nations, the European Union, the UN and all other development partners supporting our country along its transition to a more sustainable development paradigm. We are looking forward to achieve this much-desired goal to the benefit of all people of Moldova together.

EXECUTIVE SUMMARY

After an economic recession lasting almost a decade, Moldova resumed economic growth in 2000 achieving an average growth rate of 5 percent annually in the period up to 2011.

Despite this growth, Moldova remains one of the poorest countries in Europe in terms of GDP per capita. However, between 2000 and 2010, Moldova's poverty level against national line shrunk to a third of its previous level¹. Progress was made in the recent decade in meeting most of the MDG targets (21 out of the 27 national targets are on track). Particularly remarkable is Moldova's success in reducing child and infant mortality. Additional progress is necessary to get back on track the development goals referring to education, gender equality, combatting HIV/AIDS and TB, and better access to improved water sources and sewage.

Moldova's learning process of how to conceive development policy has been difficult and marred with failures at the initial stage of transition (up to 2000). Notwithstanding the low 'starting point' and initial failures, Moldova has gradually achieved visible progress in terms of quality and relevance of the development programmes after 2000. The progress achieved materialized in several national and numerous sector-level development strategies that the country has adopted so far.

The mid-term development priorities of Moldova include: aligning the education system to labour market needs in order to enhance productivity and increasing employment; and public investments in the national and local road infrastructure, in order to reduce transportation costs and increase the speed of access; reducing the financing costs by increasing competition in the financial sector and developing risk management tools; improving the business climate by streamlining the regulatory framework and applying information technologies in public services for businesses and citizens; reducing the energy consumption by increasing energy efficiency and using renewable energy sources, ensuring financial sustainability of the pension system in order to secure an appropriate rate of wage replacement; increasing the quality and efficiency of the justice system and fighting corruption in order to ensure an equitable access for all citizens to public goods. All these specific targets are subordinated to the more general priority of sustainable economic growth undertaken by the Moldovan Government. Pursuing the development priorities will be accompanied by putting in place effective social and environmental safeguards, in the form of environmental and social screening tools and ex-ante strategic social and environmental assessments.

Moldova understands that sustainable development is the best strategy for the country to emerge as a competitive state which is capable of providing decent standards of living for the current generation of citizens while preserving the national resources for future generations. Transitioning from the present consumption-based model of economic growth to a green economy model is seen by Moldova as the only option for the country bringing the highest possible mix of economic, social and environmental gains. The systemic impact expected from this transition is largely positive, and Moldova has already developed many flagship initiatives to ensure this transition. Energy production, energy consumption and organic agriculture are the key sectors in which Moldova expects the highest gains out of this initiative.

Sustainable production and consumption, green jobs, green procurements, green offices, green meetings, green buildings, green budgeting, and e-governance will be broadly promoted and applied by all existing and new instruments. To achieve successfully this transition, the Moldovan government will work more efficiently to adopt the sustainable development principle at the core of its policy cycle and will actively promote their adoption by other national stakeholders. In this respect, the Government's existing partnerships with civil society and donors will be used and further consolidated.

¹ In 2006, the Government changed the poverty calculation methodology. This complicates significantly year-on-year comparisons, but the general trend in poverty reduction remains strongly positive after taking into consideration the methodological changes.



Moldova's efforts to achieve sustainable development

Chapter 1.

In the last decade (2000-2010) the development of the Republic of Moldova was showed a more rapid economic growth especially in the capital combined with a slower growth in the provinces, especially in rural areas. As a result, the urban-rural divide has grown. Economic growth in rural areas came at a significant cost: the migration of labour to other sectors and countries, reduction in the diversity of income sources and the irrational use of natural resources, especially of soils. Large social groups have not benefited from the economic growth, either through jobs or through a better targeted redistributed income. The gap between men and women's salaries and career paths has narrowed, although continuous efforts to advance this are still needed. While many national and sectors development strategies have been developed, sustainable development principles and targets were reflected only partially in an integrated and consistent manner. This chapter looks into the model of development that Moldova has adopted in the last decade and highlights the existing gaps, as well as opportunities for further development.

Moldova: background information

The Republic of Moldova obtained its independence in 1991. The country is located in Eastern Europe, bordering Ukraine in the East, North and South-East, and Romania in the West. Moldova occupies an area of 33,843.5 km². In demographic terms, Moldova is a rather small country, with a total population of 4.1 million inhabitants, including the breakaway Transnistrian region.

After almost one decade of economic recession, Moldova's economy began to recover in 2000. Since 2000, the GDP grew constantly, except in 2009 when the economy shrunk by 6 percent in the aftermath of the global economic crisis. Despite global economic uncertainty, the Moldovan economy grew 7.1 percent in 2010 and 6.4 percent in 2011². However, the GDP growth rate is expected to halve in 2012 as domestic and foreign demand are expected to slow down.

To remain attractive for its citizens, Moldova needs to achieve a more sustainable and broader income convergence. In spite of the almost constant economic growth in the recent decade and the slight convergence of the income towards the level of the Central and Eastern European countries, the Republic of Moldova's GDP per capita (PPP) remains among the lowest in Europe, at USD 3,373 in 2011³.

Significant progress was made in the recent decade in meeting most the MDG targets (21 out of the 27 national targets are on track)⁴. Particularly remarkable is Moldova's success in reducing child and infant mortality. In 2008, Moldova began to apply the international live birth definition and, as expected, this methodology led infant mortality indicators to rise that year (the new methodology is more 'severe' than the previous one). However, in 2009, the situation for infant mortality (12.1 cases per 1,000 live births), as well as the under-five mortality rate (14.3 cases per 1,000 live births) was significantly better than in 2000 (18.3 and, accordingly, 23.2 cases per 1,000 live births). The national targets for 2010 and 2015 for both indicators have been already achieved, yet it remains important that Moldova maintains, if not continues to progress.

Constant efforts are needed to sustain the progress that has already been achieved or to get back on track with the targets related to education (see more details in Box 1), gender equality (more details are provided in Box 2), combatting HIV/AIDS and TB, and ensuring access to improved water sources and sewage. Despite efforts by authorities to bring children into the educational system, the coverage of the general compulsory education has constantly decreased over the last decade (from 95.1 percent in 2002, to 90.7 percent in 2009). The incidence of HIV/AIDS rose from 4 cases per 100,000 people in 2000, to 17.2 cases per 100,000 people in 2009. The situation is largely similar with tuberculosis. The prevalence of the HIV/AIDS is particularly high in the breakaway Transnistrian region of Moldova. In the case of access to improved water and sewage, the figures suggest quantitative indicators of a gradual improvement in access to these services. The quality of services, however, still needs to be improved.

Since 2009, human rights have been a core part of the public agenda. Some progress was made in improving the human rights-related legal framework. However, a range of reforms remain outstanding. Limited institutional capacity also precludes human rights protection in many areas, while the country struggles to eliminate torture, discrimination and domestic violence. Understanding that an efficient and independent judiciary is of key importance to enforce the respect of human rights and achieve a quality shift along its development path, Moldova has recently adopted a comprehensive strategy to reform the justice system, which will benefit from financial support from the European Union. In April 2012, the Moldovan Parliament adopted new anti-discrimination legislation, bringing the laws in line with European standards. This legislation will mainstream government policy in ensuring equal opportunities for all citizens.

² National Bureau of Statistics, 2012.

³ IMF World Economic Outlook Database, May 2012.

⁴ The Second Millennium Development Goals Report, Republic of Moldova, 2010.

Box 1. Moldova's progress with MDG 2: ACHIEVE UNIVERSAL ACCESS TO GENERAL COMPULSORY EDUCATION

Despite efforts by authorities to bring children into the educational system, the coverage of the general compulsory education, although remaining significantly high in the regional context, has decreased (from 95.1 percent in 2002 to 90.7 in 2009). With the current level of literacy of 99.6 percent for young people, achieving the MDG's second target of maintaining a high rate of youth literacy is realistic for 2015, but in order to maintain these indicators in the long-term, the authorities need to intensify their efforts in increasing enrolment in compulsory education. Contrary to decreasing enrolment in mandatory education, the number of children with pre-school education is continuously increasing (from 44.1 percent in 2000 to 75.5 percent in 2009). However, data show that children in rural areas, children with disabilities and Roma children have a much lower enrolment rate in pre-school education. Achieving the intermediary target of increasing pre-school enrolment is possible, but the perspective is less certain for the 2015 target.

Source: *Moldova Second MDG report, 2010*;

Box 2. Moldova's progress with MDG MDG 3: PROMOTE GENDER EQUALITY AND EMPOWER WOMEN

Although equal rights are enshrined in the national legislation, challenges remain in ensuring gender equality. Moldovan women are mostly employed in lower paying jobs and occupy lower positions in the job hierarchy where they are employed. The situation, however, is gradually improving. The result of the 2011 local elections led to some improvement of women's representation in the executive and representative bodies at a local public level. Following the 2009 parliamentary elections the number of women lawmakers also grew. In the central government, the gender parity in the salaries level is respected. The challenge here lies in ensuring equal access to higher hierarchical position for both men and women. Given the constantly increasing number of women involved in policy and decision-making at local and national levels, if this growth pace is maintained, it is possible that the MDG targets for 2015 will be achieved.

Source: *Moldova Second MDG report, 2010*;

Box 3. Moldova's progress with MDG 7: ENSURE ENVIRONMENTAL SUSTAINABILITY

Addressing the environmental challenges and risks is imperative for Moldova. From the perspective of the target of increasing forested areas, progress has been slow. From 2000 to 2008, the proportion of land covered by forests increased from 10.5 to 10.9 percent.

The situation is better when it comes to the target of increasing the share of the state-protected areas for maintaining biological diversity, for which both the interim and final targets had already been achieved in 2007 (when the indicator reached 4.76 percent). The quantitative indicators having been reached, further actions are needed on the management of the areas.

The progress in expanding access to water and sanitation infrastructure has been quite slow. In 2009, the proportion of the population with sustainable access to improved water sources was 55 percent (with the 2010 target set at 59 percent). The final 2015 target of 65 percent is, therefore, likely to be surpassed, provided that the pace is maintained. Water and sanitation has been declared a national priority and significant financial resources, donor funded, as well as budget allocations have been secured in order to speed up the advance. Another important problem for the population of Moldova is the construction, development and renovation of centralized waste water collection systems and waste water treatment stations. As a result of the actions carried in this period, the proportion of the population with sustainable access to sewage was 47.9 percent in 2009. In order to achieve the target of 65%, therefore, the government should increase the pace by 2015. The access of the population to sanitation services is the component that is lagging behind the most. The proportion of the population that with access to sanitation in 2008 was 45.9 percent. No data are available for the period after 2009, but the dynamics of this indicator suggests that the intermediate (51.3 percent) and final targets (71.8 percent) could be left unaccomplished.

Source: *Based on Moldova Second MDG report, 2010*.

While the policy foundation for gender equality is well-established and laudable, in the job hierarchy, women still occupy lower positions in private firms and public institutions while women's average salary is 25 percent lower than men's. Policies are not sufficiently backed by resources for full realization and political and economic empowerment of women⁵. According to the 2011 Human Development Index rank – Moldova is placed in the 111th position, ranking alongside other countries of the world with medium human development index rates.⁶

Moldova is a country poor in energy resources⁷ with a high level of energy inefficiency, and low affordability of heating services⁸. Energy efficiency and use of renewable energy sources is therefore a strategic priority. High dependence on agriculture and the predominance of rural poverty make the people and economy highly vulnerable to climatic conditions.⁹ Extreme weather conditions are projected to become more frequent in the future and affect a larger number of people. Resilience to climate change challenges is limited as are the disaster risk management capacities at various levels. Intensified actions are needed to meet the ambitious international commitments for climate change adaptation and mitigation.¹⁰

The state of the environment from 2007-2011 underwent significant changes as a result of broad climate change at the natural component level, as well as environmental processes and phenomena level. The emission of pollutants into the atmosphere from stationary sources has decreased from 350 kt (1990) to 24 kt (2010), mainly due to economic downturn in the last two decades. Surface and groundwater pollution is mainly due to household sector facilities (wastewater treatment plants, waste water, discharges of untreated water from the communal system, inadequate solid waste management), agriculture (accumulated livestock manure, pesticides storage, etc.) and the energy sector. Recovering regenerative potential of the soil, which can occur with a new approach to agriculture and appropriate technologies, remains a priority and could ensure a sustainable yield and reduce production costs¹¹.

European Union membership is declared as a top foreign policy priority and the EU is recognized as a strategic partner. Having undergone a prolonged political crisis since 2009, all political conditions are currently in place to allow Moldova to implement its agenda of reform. European integration is a fundamental policy priority driving the reform agenda in the last three years, significant progress has been achieved so far which has been recognized and praised by the European Union itself¹². At the moment, the Republic of Moldova is well-recognized as one of the EU's leading partners within the Eastern Partnership. At the same time, many institutional challenges remain, including modernization of the public administration, increasing its effectiveness and ability to render good public services both at central and local levels and ensuring a transparent and responsible use of financial resources. Independence, accessibility and efficiency of the justice system and enhancing strategy to prevent and combat corruption are two other important priorities.

The frozen conflict in the Transnistria breakaway region continues to be a threat to Moldova's stability and the development gap with the rest of Moldova is increasing. Political dialogue resumed in 2011-12 leading to progress in the areas of transport and circulation of people. The reintegration of the country remains a high priority for the Government.

⁵ The representation of women in Parliament is 26 per cent, below the target of 30 per cent; the gender gap in incomes is around 24 per cent.

⁶ UNDP, Human Development Report 2011 "Sustainability and Equity: A Better Future for All", November 2011.

⁷ Imported energy accounts for 95 per cent of total consumption. Source: National Bureau of Statistics, Energy Balance, 2010.

⁸ Lowest quintile of Chisinau population spent on average 26.2% of household income on heating expenses (in Romania about 14%), Household Budget Survey, 2009

⁹ Annual losses from natural disasters are estimated at 3.5-7 per cent of GDP. Source: World Bank, Rural productivity in Moldova – Managing Natural Vulnerability, 2007.

¹⁰ While associating with Copenhagen Accord, Moldova announced the target of at least 25 percent reduction compared to the 1990 levels by 2020.

¹¹ Ministry of Environment, "State of the Environment in Republic of Moldova 2007-2010", National Report Synthesis, Chisinau 2011.

¹² European Commission and High Representative of the EU for Foreign Affairs and Security Policy, "Implementation of the European Neighborhood Policy in 2011 Regional Report: Eastern Partnership", http://ec.europa.eu/world/enp/docs/2012_enp_pack/e_pship_regional_report_en.pdf.

National development: policies and priorities

■ Evolution of the development policy thinking: national strategies

Since obtaining independence in 1991, Moldova's learning process has been difficult. Notwithstanding the low 'starting point' and initial failures, Moldova has gradually achieved visible progress in terms of quality and relevance of its development programmes in the last decade. The progress achieved materialized in several national development strategies which the country has adopted so far.

In 2000, Moldova has developed its first ever (*Interim*) *Poverty Reduction Strategy Paper*. In recognition that sustainable economic growth was paramount to reduce poverty, the document adopted a three-pillar approach: maintain macroeconomic stability; implement comprehensive reforms in social services; and target a sustainable system of social assistance to enhance country's economic security. The Government established a Steering Committee to oversee the development of the I-PRSP. An inter-ministerial PRSP Working Group was established to report to the PRSP Steering Committee, while the Ministry of Economy and Reform was given the mandate of coordinating and managing the PRSP. Sector Working Groups were established to identify how sector-level policies and programmes can be designed to contribute to the alleviation of poverty and to properly define priority poverty focused expenditure programmes. While there was extensive consultation established with the line ministries, consultation with other policy stakeholders and with civil society was less successful. A key lesson learned from the I-PRSP was the need to better reflect policy priorities in the budgetary cycle and to set more realistic and relevant policy targets¹³. There was no proper assessment of the implementation of the I-PRSP and the sustainable development progress achieved. While economic growth and poverty reduction continued, these may have had to do more with the growing remittances from the migrants than with the efficiency of the policy undertaken. Indeed, the I-PRSP implementation period (2000-2004) was characterized by contradictory policy decisions that did not help promote the country's sustainable development¹⁴.

The I-PRSP was superseded in 2004 by a full-fledged *Economic Growth and Poverty Reduction Strategy Paper* (EGPRSP). This time the consultation process was wider and more consistent, involving the donors, civil society, Parliament, local public authorities and was steered by a Participation Council comprised of representatives of many stakeholders. EGPRSP built on the three pillars of the I-PRSP: sustainable economic growth, human development and social protection and inclusion. The reforms momentum was enhanced by Moldova and EU signing in February 2005 a joint Action Plan with the stated purpose of bringing Moldova economically and politically closer to the EU. While the two documents overlapped vastly, the reforms envisaged were mutually consistent. On the negative balance, the Mid-Term Expenditures Framework over the implementation period did not manage to reflect fully the EGPRSP priorities, while the weak capacities of the line ministries once again precluded achieving more progress at a sector level. Also, the EGPRSP may have adopted a more coherent and more strategic approach, rather than being based on often competing sectors' priorities. Evaluation reports have shown that while the EGPRSP managed to allocate resources in a reasonable manner, the increase in the level of spending was not accompanied by sufficient progress in improving the efficiency of spending¹⁵. As the number of sector-level strategies inflated rapidly in the mid-2000s, the Government found itself in the difficult situation of monitoring and reporting on the implementation of about 50 various strategies. As a result, the EGPRSP monitoring was sporadic and heavily politicized, while the public perceptions on the outcomes of the EGPRSP are not fully satisfactory¹⁶. However, the EGPRSP has been a very important lesson that was properly learned by the Government at least in terms of need to focus on cross-cutting issues rather than focusing mainly on policy sectors' priorities.

¹³ World Bank and IMF, "Moldova - Interim poverty reduction strategy paper and joint assessment", 2000, http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2000/12/22/000094946_00121301483595/Rendered/PDF/multi_page.pdf.

¹⁴ Idem, page 7.

¹⁵ World Bank and IMF, "Moldova - Poverty Reduction Strategy Paper and Joint IDA-IMF Staff Advisory Note of the PRSP", 2004, http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2006/05/10/000112742_20060510121909/Rendered/PDF/35980.pdf

¹⁶ Agravista, "Report on EGPRSP impact in citizens opinion", 2007.

On January 18, 2008, the Government of Moldova approved the *National Development Strategy (NDS) 2008-2011*. Building on the key elements of the EGPRSP, the NDS unified the government's poverty reduction strategy and development vision in one document. The NDS was developed through Moldova's most comprehensive consultation process ever, involving donors, civil society, trade unions, business associations, local public authorities and citizens; the document was also endorsed by Moldova's Parliament. Departing from the sector-based approach of the EGPRSP, the NDS focused instead on five cross-cutting national priorities: (1) Strengthening democracy based on the rule of law and respect for human rights; (2) Settlement of the Transnistria conflict and reintegration of the country; (3) Enhancing the national economic competitiveness; (4) Human resource development, enhancing employment, and promoting social inclusion; and (5) Regional development. Macroeconomic stability and reform of the public sector were correctly identified as key prerequisites to achieve the five priorities. The NDS recognized that addressing human resource needs will be critical to Moldova's efforts to accelerate its economic development and poverty reduction. It reasonably addressed the areas of education, health care, labour and social protection. At the same time, the NDS was criticized for failing to effectively address the climate and environmental challenges, which, with the catastrophic drought in 2007, have proved to have had enormous economic and social impact, particularly on rural development and agricultural production¹⁷. Budgetary reflection of the NDS improved in the first year of implementation, through better consideration of the policy priorities in the Mid-Term Expenditures Framework. However, a key constraint, still remaining in place, was the weak capacities of the line ministries to formulate coherent policies, including to effectively conduct cost-benefit analysis of the policy. Altogether, the proper implementation of the NDS was severely impeded by the economic decline in 2009 and political instability from 2009 to 2012. A key lesson that can be drawn from the NDS implementation is just how important it is to ensure the continuity of the development programmes which have to survive changes in governments in order to achieve any meaningful impact.

As shown in Box 4, Moldova's progress in reducing poverty – the key objective of all national development strategies adopted between 2000 and 2010 – has been good. Here, it is important to separate the policy factors from others, such as impact of migrants' remittances, agricultural output and prices for food etc. The impact of the policy factors is likely to have increased by the end of the decade, with introduction of a better-targeted social assistance. At the same time, the economy's and society's vulnerability to natural disasters and extreme weather interfered with Moldova achieving a more sustainable and greater reduction in the poverty.

Box 4. Moldova's progress in MDG 1: REDUCE EXTREME POVERTY AND HUNGER

After growing dramatically from 1998 to 1999, poverty in Moldova began to decline in 2000. In 2008, poverty increased for the first time in three years, reaching a level of 26.4 percent, mainly due to the impact of the 2007 drought and to a fall in remittances. While remittances declined even further in 2009, the general level of poverty remained practically unchanged compared to 2008, largely because of unchanging prices and a growth in households' income from public sources.

According to the Ministry of Economy data, in 2010 poverty in Moldova recorded significant reduction compared to previous years. The share of poor, whose consumption is below the absolute poverty line, was 21.9 percent and fell compared to 2009 by 4.4 percentage points. The absolute poverty line was on average MDL 1,015.9 per month per person, up by 7.4 percent compared to 2009, since the average annual Consumer Price Index was 107.4 percent. The extreme poverty line was at MDL 549.4, while the share of people whose consumption was below this level represented 1.4 percent. The Gini coefficient was 0.305 in 2010 compared to 0.309 in 2009. Key factors explaining the poverty dynamics in 2010 were: 1) Increased volume of agricultural production; 2) Increased prices for agricultural products; and 3) Reforms implemented in the areas of social assistance through a more efficient targeting of social benefits to the most vulnerable categories of the population, of social aid in particular.

With these figures, Moldova had already achieved the intermediary targets for poverty reduction for 2010 and is on the right track for the final one for 2015.

Source: *Moldova's Second MDG report; and Ministry of Economy, "Briefing Note: Poverty in Republic of Moldova 2010", July 2011.*

¹⁷ World Bank and IMF, "Moldova - Joint IDA-IMF staff advisory note and the poverty reduction strategy", 2008, http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2008/03/03/000333038_20080303062815/Rendered/INDEX/424080PRSP0P101y10IDA1SecM200810090.txt.

In 2011, the Government began to elaborate the “*Moldova 2020 – National Development Strategy*.” The new NDS has already been endorsed by the Parliament in its first reading. The seven priorities framed by the “Moldova 2020” are:

1. Aligning the education system to labour market needs in order to enhance labour productivity and increase employment in the economy.
2. Increasing public investments in the national and local road infrastructure, in order to reduce transportation costs and increase the speed of access.
3. Reducing the financing costs by increasing competition in the financial sector and developing risk management tools.
4. Improving the business climate by streamlining the regulatory framework and applying information technologies in public services for businesses and citizens.
5. Reducing the energy consumption by increasing energy efficiency and using renewable energy sources.
6. Ensuring financial sustainability of the pension system in order to secure an appropriate rate of wage replacement.
7. Increasing the quality and efficiency of justice and fighting corruption in order to ensure an equitable access to public goods for all citizens.

The high political importance currently attached to the sustainable development is also reflected by the fact that the **Governmental Activity Programme** endorsed by Parliament in 2011 includes sustainable economic growth as a key priority for the government. The Government is keen to change the country development paradigm from a consumption-driven economy to an economy based on investments, innovations and competitiveness, so that the national economy becomes capable of creating viable and well-paid jobs, while society and every citizen can benefit from sound, consistent and balanced economic growth. Among the measures promoting the sustainable development, the Governmental Activity Programme mentions the promotion of a fiscal-budgetary policy focused on sustainable/inclusive economic growth by reducing public consumption and increasing productive public investments. In terms of environmental policies, the Government Activity Programme incorporates very detailed governance objectives and measures in two thematic areas: a) Climate change and use of natural resources and b) Risk reduction and protection against disasters. The envisaged measures include actions such as extending the surface of protected areas, encouraging the use of biomass renewable energy units, encouraging the use of solar and wind energy, closed-cycle water devices, encouraging applied research of clean technologies and conducting national awareness-raising campaigns about ecology and sustainable development. The first interim (2011) report on implementation of its Activity Programme reports about the implementation of such measures as: launching the creation of the Orhei National Park; packing 40 tonnes of pesticides and having them prepared for transportation abroad for proper disposal; reconstruction of 27 kilometers of dykes; the installation of 11 automatic hydrometric posts on the Prut river. At the same time, many actions – such as fortifying the national system of environment monitoring - have not been implemented due to a lack of adequate financing. Key priorities for 2012 are opening of the Orhei National Park, opening an “Aarhus” Centre in Republic of Moldova, launching the trilateral project of consolidation of the Costesti-Stinca dam, and implementation of 15 waste management projects worth 156.5 million MDL.

■ Key sector-development policies

Social protection policy reform has been among the main priorities of the Moldovan Government since 2005. The system was identified as largely incapable of providing effective social protection, due to poor targeting and dispersal of resources across many programmes. In 2008 the Law on social help has been approved, with the purpose of transitioning to a more socially just system of providing support to those really in need. The new policy bases on the means-tested approach and the results of the policy implementation are generally positive. Under the new policy, the inclusion/exclusion errors have reduced significantly, while the impact of the social help on poverty

reduction has been significant and consistent¹⁸. The policy will be further improved to better consider the real income households obtained from agricultural activity and to create higher incentives for the beneficiaries of the policy so they do not remain dependent on the policy, but rather seek actively to reintegrate in the economic life.

In the *area of education*, one of the key national priorities is to increase the access to early and basic education, promotion of the inclusive education and development of educational alternatives, to enhance the level of professional education in the vocational educational system, and to integrate the high education into the European arena. Progress has been uneven across these priorities: while the enrolment in early education has improved significantly and the rural-urban gap has narrowed, the access to basic education has recently deteriorated. At the same time, the number of students in the university has doubled in only one decade. Adjustment of the vocational education to real needs of the labour market has been set as one of the priorities of the Moldova 2020 National Development Strategy.

Soils are one of the key natural resources of the Republic of Moldova, which unfortunately have substantially degraded in recent decades. In order to counteract these trends, in 2011 the Moldovan Government adopted the *National Programme for Conservation and Enhancement of the Soils' Fertility for 2011-2020*. Two key objectives of the Programme are to create an informational system for monitoring the soils quality and to apply fertility conservation techniques on an area of 1.7 thousand hectares up to 2020. The techniques that are being considered to be implemented include no-tillage technologies, use of anti-erosion crops, compensation of the humus losses through wider use of the organic fertilizers. The Programme includes a detailed plan of actions for 2011-2013, a list of progress indicators, with the total calculated cost of the Programme standing at 54 million MDL (approximately USD 4.5 million). In 2012, the first yearly report on the Programme implementation is expected from the part of the Ministry of Agriculture and Food Industry.

Following the disastrous consequences of the 2007 drought, the Moldovan Government approved the *National Strategy for Sustainable Development of the Agro-Industrial Sector for the years 2008-2015*. The Strategy's objectives are in line with the EC Regulation No 1698/2005 as well as with European Community's strategic direction lines. The general objective of the strategy refers to ensuring a sustainable development of the agro-industrial sector associated with improvement of life quality in rural area by increasing sector's competitiveness and productivity. The Strategy states key policies to promote the sustainable development of the sector, including subsidizing policy, trade and investment policy, education and R&D tools. The Strategy also elaborates on how to diminish agriculture's vulnerability to the more unstable climate conditions. With such an ambitious strategy, it is necessary to further enhance the policy impact evaluation, monitoring and reporting capacities of the Ministry of Agriculture.

In 2007, the Moldovan Government approved its *Energy Strategy up to 2020*. The document identifies strategic problems encountered in the energy sector of the Republic of Moldova and sets the vision for an energy efficient development of economy and society. The strategic vision for the energy sector development until 2020 is of creating a competitive and efficient energy complex, to ensure all the consumers with qualitative, affordable, and reliable energy sources. Strategy is based on two pillars: energy security and energy efficiency. The Energy Strategy is currently being evaluated and reviewed with technical support from Sweden and the term of the strategy will be extended up to 2030. The reviewed strategy will include updated information on energy efficiency and renewable energy potential of Moldova.

In the area of environment and natural resources there are about 30 different strategies and programmes that have been monitored by the Ministry of Environment. The Ministry of Environment is considering streamlining this vast amount of strategies and development programmes. These strategies include the *State Forestation Programme for the period 2003-2020* and the (already expired) *National Strategy for Biodiversity Conservation*. These two development documents are relevant in light of the 7th Millennium Development Goal Moldova adopted. The first target of the MDG 7 reads „increase forested area from 10.3 percent in 2002 to 12.1 percent in 2010 and 13.2 percent in 2015, which unfortunately is not on track. Target no.2 provides for „increasing the share of protected areas to preserve biological diversity from 1.96 percent in 2002 to 4.65 percent in 2010 and 4.65 percent

¹⁸ Expert-Grup, "Analysis of the experience in implementing the state aid law", <http://expert-grup.org/?go=biblioteca&n=270>.

in 2015.” In this regard, the progress Moldova achieved is good (4.78 percent of the country’s territory represent protected areas).

In 2011, the Government of the Republic of Moldova, with UNDP support, started the development of the *National Environmental Strategy of the Republic of Moldova for 2012-2022*. The Strategy will be the first national strategic policy document in the field of environment and sustainable development, with the goals of sustainable development, poverty eradication and environmental protection. The general objective of the Strategy is the promotion of sustainable development principles through green economic development and environmental protection. Priority areas include water resources (quality and quantity, protection from pollution, water supply and sanitation); atmospheric air (reduction of emissions); wastes and toxic chemicals management; biodiversity conservation and restoration of natural resources; and climate change mitigation and adaptation measures. The draft Strategy is at the public consultations stage and, due to its direct link with the UN CSD Rio+20 themes, it is expected that it will be adopted by the end of 2012 to ensure the follow-up of the UN CSD 2012.

Considering the negative social and economic impact the extreme weather events and associated natural disasters have had on Moldova, the Government has engaged in developing an efficient *National Climate Change Adaptation Strategy*. The strategy draft has been already developed and proposed to the public for consultation and discussion. The document has been developed within the UNDP Project “Support to Environmental Protection and Sustainable Use of Natural Resources” implemented by the Climate Change Office of the Ministry of Environment with financial support from the United Nations Development Programme (UNDP) Regional Bureau for Europe and the Commonwealth of Independent States (RBEC) and UNDP Moldova. The strategy’s general objective is to ensure that the Republic of Moldova’s social and economic development is resilient to the impacts of climate change, by establishing a strong enabling environment and clear direction for an effective and coherent climate change adaptation process to take place across all relevant sectors. The three objectives underpinning the strategy are: 1) Improving the management and dissemination of disaster and climate risk information in Moldova; 2) Ensuring that climate change adaptation is a national and local priority with a strong institutional basis; and 3) Building climate resilience through reducing risk and facilitating adaptation in priority sectors.

The poor quality of the water used by the population and companies has traditionally been an area of great concern for the Government. In order to increase the accessibility of the water and sewage systems, the *National Programme for the Provision of Water and Sewage Systems in Local Communities of the Republic Moldova for the period up to 2015* was approved in 2005, and in 2007 a similar *Strategy* was passed. These programmes and strategies are of utmost importance for Moldova to achieve the implementation of the relevant MDG7 targets. Unfortunately, the implementation experience has not only been positive so far. Even though the access of the population to piped water is growing, the intermediary targets for the provision of the piped water systems are still off track. Even more, as access of the population to water is slowly growing, this has not been matched by a corresponding increase in access to sewage systems. The current institutional structure for the water management should be revised, because in the current state it is not conducive to a smooth implementation of the policies adopted and is still not able to ensure an integrated management of water. The sector financing should be more integrated. The current system of water quality monitoring, while clearly defined, lacks necessary tools for intervention. Ultimately the way in which the strategy is applied needs to be a function of affordability if it is to succeed in being implemented.

Moldova is part of 19 Multilateral Environmental Agreements (MEAs). Their implementation has been coordinated by the Ministry of Environment and was reflected in many sector strategies. Inter-ministerial working groups, including key governmental agencies and NGOs were established, and the major work and promotion of the implementation of the conventions was possible due to the external assistance. The evaluation of the Global Environmental Fund projects portfolio in 2009 in Moldova demonstrated that since 1994, the GEF has invested about USD 21.72 million through 14 national projects, including five projects in biodiversity, four in climate change, two in international waters, two in POPs, and one multifocal project. The World Bank, with eight implemented proj-

ects totalling USD 18.64 million, has been the main channel for GEF support in Moldova followed by the UNDP (four projects worth USD 1.58 million). The implemented projects contributed greatly to capacity building of the environmental institutions, development of policy documents or reports in the domains covered and supported many practical actions within a number of MEAs. Box 5 illustrates how the Stockholm Convention on Persistent Organic Pollutants has been implemented in Moldova, thus significantly contributing to the implementation of the *National Strategy for Reduction and Elimination of the Persistent Organic Pollutants* adopted in 2004

Box 5. STOCKHOLM CONVENTION ON PERSISTENT ORGANIC POLLUTANTS: MAJOR RESULTS OF IMPLEMENTATION 2002-2010

In Moldova implementation of the Stockholm Convention on POPs has lead to the following key results:

- Repackaging, transportation abroad and disposal of 1,293 tons of waste pesticides, including POPs pesticides, from 13 central district warehouses (out of 37), which is 38% of the total amount of 3,350 tons of pesticide stocks kept in storages;
- Dismantling of 16,860 and excavation of approx. 1,800 capacitors containing polychlorinated biphenyls (PCBs), packaging, shipment and destruction abroad (934 tons of capacitors and contaminated soil), meaning the elimination of 80% of PCB stocks in Moldova;
- Nationwide inventory and mapping of POPs contaminated areas (about 1600 sites), the inventory of PCBs in transformer oils from electrical equipment (about 30,000 units), development of database on POPs contaminated areas (<http://pops.medi.gov.md>);
- Modernization of national legal and regulatory framework for the sustainable POPs management (15 draft laws, regulations, instructions and guidelines developed);
- Strengthening institutional capacities for sustainable POPs management;
- Information and awareness campaign on POPs.

Source: *POPs Sustainable Management Office, MoE, Progress Report, 2010*;

The long-term sustainability of many of the sustainable development outcomes is still not guaranteed mainly due to the limited follow-up action at the national level. This is often linked to a lack of political commitment, partly explained by political instability, changes in institutional structures and personnel. Lack of available funding to build on the outcomes of donors-supported projects is also seen as a serious obstacle to sustainability. Many projects lack clear exit strategies; often there are not clear provisions for designating the institution which should take ownership of projects' results. Another significant aspect is the limited information on projects' lessons and results, even though there are many positive things to learn.

While most of the sectors' policies attempted to integrate the sustainable development priorities and to correlate the sector priorities with national development framework, more progress is expected in the future, as policy authorities start to better understand how to think through policy in a more coherent and holistic manner. Equally important the national and sector strategies will have a more 'operational' character, allowing for a more straightforward budgeting and monitoring in the future. And, as we approach the year 2015, Moldova will have to review relevant strategies to carefully integrate reaching the MDG targets in the general development priorities.

Assessment of the progress achieved, problems and gaps to promote sustainable development

■ Key development trends and obstacles

Economic growth in the Republic of Moldova has been relatively strong in the past ten years and was accompanied by a strong reduction in poverty until 2004, with a more modest trend after that. Overall, the economic

growth allowed a poverty rate reduction from more than 70 percent in 2000 to 25 percent in 2011. The growth closely correlated with the inflow of migrants' remittances supporting consumption growth. Constrained by the limited domestic production, this demand in consumption was largely met by imports of goods and services. As the state budget relies mainly on taxation of consumption and import, this situation has certainly benefited the Government, but the trade deficit has reached alarming levels.

This growth started in the era of the smaller prices for global commodities. As the prices for the global commodities are set to grow in long term, for Moldova it will be increasingly difficult to maintain its historical growth rates.

Important structural changes accompanied the economic growth in the recent decade. The share of agriculture in total value-added contracted from 29 percent in 2000 to 15 percent in 2011, mainly on the account of the sinuous evolution of the agricultural output and difficult access for farmers' to markets, both domestic and foreign. The industry and constructions combined lost only 1 percent point, while the share of market services expanded from 37 to 47 percent.

The growth accounting exercise conducted by the Moldovan Government for the purpose of developing the "Moldova 2020" NDS clearly shows that growth from 2000 to 2010 can be mainly attributed to an increase in productive stock of fixed capital (8.2 percent annual growth rate, which is fairly high, but still insufficient) and to the improved total factor productivity (on average, by 4.7 percent annually). Coupled with the structural changes highlighted above, this growth model explains the negative changes affecting the labour market. In the ten-year period, the labour employed in the agricultural sector declined by almost 60 percent (from 770,000 people in 2000 to 323,000 in 2011). The number of jobs in non-agricultural sectors has grown by only 14 percent (from 744,000 to 850,000), not enough to compensate the agricultural jobs' losses. These figures show that the net effect of Moldova's economic growth has been joblessness (a -22 percent decline in labour occupation in only one decade), and socially exclusive rather than inclusive, with the rural population basically left on the margins of economic growth. This model, which is not socially equitable, cannot last without further enhancing existing social disruptions, such as the exodus of talented youth from rural communities, the emigration of the low-skilled labour force and a growing number of children and elderly citizens left behind by migrating parents.

Since 2001, migrants' remittances have been the key driving force behind the private consumption growth and overall economic growth. The country displays one of the highest levels of migrant workers relative to its population¹⁹ and remittances inflow relative to GDP in the world.²⁰ Migration is one of the central reasons that absolute poverty registered a remarkable three-fold reduction, from 67.8 percent in 2000 to 21.9 percent in 2010, but wide disparities persist. In rural areas, the poverty rates is more than 30 percent. More than 80 percent²¹ of the poor live in rural areas and are dependent on the shrinking and vulnerable agriculture sector. The Moldovan Government acknowledges that by its very nature this remittances-based economic growth model is unsustainable; a growing number of Moldovan migrants try to bring their families abroad, which will reduce the volume of remittances flowing into Moldovan economy. Also, the emigration of labour has increasingly negative consequences for the country's international competitiveness.

The economic analysis conducted for the "Moldova 2020" NDS suggests a worrying conclusion - without a serious effort to change the development paradigm, the potential of growth over the next 10 years is limited to a maximum of 4.5 percent to 5 percent annually. Such a modest growth rate will undermine the country's objective of catching up with the CEE countries. The growth rates of capital and total factors productivity recorded from 2000 to 2010 are not guaranteed in the future, as the set of 'easy' reforms and technological opportunities have narrowed. Even more, the better circumstances of labour mobility offered by European integration only make the task of maintaining high-rate growth more difficult. Understanding these facts requires adopting a completely different approach to developing growth policies, which would be concomitantly socially more inclusive, less intensive in the use of resources allowing for Moldova's convergence.

¹⁹ Estimates for migrants' share of working age population vary from 24 to 40 percent.

²⁰ More than 23 percent of GDP in 2010, National Bank of Moldova.

²¹ Ministry of Economy, Poverty in the Republic of Moldova, Briefing Note, 2011.

Climate change and natural disasters are recognized as factors of global importance that will impact the development of all the countries. Climate change and related natural hazards impose disproportionately high costs on the poorer countries which are often facing significantly higher risks and have less resources needed for better adaptation. Climate change presents significant threats to the achievement of the Millennium Development Goals (MDGs) especially those related to eliminating poverty and hunger and promoting environmental sustainability. The draft National Climate Change Adaptation Strategy mentions one of the most obvious examples of how a reversal in development gains can occur as a result of extreme natural disasters, such as floods. The floods in Moldova in the summer of 2010 are estimated to have caused damage and losses totalling MDL 537 million (0.7 percent of the GDP), or USD 42 million. This figure represents damage to assets and property, as well as indirect losses such as production declines and reduced incomes. Within this, the infrastructure sector sustained 66 percent of the total damages, and the productive sector 25 percent of the total damages. Due to the lack of human and financial resources, the rehabilitation of the housing sector in the villages suffering from the floods is progressing slowly..

Even more dramatic was the impact of the drought in 2007, which clearly revealed how vulnerable is Moldova. According to official estimates, the production of winter wheat represented only 59 percent of the 2006 levels, spring barley – 40 percent, corn – 27 percent. The reduced yields in fall and spring crops have affected farming on a larger scale, and drastically reduced the returns to land leased by the majority of small holders, in terms of wheat, corn, oil. The drought and reduced availability of water have also sharply reduced household production from home gardens, a mainstay of food source for virtually all rural families. The lack of pasture and fodder, and the need to purchase increasingly expensive food (no longer produced in home gardens) has forced a large number of people to sell part of their livestock, especially cattle, but also pigs, and sheep.²² Moldova benefited from a lot of external support to manage the consequences of the drought without this support, the impact of the drought would have been much more severe.

Moldova therefore urgently needs to put forward adaptation measures that would reduce the potential negative impact of climate change on further development. To date, the topic of climate change is mostly a priority for the Ministry of Environment. However, efforts by this Ministry alone will not be sufficient to successfully adapt the entire country to climate change. As the draft National Climate Change Adaptation Strategy clearly proves, it is an issue that needs to be incorporated into different policy areas – whether energy, transport, agriculture, housing and industry, etc and to be adopted as a ‘horizontal’ issue in the national development strategies. Responding to climate change will require the integration of adaptation measures into all aspects of policy development and planning for poverty reduction. These government efforts require consistent international support, going beyond financing. Assistance will be needed for capacity development in areas like energy and water efficiency, organic agriculture, alternative energy sources etc.

■ Strategic assessment – why is sustainable development key for Moldova?

Moldova is a small and vulnerable country. As shown above, in the last decade, Moldova’s development was largely driven by non-policy factors, including migrants’ remittances. However, this source of growth is partly over and the future development of the country will depend more than in the past on policy which is adopted. It also means that Moldova has to clearly understand how its internal weaknesses and external risks may corroborate to undermine country’s development. Being part of many regional and global processes, Moldova is highly exposed to global trends which will define its development in the future:

- Rising global population, involving growing demand and higher prices for food, energy and water;
- Growing international migration, including through Moldova as entry point to the EU;
- Climate change and more frequent natural disasters, imposing additional costs on production of food and pressures on public infrastructure;

²² Ministry of Agriculture of Moldova, “Assessment of the current drought status in Republic of Moldova”, <http://www.maia.gov.md/download.php?file=aHR0cDovL3d3dy5tYWJhLmdvdi5tZC9mdHAvMjAwNy9ldmVuaW1lbnRlO1pbmlzdGvYUJlcl2VudGF0aW9uX0Ryb3VnaHQgTW9sZG92YSAwNi0wOC0wNyBFTkcuCHB0>.

- Depletion of traditional natural resources and a more intense competition for these resources, a competition Moldova has no chances to successfully face considering its limited room for manoeuvre on the international arena;
- Developing countries vying for investment capital;
- Unsettled global financial and economic imbalances;
- More severe environmental standards in the developed countries, making exports of “brown” goods from developing countries even more difficult.

The negative global trends magnify a number of internal weaknesses shaping its recent and future development:

- Moldova has traditionally been a poorly industrialized, low-income country, with a relatively negligible ‘footprint’ in global consumption of natural resources and global emissions. Despite being poor, in the recent two decades Moldova has been constantly running a high biocapacity deficit. This was conditioned by a very low efficiency in using the resources. As level of income and consumption grow, its footprint and the magnitude of its biocapacity deficit will increase accordingly. ***This will reflect in a higher demand for food, energy, water, ores and bigger shares in global emissions of greenhouse gases and waste production. The country’s growing footprint on the global environment will increase and the international pressures on Moldova to act accordingly will grow;***

- Among the imported biocapacity, energy fares as a key component, Moldova currently imports more than 90 percent of the energy resources it consumes. With energy prices constantly rising, this has opened a wide current account deficit. While the share of import in total energy consumed has slightly declined in 2003–2011, it is expected to grow again, as stock of domestic productive capital and consumption level continue rising. ***These prospects of growing dependency magnify even more the problem of low energy efficiency in Moldova. If no measures are taken, Moldova’s current deficit will continue to widen, because maintaining Moldova’s economic growth will increasingly depend upon imported resources; this risk is magnified by the perspective of the declining volume of the foreign aid for Moldova;***

- Agriculture has seen its share in GDP declining in the recent two decades, paralleled by a dramatic reduction in the sector’s share in the employment market. Highly vulnerable agricultural output reflected in the unstable incomes of rural inhabitants and of the employed in the food industry and other sectors related to agriculture. Despite this, the agricultural sector remains of key economic and social importance, potentially the most promising sector for reducing poverty and generating higher income. ***Fulfilling this requires harnessing the potential of the organic agriculture and adapting the sector to the new conditions brought by the changing climate;***

- Agricultural land represents more than 74 percent of Moldova’s territory (compared with 50 percent average in EU, 71 percent in Ukraine and 60 percent in Romania), making it the most important natural resource of the country. About 73 percent of the total arable land is chernozem, a type of black soil containing a very high level of humus which has a high productive capacity. However, about one quarter of the total land area suffers from one or many forms of soil erosion²³ (other sources estimate one third²⁴). According to an academic source, the richness of the Moldovan soil declined from 70 points in early 1970s to 63 points in 2008. ***Unless conservative agriculture is adopted as dominant production model, the worsening quality of the soil will eat the Moldova’s agriculture competitiveness away, and will serve as one of the strongest push factor for the rural emigration;***

- The share of the rural population in the total Moldovan population is high (more than 50 percent); this population lives in about 1,450 rural communities sprawled across the country. Because of reduced economy of scales effect, the dispersion of small rural communities poses enormous costs of providing basic utilities and physical infrastructure to these communities. However, without this infrastructure in place, there are limited chances for emergence of non-agricultural economic opportunities in rural areas. As a result, there will be a growing pressure on the public budget to compensate the lack of economic opportunities for the rural inhabitants with social aid. ***For Moldova it is imperative to identify smart, often non-conventional, technological solutions, allowing for an efficient provision and efficient use of the public services and infrastructure in the rural areas;***

²³ NHDR, 2009.

²⁴ Feuras Eugenia, http://ase.md/files/economica/2011/ec_2011_4.pdf.

- In parallel to emigration, another steady process taking place – migration from villages to cities and towns, i.e. urbanisation; because the urban infrastructure is insufficiently developed, the environmental impact of the urban population growth – more water needed, more energy, more food and more waste and emissions - will increase. This may generate unexpected social conflicts, including those between urban municipalities and rural communities suffering due to the growing environmental footprint on the resources owned by the rural communities²⁵. ***This risks requires an urban planning policy which carefully considers the environmental and social impact of growing populations in cities and towns;***

- Water is and will remain a key factor of production in Moldova and the main natural resource to sustain life. The country has surprisingly few water resources: only 1,700 m³ water resources per capita are available in Moldova, which is 50 percent of the Ukrainian level and 25 percent of the Romanian one. These resources can further deplete as global warming advances. At the same time, the efficiency in water use is quite low, as suggested by the fact that in the previous decade between 7 percent and 8 percent of water taken from the natural aquifers was lost during transportation. This estimate does not account for the inefficiency of water use in rural communities. The limited resources of water are an especially significant economic constraint for the economic growth of the Southern and South-Eastern regions of Moldova. Despite efforts put in increasing the population's access to the safe water, a commitment reflected in Moldova's national MDGs, the country remains so far largely off-track in meeting the intermediary 2010 and final 2015 targets. The issues of the water shortages may be further compounded by the low quality of the water, especially in the rural areas, where about 90 percent of the wells - main sources of water - do not meet the potable water hygienic standards, and often should not be even used for irrigation²⁶. ***Water shortages may create significant economic and social disruptions, lead to more intense domestic and external migration and create new pressure on public budgets;***

These weaknesses have limited Moldova in achieving a more sustainable model of development, by which the economic growth would bring benefits to the whole society, while remaining environmentally-neutral. A more sustainable model of development would involve in Moldova's case a number of elements: a more precautionary approach to the use of domestic and imported resources, especially of energy; an agricultural sector which is better connected to the markets and offers farmers a more rewarding level of income; the surveillance of soils and regeneration services; a growing level of penetration of public utilities and higher public services in rural areas as a means of creating a living environment providing minimum comfort for more youth to remain in villages; a water policy that would ensure its efficient consumption, including a better defined use of the rights of ownership and use; and a territorial development policy that would more carefully balance the interests of rural and urban inhabitants. Such a development model would not only respond to the rising environmental constraints, but would also encourage the country's economic growth and address looming social challenges, including the rural-urban divide.

Experience up date

This section begins by illustrating the progress Moldova made so far in the energy sector, which is of key importance for the sustainable development considering the fact that: 1) It is the main contributor to the national emissions of the GHG; and 2) Moldova's economy traditionally featured a high energy intensity. The analysis continues with the agricultural sector, which is both a sector of GHG emissions and a potential for GHG sequestration; even more, agriculture is a sector offering many opportunities for green economy development. Another sector requiring attention is the transport sector, the key source of air pollution in the country and of high reserves for increasing the energy efficiency. The constructions sector was approached in this section from the point of view of potential to achieve savings in consumption of energy and great potential to create green jobs. The ITC sector is analyzed from the perspective of the potential it has to enable increased efficiency of process across economy, society and policymaking process. The section ends with an assessment of Moldova's experience in the water sector.

²⁵ In this respect, the most telling is the recent conflict between the village of Tsantsareni hosting the biggest waste disposal site in Moldova and the Chisinau municipality, using the waste disposal site;

²⁶ NHDR, 2009.

■ Energy

Energy resources are crucial for the sustainable development of any country, having a direct influence on the GDP growth and the wellbeing of the population.. Taking into account the deficit of traditional energy sources and the increasing price for energy on the global market, efforts of public authorities in Moldova are focused on increasing energy efficiency in terms of generation, delivery and consumption. The importance of the energy sector for the emergence of a 'greener' economic system is discussed in the next chapter.

Efficient use of resources is of key importance. Correct prices reflecting the scarcity of resources and a lack of distorting subsidies are the best policy tools to increase in the long-term the efficiency in using resources. In Moldova, this has been clearly seen in the case of energy use. Adjustment of the energy tariffs to cost recovery levels and gradual elimination of the cross-subsidies (a process which is still ongoing) have created the necessary incentives for the private agents to adopt more energy-saving measures and more energy-efficient technologies. Between 2003 and 2010, this policy resulted in a 17 percent improvement in the overall energy efficiency of the Moldovan economy. In this regard, continuous gains in energy efficiency will bring about important contributions to a more sustainable development of Moldova.

To scale up the effects achieved, tariff policy has to be coupled with the necessary financing for private agents to implement energy-saving technologies. Moldova approached the problem of the shortage of domestic investment resources by entering strategic partnerships with its development partners. In this regard, the EU has pledged EUR 42.6 million for the financing of the energy reforms that Moldova is undertaking. Also, Moldova signed a EUR 20 million financing agreement with EBRD, an agreement which is being successfully implemented since 2011. Box 6 includes key characteristics of the EBRD-financed project.

Box 6. ENERGY EFFICIENCY PROJECTS IN MOLDOVA FINANCED FROM MOSEFF

The Moldovan Sustainable Energy Financing Facility (MoSEFF) was launched by the European Bank for Reconstruction and Development (EBRD) in order to support energy efficiency investments of Moldovan enterprises. Under MoSEFF, the EBRD made a total of EUR 20 million available for on-lending through local partner banks. To make investments into energy efficiency projects even more attractive, MoSEFF contains a grant component for eligible projects. Depending on the energy savings and CO2 emission reductions achieved, the grant may reach from 5percent to 20percent of the loan amount. To facilitate and speed-up investments in energy efficiency, MoSEFF provides technical assistance and advice on the optimization of the energy consumption and supply.

Among the well-known Moldovan companies who implemented projects with assistance of MoSEFF are large industrial companies as well as many small companies that implemented projects with loans ranging from 10,000 EUR to 2 million EUR.

The MoSEFF finances investments in energy efficiency and in renewable energy. Typical actions financed as part of the energy efficiency projects include: thermal insulation of walls, roofs and floors; installation of insulated windows, rolling doors or door lockers; replacement and rehabilitation of boilers (enhanced control, economizers, etc.); installation of the heat pumps; refurbishment of efficient heat and power distribution systems; process improvements (e.g. enhanced control, measurement and metering) and installations reducing specific energy consumption by at least 15percent; switch from electric heating to fuel based heating; installation of heat exchanger stations; and installation of ventilation systems with waste air heat recovery. MoSEFF finances renewable energy measures, such as: biomass combustion in heat only and combined heat and power plants; biogas generation for the use in heat only and combined heat and power plants; and solar thermal collectors for hot water or steam generation. To date, MoSEFF has analyzed in depth about 110 projects and approved about 80 projects in food industry, agriculture, manufacture, small enterprises, and buildings rehabilitation. The MoSEFF closely monitors the impact of the projects financed on the GHG emissions, level of energy savings achieved and investment return period (varying between 1 and 8 years for the projects for which public information is available).

Source: MoSEFF website, <http://www.moseff.org/index.php?id=101&L=1>

In 2010, Moldova adopted the Law on energy efficiency, which imposes new standards and requirements in this domain. The Law provides that economic entities investing in energy efficiency projects are to benefit of financial support from the Energy Efficiency Fund. The Law also explicitly describes the obligations and rights of all relevant stakeholders in the area of energy efficiency. More work is yet to be done to transpose the technical standards for the energy efficiency.

Moldova is also committed to promote the energy efficiency measures through wider public campaigns. The MOLDOVA ECO-ENERGETICA event, launched in December 2011, is part of a broader campaign of promotion of alternative energy sources, carried out by the Government of the Republic of Moldova, in partnership with EU and UNDP Moldova. The event was linked to the launch of Moldova's Agency for Energy Efficiency. MOLDOVA ECO-ENERGETICA will be organized on annual basis and will aim to acknowledge the outstanding achievements in the area of renewable energy and energy efficiency in the Republic of Moldova. Starting in 2012, MOLDOVA ECO-ENERGETICA will give awards to individuals and organizations with significant contributions to energy production, transmission, distribution, and efficient consumption, development and promotion of modern technologies and innovations in the area of renewable energy and energy efficiency. The December 2011 event served as the perfect venue to appraise and promote Moldova's best practices in the area of increasing energy efficiency and renewable energy and to launch the national "MOLDOVA ECO-ENERGETICA" prize (Box 7).

Box 7. REAL LIFE STORIES OF ENERGY EFFICIENCY PROJECTS IN MOLDOVA.

ENERGY EFFICIENCY

They have centralized heat, but pay 40 percent less. An apartment building like many others. Brand new and modern. Just one detail makes all the difference: a system of horizontal heat distribution is installed here. As a result, the residents of the apartment building located on 38/2 Maria Dragan Street in Chisinau municipality, are among the first to have signed individual contracts with the heating provider - Termocom. Each apartment is equipped with thermostatic valves allowing consumers to adjust individually the level of the heating agent.. Heating meters are also installed in every apartment. Due to proper insulation, the building has its own heat supply point that distributes the heating horizontally, a fact that leads to a reduction of up to 50 percent of residents' heating bill in this apartment building compared to the average bill in the city. In January 2011, the cost to heat a square meter on 38/2 Maria Dragan St. ranged from 10 to 16 lei, while the city average was 20 lei. The installation of the individual heat supply point was possible due to a grant from the Swedish International Development Agency. Currently, in Chisinau there are four apartment buildings where the inhabitants are already benefiting from such systems, and two more buildings designed in a similar way are under construction. More details are available at <http://www.youtube.com/watch?v=NptYr41RsHM>

WIND ENERGY

A Moldovan citizen, Nicolae Constantinov, built and installed 20 small-scale wind power generators. Since his early childhood Nicolai Constantinov was interested in alternative methods of generating energy. Now he is considered an enthusiast of alternative energy sources, particularly energy from wind power. Constantinov deals with the design, manufacture and installation of wind power generators. He built his first wind turbine and installed it in its own yard back in the 70's. So far he has built and installed 20 wind power generators. They operate within small enterprises - farms, vineyards, sheep farms. Nicolai Constantinov has a dream to transform his native town Comrat into the Moldova's centre of alternative energy. Click on the link to see the story: <http://www.youtube.com/watch?v=saVqWt3pbzw>.

BIOGAZ

The word around the village of Colonita is that the farmer Vasile Moraru has been reborn from ashes. Making use of alternative energy sources is his second attempt to launch a business. The first attempt failed. The declining farming operation was saved by a new idea. Moraru decided to deal with the production of biogas. For this purpose, he took a loan of 37,000 Euros from MoSEFF. Sourcing raw material is not a problem for the entrepreneur. The manure is supplied from the neighbouring cattle and pig farms. Moraru's installation processes up to 40 tons of biomass daily. The biogas that is generated contains 70 percent methane which is used to heat the premises and for the production of electricity. The electricity is supplied via the network to GasUnion Fenosa according to the tariff of 1, 73 lei per kWh established by National Energy Regulation Agency. The biogas production generates no wastes. Fermented biomass is further processed and converted into organic fertilizers. These are in high demand by Moraru's neighbours and are much more expensive than the mineral ones. The story can be followed on: <http://www.youtube.com/watch?v=4YgzjsnLQg>

SOLAR ENERGY

Health Care Centre CONSTRUCTORUL has hot water produced from solar energy in medical institutions. The quality of services is as important as the proper accommodation conditions for the patients. The Health Care Centre "Constructorul" has solved the problem of hot water supply in a less common, but very effective manner, than other medical institutions. In 2007, solar collectors were installed on the roof of the building. The institution invested 50,000 MDL of its own financial resources in the project. The water is heated with solar energy up to a temperature of 60-65 degrees centigrade. The system ensures non-stop supply of hot water from April through to October. The project implemented by the sanatorium proved to be a lucrative investment since it brought benefits right from the very first year. The managers of the Health Care facility experienced directly the advantages of the solar collectors because their utilities bills were lower. They do not wish to stop there. In the coming years, the management intends to install solar collectors on the entire roof surface in order to supply all the buildings of the Health Care facility with hot water obtained from solar energy. See the video story on: <http://www.youtube.com/watch?v=LCVdqZ1kEU>

BIOMASS

The Village of Antonesti has declared its energy independence. The Village of Antonesti, Stefan-Voda district, declared its independence - energy independence. The school, kindergarten, library, arts centre and Church from the village are heated with energy produced from biomass, primarily straw. The escalating prices for natural gas and lack of state budgetary had children freezing in the school classrooms and kindergartens. In the winter, the educational process was suspended due to the cold. Five years ago, Antonesti participated successfully in a World Bank tender. The financial support granted was sufficient for the installation of four boilers. The largest, of 300 kW, is placed at the school. The advantage of straw based heating was appreciated not only by the children from Antonesti. Adults understood that straw is not a waste product, but a source of fuel and additional income. Currently, in Antonesti straw is purchased from local entrepreneurs. Compacted into bales, they serve as an energy source for the 4 institutions in Antonesti. In the near future, straw will be sold to a briquetting operation recently started in the village. The briquetting line is a new phase for the pioneers in the alternative energy sources-based heating. It will bring new jobs in Antonesti, modern technologies and environmentally friendly fuel. Video story is available on the link: <http://www.youtube.com/watch?v=Sf00WRfMX9s>

Source: *Moldova Energy and Biomass Project Newsletter*, http://www.undp.md/projects/Biomass/ENERGY_percent20AND_percent20BIOMASS_Newsletter_Specialpercent20Edition_ENG.pdf

■ Agriculture

Based on two major components of the sustainable development - human and natural capital - the agriculture sector is of vital importance to Moldova, in terms of employment, rural livelihoods, food security, rural growth and exports. Indeed, Moldova meets all conditions to be a very successful producer of highly competitive agricultural products and food. Inter alia, there are all prerequisites in place for the development of 'green agriculture' and a 'green food industry'. Moldova enjoys the perfect conditions for the cultivation of a large variety of ecological and organic value-added agricultural plants, such as vegetables, fruits and vines, essential and oleaginous crops, etc.; its soils' potential is immense; over the recent 20 years, use of chemicals has been reduced to a minimum which serves as good base to build on in order to ensure application of integrated organic systems and crop rotation.

The main provisions of legislation have recently been brought into line with EU principle; in particular, there were adopted regulations on ecological principles and methods of processing organic food production, inspection and certification system in the field and organic food products import and export. Enterprises have intensified their activity in implementing quality system, which allows for ensuring food security and maintaining high quality products. Over 80 companies in agriculture and related food industry are currently implementing ISO9000, HACCP and Global GAP standards. Many others are in the process of introducing these systems.

The development of organic farming and conservative agriculture are among the main priorities of Moldova. The regulatory framework for organic agriculture was established in 2005 with the approval of the Law on Organic Agri-Food Production and a series of government regulations and action plans on organic food production, marketing methods, inspection and certification systems, labelling, and import and export rules. Moldova is on a very good track with promotion of the organic agriculture. Since 2002, approximately 11,000 ha have been certified as organic nationwide. Moldova had exported around 32,000 tons of organic produce, from 211 producers, accounting for USD 48 million in 2009 (15,000 tons were produced in 2011), representing 11 per cent of total agricultural exports. Development of organic agriculture could trigger creation of numerous green jobs in the sector and con-

version of many others from 'traditional' to green, as the employment opportunities can increase as a result of conversion from traditional to organic agriculture, depending on the farm size and crop type.

At the same time, the agricultural sector needs appropriate support in order to overcome its structural and institutional problems. Moldova's agricultural production is split between large corporate farms and smaller individual or family farms, with almost nothing in between. Excessive fragmentation of land and the small size of the farms lead to the decrease of agricultural production which has a major negative impact on the situation of the rural population. Most family farms practice subsistence agriculture with insufficient orientation towards the market. Domestic input and output prices are highly distorted and there is a net transfer of value from producers to consumers. Producers receive significantly lower prices for their output, while paying much higher prices for purchased inputs compared with international prices. From 2002 to 2011, despite numerous interventions which have been made to improve the situation, the agricultural sector has had a series of very low productivity indicators. Production and energy losses in different segments of the value chain are very high and the profitability of the production is still low. While over the 2000s the overall poverty has substantially decreased, it remained more deeply rooted in rural areas. The environmental conditions in the rural areas are continuing to worsen due to the irrational use of natural resources and abuse of conventional agricultural practices. As a result, the natural potential for productivity has decreased and the water resources, soil and biodiversity are deteriorating.

Proper access to and the use of efficient irrigation systems is of utmost importance for Moldovan farmers, considering the fact that in the last decade the country was hit by 3 droughts, including the one qualified as of "catastrophic proportions" in 2007. The irrigation systems used have to be appropriately designed to correspond to the generally limited water resources Moldova has and effective institutional arrangements are necessary to ensure the efficient use of the water resources. A severe constraint in this regard is lack of financial resources needed to provide the farmers access to irrigation infrastructure. As a way of overcome this barrier, Moldova's development partners have provided invaluable financial and technical support. To mention one of the most important and recent example of such partnership, the Government of Moldova signed with the U.S. Millennium Challenge Corporation (MCC) a five-year economic development Compact agreement granting USD 262 million to Moldova in 2010. This agreement, more details of which are reflected in Box 8, reflects an integrated development thinking from which Moldova will learn a lot for the future projects which it will implement.

Box 8. MCA-MOLDOVA: TRANSITION TO HIGH-VALUE ADDED AGRICULTURE.

The Compact assistance will be used for investment projects in irrigation infrastructure, high-value agricultural production and road rehabilitation. The objective of the Compact Program is to increase incomes through increased agricultural productivity and expanded access to markets and services through improved roads. The Programme consists of the Transition to High Value Agriculture Project (USD 101.77 million) and the Road Rehabilitation Project (USD 132.84 million).

The Transition to High Value Agriculture Project will help increase agricultural incomes of rural Moldovans by stimulating the production and improved marketing of high-value agricultural products, including fruit and vegetables. The project includes plans to provide reliable water for agriculture by repairing up to 11 large irrigation systems servicing 15,500 hectares. Improving access to credit for agricultural projects and a technical assistance package co-financed by the United States Agency for International Development will support related investments by farmers and entrepreneurs in the shift to higher value agriculture production, post-harvest processing, storage, and marketing. The THVA Project is expected to benefit approximately 32,000 households (or approximately 124,000 individuals), in the next 20 years.

Beneficiaries include owners or shareholders of farming enterprises; farmers or landowners; and labourers employed on enterprise farms within the command areas where MCC will rehabilitate the irrigation systems, as well as producers and intermediaries investing in and working in the HVA sector. The economic analyses indicate an economic rate of return of approximately 12.7 percent.

In order to provide for the efficient use of the irrigation water, the Government of Moldova, with Compact Assistance, has developed and approved the Law on irrigation water users associations. The law has been a precondition for the irrigation water users to be able to manage and operate the rehabilitated irrigation systems and the legal transfer of responsibilities for operations and maintenance of repaired irrigation systems to water user organizations

Source: <http://www.mca.gov.md/en/mcarezultat/>

■ Transport

Transport infrastructure is critical for human development and for economic growth, as it provides a lifeline for delivering key services, and access to markets. The transport sector plays a significant role in the national economy of the Republic of Moldova with its current contribution to the gross value-added is about 5.7 percent. At the same time, the transport sector is a significant source of economic losses and of high GHG emissions. Poor quality of the road infrastructure is one of the key reasons for this situation. The Government of Moldova attaches top priority for the rehabilitation of the country's road infrastructure. For this, important policy decisions have been adopted, including a considerable increase in the road tax in order to adequately replenish the Roads Fund and to channel more domestic resources into the infrastructure capital investment. From 2010 to 2011 rehabilitation works have been done on more than 1,035 km (compared to 235 km in 2008). For 2012 more than 2 billion MDL are planned to be used for road works (more than 7.5 times compared to 2008).

At the same time, the total amount of investment necessary to rehabilitate the entire country road infrastructure is huge, estimated at around EUR 1.2 billion for the next eight years²⁷. In this respect, Moldova again found helpful support from its international partners. EU, EBRD, US, and the World Bank are the key donors supporting rehabilitation of the Moldovan roads. In 2011, the EBRD and the Moldovan government signed a package of eight projects, including the EUR 25 million second tranche of the EUR 75m finance package, which will improve the condition of the highways across Moldova and increase the involvement of the private sector in road maintenance. The Bank also supported municipal infrastructure by providing a EUR 11.7 million loan to the Chisinau Municipality for urban road rehabilitation. The U.S. has offered, through MCA, almost USD 133 million to rehabilitate the M2 Sarateni-Soroca highway.

Considering the high amount of resources that will be invested in projects to rehabilitate the roads and the amount of works to be done, there may be some potentially negative spill-over effects on the environment. Managing potential risks require a more integrated policy making and an integrated approach to evaluate specific projects. Specific safeguards have to be created by introducing Environmental Impact Assessments as compulsory parts of the projects proposed.

Additional efforts have to be put in ensuring the quality of the work carried out and in monitoring safety regulations. This aspect is the more important considering the negative impact climate change has on roads. According to the National Climate Change Adaptation Strategy, long-lasting heat waves can worsen or even destroy the asphalt surfaces of national roads. This phenomenon has already been witnessed both in 2003 and 2007, when there were long periods of high temperatures. The most serious damage was to the Chisinau-Balti highway. Even on the newly rebuilt Chisinau – Leuseni national highway, long portions of the road were deformed. The roads from Rabnita and Rezina were almost completely destroyed by trucks carrying cement from local factories. Heavy summer rains almost stopped the circulation of vehicles in downtown Chisinau in 2005, 2008, 2009, and 2011 causing additional damage to the surfaces of city streets which were already in a poor condition.

■ Information Technologies and Communications (ITC)

The domain of Information Technologies and Communications (ITC) is among the economic advancing areas which have registered one of the fastest growth and development. In 2010, the 1,200 ITC companies contributed 9.5 percent to Moldovan GDP. Despite the fact that the contribution of the software industry to GDP represents less than 1 percent, it is still an important and very competitive sub-sector of the ITC industry. It has a high added-value component and is very much export-oriented. The IT industry exports have increased 10-fold in the last five years, from USD 3.6 million in 2005 to over USD 29 million in 2010. This growth occurred in result of policy measures undertaken to support the development of the ITC, including by establishing fiscal facilities for soft developing companies and their staff. IT industry is among the industries with the highest potential for development, being both a driver and an enabler of economic growth. By promoting broadband Internet connections, the ITC industry greatly contributes to the inclusion of wider social groups in social life. Moreover, the domain attracts the youngest generation; the average age of IT specialists from Moldova is 26 years old, a fact that contributes to social stability and encourages future generations to stay in Moldova.

²⁷ 1.2 billion Euros for road like in EU, http://www.arena.md/?go=news&n=12554&t=1,2_miliarde_de_euro_pentru_drumuri_ca_%C3%AEn_UE.

ITC can further bring about significant development gains in Moldova. ITC companies have become Government's partners in promotion of the good and transparent governance. This partnership will help Moldovan government overcoming the challenges in improving governance performance, increasing transparency and access to information, fighting corruption and ensuring high quality public service delivery to citizens and business. The Government of Moldova has committed to utilize modern technologies as the key instrument in addressing these issues.

In 2010, the Government of the Republic of Moldova launched the Governance e-Transformation process to increase transparency, improve government efficiency and public service delivery and fight corruption by harnessing the power of information technologies. In September 2011, the Government approved the first Strategic Programme for Governance Technological Modernization, which provides a unified vision to modernize and improve public services and increase government efficiency. The most important efforts to date include: the launch of the open government data portal www.date.gov.md; the launch of the public services portal www.servicii.gov.md; the creation of the State Cartographer-Geodetic Fund with the goal of a centralized monitoring, storage and use of geodetic and cartographic documents; in May 2011, The Ministry of Finance released for the first time a comprehensive Public Expenditure data base (BOOST), so that citizens can track how effectively and efficiently the government spends public money.

It is the belief of the Government that the implementation of e-government initiatives shall have a determinant effort on the rational utilisation of resources, improving transparency of decision-making, bringing citizens and the business environment closer to the Government, being also a useful tool for reducing corruption resulting in tangible economic growth a better quality of life for citizens and a better climate for businesses. The government has embarked on an ambitious e-transformation agenda. Moldova is the 6th country in the world to have opened its data to the public. The major aim is to offer quality information and a high level of public services to the citizens and the businesses.

In March, the Government began to implement an electronic document management system. It is to be first piloted in five ministries, after which it will be extended throughout the whole Central Public Administration. As a result, by the end of the 2012, the State Chancellery/Prime Minister's Office and five pilot Ministries (Ministry of Finance, Ministry of Agriculture, Ministry of Justice, Ministry of Economy, Ministry of Labour Social Protection and Family, Ministry of Agriculture and Food Industry) shall no longer use paper-based official correspondence. This approach, apart from being environmentally-friendly, shall also raise transparency and efficiency of public service, and, also importantly, reduce significantly administrative costs

■ Construction

With the economy's and income's growth continuing, the construction industry plays a more central role in the economic development of Moldova. Contributing 3.4 percent to Moldova's GDP and employing 5.6 percent of the labour force, the constructions sector is also linked to all other economic sectors through direct and feedback links.

To mention the most obvious aspects, the performance of all other economic sectors depends on the efficiency and performance of buildings used by the companies. The quality of the buildings directly influences the country's footprint in the global GHG emissions. At the same time, the construction sector has an important footprint on the environment. In Moldova, one of the environmental concerns of the construction sector is the construction waste from demolition and from the waste material left over from civil and industrial construction sites. A major effect of this waste is on soils that are transformed into soil dirt and storage areas in anthropogenic soils. Very few such materials can be recycled. Moreover, construction works are one of the sources of air pollution.

The construction sector experienced a bubble-type expansion in the recent decade. The most remarkable was the growth in the construction of new buildings, whereas the investment in the existing stock of buildings has been remarkably reduced (reaching only 16 percent of the constructions

work in 2010). The next chapter on green economy discusses in more details the economic effects that can be achieved by a constructions sector turning 'greener'. For the time being, the constructions' sector growth was in many aspects chaotic and had negative impacts on the environment and urban architectural heritage. After 2009, the construction sector in Moldova felt a dramatic decrease which is continuing the main reason being the global economic crisis. This decline was amplified by a series of structural and institutional deficiencies that, if properly solved in due time, could have mitigated the effects of the global economic crisis..

The Ministry of Regional Development and Constructions has adopted a draft Law on the energy performance of buildings. The Law includes specific requirements regarding the establishment and enforcement of the minimum standards for the buildings' energy performance, a general framework for calculation of the energy performance indicators, the buildings' energy certification rules. The Law development benefited of the EBRD support. More efforts will be necessary for the development of the technical regulations and institutional capacities which are necessary for the application of the Law.

■ Water

Development of sustainable management of water resources involves undertaking a wide range of actions relating to the responsible use of surface water and groundwater for industrial, agricultural, household and other purposes, in a manner which would ensure a high growth rate of the national economy and improving living standards. While smaller than in the case of the neighbouring countries, Moldova's water sources are enough to meet the demands of population and national economy, but they are not evenly distributed across the country. The economic crisis of the early 1990s led to a considerable decrease in total water consumption. However, the situation is not similarly related to increased human harmful impact on water sources, particularly small rivers which up to this have been largely settled. Water supply systems, sewage and wastewater treatment facilities have degraded significantly. In the years following 2000 there has been a slight improvement in the water sector, a series of policy documents and legislation in this respect have passed, the actions under improvement of institutional framework have been taken, the financial allocations have increased.

Water supply and sewage have been declared priority sectors for the current government. Despite modest progress made in the decade after 2000' significant activity is currently being undertaken in the sector. At the present time, construction works are being undertaken in ten out of 32 district centres. Significant funds have been allocated from the state budget for this objective, and loans from international financing institutions contracted in order to speed up the advance.

The main source of water for consumption is the surface water which supplies the majority of the population. Among the surface water sources, the most important source is the Dniester River, which supplies about 83 percent of the water used; the Prut River covers 1.8 percent, while other sources account for 0.2 percent of the resources. Groundwater sources provide about 15 percent of water. In 2010, the volume of water captured from surface sources was 721 million cubic meters. About 65-70 percent of total water resources are used in industrial heating and cooling and hydraulic energy production, 15-20 percent are used for drinking and household purposes and 5-8percent - for irrigation. Compared with the 1980s, the share of household consumption in water consumption structure has decreased threefold..

With the support of development partners, some important parts of regulatory framework were developed, including regulations concerning the conditions of urban wastewater discharge into the natural receivers, which already came to force. Additional legal and regulatory acts (draft regulations on classification of water bodies and water basin management plans) will be implemented under the Water Law adopted in late 2011.

The Swiss Agency for Development and Cooperation SDC has been among the key partners of Moldova in improving the situation in the water sector. The SDC's ApaSan project builds on the Water and Sanitation Programme implemented by SDC from 2001 to 2008 as part of its humanitarian assistance to Moldova. Through this programme, SDC proved that decentralized drinking water systems and on-site environmental sanitation facilities

were viable options in rural areas and that the developed water supply model could be implemented in approximately 40 percent of rural localities in central Moldova. Consequently, it was decided to replicate the SDC WatSan approach on a larger scale in rural Moldova through the ApaSan project. Based on the partnerships with local authorities, decentralized drinking water systems have been built in 27 villages, EcoSan toilets in 12 schools, and 7 constructed wetlands were put into operation. These efforts resulted in over 40,000 rural residents benefitting from improved water and sanitation services in central Moldova. SDC pilots environmentally friendly sanitation solutions such as the extensive wastewater treatment plant, so-called Constructed Wetlands, and the Ecosan (dry) toilet for social institutions and households. SDC also supports the development of water supply and sanitation general plans at district level

■ Education

Education is closely intertwined with sustainable development: it is both part of it and an instrument to promote it. From the social strand of development perspective, sustainable development is about ensuring equal and equitable education opportunities for all social strata; indeed it is a key tool to overcome societies' dividing lines by providing vulnerable and poorer persons with access to education. By the same token, education is critically important for the mobility and competitiveness of the workforce as a better educated labour force is more productive, more open to lifelong learning and tends to enjoy higher earnings. In fact, each year of additional schooling can increase individual earnings by 10%²⁸. Furthermore, both formal and informal education is crucial for enabling the labour force to adapt to new "green" jobs and equipping the graduates with skills required by a green economy. Ultimately, education is critical for educating and empowering people to choose more sustainable lifestyles. Moreover, education is not just about providing information, it is about enabling people to use information critically and responsibly²⁹.

There is no lack of understanding of how critical education is for the country's development. In recent years, public spending on education exceeded 9% of the GDP, an extremely high level of spending in regional comparison. However, this increased spending has not been mirrored so far by comparable improvements in the educational outcomes. On one side, Moldova has been making uneven progress in achieving its commitments on MDG 2. Although, the country is on track to meet the literacy related target, it needs to increase efforts to ensure the targets related to the gross enrolment in general secondary education and in pre-school programmes. Critically, access for children from rural areas, those with disabilities and Roma children should be substantially improved.

By the same token, the ongoing reform of the Moldovan education system is intended to help bridging the gap between the labour market demand and what this system is able to offer. The low quality of labour is recognized as a critical constraint for Moldova's economic development³⁰ and is to be addressed by the implementation of the Moldova 2020 national development strategy³¹. Furthermore, rural youth appear to be much more constrained in choosing their education path both due to more limited financial resources as well as a lower education level of their parents³². Thus, the vicious cycle of rural-urban divide reinforces itself. It is crucially important that the Government's education reforms aim not only at keeping the system at pace with the demand in the labour market but also proactively adapts to the future requirement of a green economy. For instance, promoting energy efficiency of buildings requires energy audit professionals who are currently not trained within the Moldovan education system.

Ultimately, education for sustainable development should ensure that youth, but also adults, are conscious about their consumption choices and what demands they can realistically and sustainably make on the world's resources³³. Finally, it should provide for broader public participation in sustainable development policy and enhance public policy dialogue between different stakeholders of Moldovan society.

The ongoing joint effort by the Ministry of Environment and the Ministry of Education to elaborate the National Strategy for Education for Sustainable Development is a critical step towards paving this transformation of education in Moldova. Given the comprehensive nature of education for sustainable development, other ministries or public authorities should be included in the process.

²⁸ From transition to transformation report.

²⁹ UNECE, 2009.

³⁰ Constraints to Growth Analysis.

³¹ Moldova 2020, draft.

³² Expert-Grup, Republic of Moldova: Labor Market Review, commenced by ETF, 2009

³³ UNECE, *ibidem*.



Institutional arrangements to promote sustainable development

Chapter 11.

In the Republic of Moldova, the Ministry of Environment was the main driving force behind the promotion of the sustainable development principles after the Rio Conference (1992) and the Johannesburg Summit (2002). While the Ministry of Environment was supported by domestic NGOs and donors, the impact on the general policymaking was not always palpable. The monitoring of the national development strategies' implementation has not been always consistent, while impact of policies could have been better assessed. Lack of trained human and financial resources may be among the main culprits, but other equally important causes are the short-term policymaking horizon and the rather weak civil society. This chapter shows that Moldova can adapt existing institutional arrangements to better reflect the need for a more integrated development policy thinking.

Sustainable development policy planning at the central level

Development programmes elaborated over the recent decade in Moldova displayed increasingly more advanced visions regarding the needs of setting the country on a long-term path of sustainable development. This reflected accordingly into what kind of institutional infrastructure is in place and how it functions. Moldova currently misses a functional, high-level and inclusive body promoting sustainable development. In 2002, a National Council for Sustainable Development and Poverty Reduction was created by presidential decree. It was conceived as a consultative body advising on how to ensure social-economic sustainable development of the country and to improve the living standards of the population. However, the mandate of the Council members and of the entire Council was not clearly set. Because the members were appointed personally by the President, the Council was perceived as being more a political body rather than a policy monitoring one. Despite formally functioning until 2008, the Council failed to have any meaningful impact on the development programmes and to properly monitor the implementation of the EGPRSP and NDS. Due to the extended political crisis and Parliament's failure to elect the country's president, the Council has not been active since 2009.

Due to the political crisis that lasted from September 2009 to March 2012, the Government emerged as the most stable and important pole of political power in Moldova. As a result, the Government of Moldova has been the main player in policy cycle in Republic of Moldova. The Governmental Activity Programme serves as main political document based on which the Parliament invests the Government for a four-year term. The Governmental Activity Programme is subsequently detailed in annual and quarterly governmental actions plans. These actions plans are often criticized by the independent experts for representing mainly a compilation of departmental interests rather than of common development goals or national priorities; further these actions plans frequently miss adequate progress monitoring indicators.

Parliament should play a more central role in promoting sustainable development. For this, the analytical capacities of the permanent Parliament staff should be enhanced for conducting integrated policy-analysis and for understanding implications of the policy on sustainable development. Currently the Standing Committees are 'specialized' on sector-based 'themes' (economy, social, environment, etc.) and in their activity do not reflect adequately sustainable development needs. Moreover, in the past two years some of the critically important Standing Committees – such as Committees on Environment and Climate Changes – have been dysfunctional due to the political crisis and opposition's boycott of the Parliamentary work. Therefore, in promotion of the sustainable development the Parliament plays roles of lower importance than it should. A 'natural' ally of the Parliament is the civil society, which in order to promote the sustainable development initiatives, often aims to communicate with the Parliament if communication with the government is less successful.

On account of these factors, the most important national development programmes and strategies also draw from the Governmental Activity Programme. Important sources for the policy process are foreign assistance programmes that Moldova's Government negotiates with international donors and international financial institutions, as well as various commitments that Moldova undertook as part of its international agreements (such as actions plans signed with the European Union, international treaties and others).

An Inter-Ministerial Committee for Strategic Planning (IMCSP) has been created by Governmental decision in 2008 to reflect the critical role a body promoting integrated planning and identifying general development priorities can play in overcoming Moldova's limitations in implementing previous development strategies. However, the IMCSP is composed of only 13 members from the Cabinet and two members from the State Chancellery. The key mission of the IMCSP is to ensure an integrated strategic planning process, so that national development priorities identified in the Government's documents correlate with the policies developed by sectors' policy authorities, country's international commitments and domestic and foreign resources framework. The IMCSP has been attributed very important functions, including: 1) Coordinating the Government Programme and National

Development Strategies; 2) Overseeing the Coordination Group for the development of the Mid-Term Budgetary Framework, overseeing the National Regional Development Council and other governmental committees involved in strategic planning; 3) Ensuring dialogue with the National Commission for European Integration; 4) Correlating the foreign assistance programmes with strategic priorities that have been identified. In recent years, the performance of the IMCSP has considerably improved, while the quality of the policy debates within the IMCSP has increased. To become more relevant in promoting sustainable development across a wider policies range, the Governmental decision on the IMCSP should explicitly mention the promotion of the sustainable development principles and of the green economy as part of the IMCSP mandate. Accordingly, the scope of the IMCSP secretary function, performed by the State Chancellery, has to be broader.

An important achievement of the Moldovan Government was the creation of the National Participatory Council (NPC) in 2010, composed of representatives of the 30 most active NGOs. In 2012 new members of the NPC were elected for a two-year mandate. The NPC mission is to contribute to the adoption of public policy decisions which would correspond to the interests of society. It intends to facilitate involvement of all interested stakeholders in designing, implementing, monitoring, evaluating and updating strategic planning documents. In order to achieve the strategic objectives, the NPC in 2012 established five working groups. The NPC has been very active in promoting the consultation of the policy with the stakeholders, the transparency of the decisions made; it has been also one of the most active promoters of the sustainable development in the country. In order to achieve a higher quality policy dialogue, the Government should carefully guard that policy authorities fully respect the provisions of the Law on transparency in decision making.

Despite these institutional developments, the sustainable development has not yet emerged as a core principle of the development policy in Moldova. An integrated approach towards the SD is only slowly emerging, with policy planning still following a sectors-based approach: the Ministry of Economy is responsible for the economic development and energy, the Ministry of Labour, Social Protection and Family is responsible for social development, social inclusion, gender equal rights, while the Ministry of Environment is accordingly responsible for the environmental policies. Often adopting an 'environment'-centred definition of the sustainable development, the Ministry of Environment is among the most dedicated advocates of the SD in the IMCSP and in the more general policy discussions. However, the Ministry's task of promoting sustainable development is difficult considering that environment requirements in Moldova are frequently seen as a liability rather than an asset improving the social wellbeing. At the same time, there is little understanding of the green economy opportunities; indeed, 'greening the economy' is often perceived by many public officials as something that they have to do 'in addition to' rather than as an alternative paradigm for the economic development of the country. Accordingly, this lack of understanding of why promoting sustainable development, minimizing environmental impact, achieving socially inclusive and green economic growth reflects in the budgetary allocations.

Sustainable development in regional perspective

The Republic of Moldova was not characterized by interregional disparities until the beginning of the transition³⁴. During the transition period, the more urbanized (especially metropolitan) regions managed navigate the transformation processes better than less urbanized regions (especially, towns strongly dependent on a few industrial enterprises) or rural areas. But it is the difference between the capital city and the rest of the country which is really striking. Growing socio-economic inequalities between Chisinau and the rest of the country and between cities and rural areas, has led to a critical situation, especially with poverty in small towns, that has given rise to increasing central government concerns for the national policies to have a clear reflection at the regional level.

The Regional Development has been stated as one of the key national priority in Moldova's National Development Strategy 2008-2011 with an overarching goal of implementing a balanced and sustainable social and

³⁴ Syrodoev Igor, "Regional Development Policy in the Republic of Moldova: Reconciling Public Administration and Regional Development Reform", 2007.

economic development all over the country by coordinating efforts within development regions. Achieving this goal requires an appropriate institutional environment. In 2006, six Development Regions have been established, but little specific measures followed until 2009 when the responsibility for regional development moved from the Ministry of Local Public Administration to the Ministry of Construction and Regional Development, which became the managing and implementation authority of the regional development. Regional Development Councils (RDCs) have been created, based on public and private membership. RDCs are acting as decision-making bodies and provide a link between regional priorities and the national regional development planning framework. Regional Development Agencies (RDAs) were institutionalized as institutions responsible for implementation of the regional development projects in the development regions. The advantage of this arrangement is that these structures are new, eager to learn, and not burdened with old inherited principles. Indeed, since their inception, these structures served as an efficient intermediary level between local public authorities and central public authorities, thus achieving a higher coordination between central and local development policies. The National Council for Regional Development Coordinating (NCCRD) was institutionalized, aiming mainly at increasing the coordination of sectorial policies and allocation of funding through the National Fund for Regional Development (NFRD).

In 2010, the National Strategy for Regional Development was elaborated in a joint effort by the central and local public authorities involving wide communications with regional and local stakeholders. The Strategy is called to address a number of problems affecting economic and social development at a regional level, including: (i) The excessive concentration of development and growth trends in Chisinau; (ii) The social and economic decline of regional towns; (iii) The under-development of rural communities; and, (iv) Imbalances in the development between localities. Regional development policy targets the entire territory of the Republic of Moldova, but during the initial phase (2010-2012) Government efforts in regional development are focused upon three development regions – the North, the Centre and the South. At a later stage (2013-2019), regional development actions will be supported in the other three development regions – Autonomous territorial unit Găgăuzia, Chisinau Municipality and administrative-territorial units on the left bank of Nistru (Transnistria).

Regional Development Councils approved several priorities eligible for financing from the NFRD, such as: (i) Rehabilitation of physical infrastructure (ii) Support to private sector development, especially in rural areas (iii) Improvement of the environment and attractiveness to tourists- and include a range of measures, such as: rehabilitation and construction of water supply networks, sewage and water recycling stations; solid waste management; rehabilitation and modernization of road network; development of cooperation structures in marketing for agriculture production; rehabilitation of tourist premises and promotion of their integration into international tourist routes etc. There are some tangible results already, achieved during the pilot phase. The allocations from the state budget were supplemented with resources from the German GIZ. Currently, development regions implement 8 ongoing projects on waste management; 7 on water and sanitation, 6 on roads; 2 on energy efficiency, 2 on tourism development and 1 business infrastructure. About 9 projects are to be started soon (in 2012), as they have been already approved by the NCCRD.

This institutional arrangement has already brought some results. In terms of output and outcomes, 77.4 km of water supply networks and 14.4 Km of sewage system were built as part of regional development projects. About 6,000 households, 241 companies and 63 public institutions were connected to these pipelines. About 26,200 people got access to improved water supply services, and 11,300 people – to sewage system services.

Financing the sustainable development

The policy priorities identified by the IMCSP are reflected into the Mid-Term Budgetary Framework which is developed for a three year period and updated annually. The MTBF also should translate into the annual budgets approved by the Parliament. However, due to the weak capacities of the institutions involved in the MTBF develop-

ment, it often happens that policy priorities are not properly reflected in the MTBF and annual budgets. It is also difficult to estimate to what degree sustainable development policies translate in budgetary expenditures; the key reason for this is dominant use of the 'items-based' budgeting by the policy authorities and the still limited use of the performance-based budgeting, especially at the level of public authorities.

Moldova has several funds whose resources are spent for sustainable development –including the Environmental Funds (both National and local ones), Regional Development Fund, Energy Efficiency Fund. However these do not capture the full picture of public investment in sustainable development in Moldova, as many projects are being implemented directly by the donors or are financed directly from the state budget.

With the introduction of new fiscal tools – payments for emissions, for waste disposal, for 'dirty' import – the revenues of the National Environmental Fund have grown exponentially, from a negligible 0.4 million MDL in 1998 (less than USD 50,000) to almost 200 million MDL (USD 17 million) in 2011. The revenues of the 35 Local Environmental Funds have grown equally impressively, even though their combined volume amounts to a rather negligible 8.6 million MDL (almost USD 700,000), leaving little financial space for achieving a large impact in implementing local sustainable development projects. It is officially recognized that the amount of the revenues collected in the local funds falls far below the magnitude of the real damage caused to the environment by polluting activities³⁵. Most of the expenditures of the environmental funds supported water projects in rural areas. As mentioned in the Governmental report on the implementation of the Government Activity Programme in 2011 and Actions Plan for 2012, the Government is committed to improve the oversight and executive management of the environmental funds, more clearly delimitate the responsibilities, regulate the avoidance and resolution of conflict of interests, and define a stricter regulatory hierarchy³⁶. The public control over the use of the environmental funds has to be strengthened as well.

Another potentially important financial tool promoting sustainable development is the National Regional Development Fund. The NRDF has been established in 2008 as key source for funding regional development projects. By law, the budgetary allocations to the NRDF should represent at least 1 percent of the state budget revenues for the respective year (except revenues with special destination). In 2011, more than 128 million MDL was allocated for various regional development projects in the areas of water, waste management and others. The projects proposed to be financed by the NRDF are assessed according to several criteria, including the impact on sustainable development. Because the demand for financing of the regional development projects is very high, there are ongoing discussions regarding how to supplement the funding from government's own and donors' resources. The evidence-based regional development policy would greatly benefit of a more efficient informational platform ensuring highest possible level of financial transparency on the projects accepted and funded.

In 2012 the Energy Efficiency Fund (EEF) will be set up³⁷ and, according to some officials' statements, for the current year 180 million MDL are going to be allocated for this fund³⁸. The Fund is going to function as independent legal entity and will be overseen by an Administration Council, composed of representatives of the Government, private sector and donors. According to the provisions of the EEF regulation, the resources of the EEF are going to be spent on several key priorities including energy efficiency in industrial processes, buildings' energy efficiency and energy efficient heating solutions. An important policy shift stated by the Ministry of Economy is that starting in 2012, public money will be spent both on projects proposed by public institutions and private entities. In this respect, it is important to achieve the necessary synergy and coordination of the EEF resources with the resources coming from external sources. The draft decision on the EEF includes important regulations

³⁵ Ministry of Environment, State Inspectorate for Environment, "SIE Yearbook 2010: Environment Protection in Moldova", <http://mediu.gov.md/file/rapoarte/Anuarul%20IES%202010.pdf>.

³⁶ Expert-Grup, "Investigating the transparency and economic efficiency of the Environmental Funds", <http://expert-grup.org/?go=biblioteca&n=212>.

³⁷ The draft governmental decision was recently consulted with the public via the particip.gov.md, <http://particip.gov.md/proiectview.php?l=ro&idd=244>.

³⁸ Former deputy ministry of Economy, Mr. Ilarion Popa, quoted by <http://www.interlic.md/2012-02-16/pentru-anul-2012-in-fondul-pentru-eficientza-energetica-au-fost-alocate-180-de-milioane-de-lei-inclu-24027.html>.

on criteria measuring the eligibility of projects, such as ensuring that at least one-third of the projects' benefits are derived from energy savings, and conducting an environmental assessment beforehand. These provisions, if properly enforced, may serve as key prerequisites ensuring a successful financing strategy which is in line with sustainable development principles.

The sustainable development principles guiding the projects financed from the Environmental Funds, National Regional Development Fund and Energy Efficiency Fund could serve as good practices, on which all other development strategies and policies could be built – be they national, regional, local or sector-level – which could become more 'sustainable' and 'green'. Ideally, these principles have to become compulsory features of all programmes and policies integrated in the Mid-Term Budgetary Framework and financed from the public budgets. In order to achieve this, it is necessary to combine legislative tools (changes in the laws and governmental decisions regulating the process of elaboration of development strategies) with better training of the staff on the sustainable development in the economic and line ministries. In order to reduce the related costs and achieve highest possible efficiency it would be more optimal not to create 'sustainable development units' but to properly train the staff already employed in the Policy Analysis and Monitoring Units (PAMU) existing in all ministries. At least one staff member in PAMU of every ministry with adequate training in sustainable development, would increase the ministries' capacities to understand policy inter-linkages and to conduct proper cost-impact analysis of the policy.

Effectively adopting the sustainable development principles is the more imperative considering the likely changes in donors' strategies which may be brought about by changing financial realities. Due to severe budgetary constraints, international donors remained so far the main sources of investments in projects promoting sustainable development and green economy. However, these sources, while available in the short- to medium-term will likely diminish in the long term. It is therefore important to leverage more domestic resources, especially from private sources, such as banks, for projects promoting sustainable development. In this respect, many barriers are to be removed before the banks are ready to finance such projects from own resources (nowadays, many banks provide credits for 'green' projects, but resources come from external sources). Most of these barriers are of legal and technical rather than policy nature; for instance, Moldovan banks would probably finance more buildings' retrofitting projects if the condominium law would be brought in line with the market requirements and the legal status of the condominiums is clearly regulated. At the same time, bank staff may need additional training improving their expertise in the financial assessment of 'green' projects.



Green Economy

Chapter III.

Moldova is a resource and energy poor country, based on small and open economy. Human resources and fertile land are Moldova's main endowments. Considering the global risks and domestic resources framework, the perpetuation of the 'conventional' economic growth is not a sustainable option for the country. Transitioning from the consumption-oriented economic model to a green one can bring a great number of opportunities for Moldova. The green economic model can provide a credible basis for Moldova to achieve something more than merely ensuring its economic survival. A green economy may help Moldova position itself internationally as a "green economy paradise." As this chapter shows, the transition to the green economy will bring Moldova significant economic benefits, coming in form of more jobs, lower energy consumption, a higher quality of life and more sustainable income sources for the rural population.

What is Green Economy?

In the recent two decades, the 'Green Economy' has become a concept of increasingly wider use in development and policy literature. Most of the definitions agree that a 'green economy' is both a model of economic development, which is environmentally and socially responsible, and a paradigm of policy thinking. A 'green economy' is clean, energy-, water- and resources-efficient. According to the UNDP (2011), in a green economy the growth in income and employment is driven by investments that: a) reduce carbon emissions and pollution; b) enhance energy and resource efficiency; and c) prevent the loss of biodiversity and ecosystems services. For practical purposes, it is necessary to adopt some criteria for clear selection of the 'green' sectors. Three approaches are possible in this respect (or a combination of these):

1. **Based on the 'green' purpose of the products or services produced by a certain industry**³⁹. The green economy includes thus the goods specifically designed to reduce the environmental footprint by being used in either final or intermediary consumption. 'Green' are the economic sectors producing services and products that: 1) Conserve natural resources, including water, land, minerals, species, ecosystems and energy; or/and 2) Reduce pollution of the environment, including by remediation, recycling, abatement, removal, safe storage and decontamination;
2. **Based on the 'cleanness' of the production technology**. From this perspective, 'green' are those sectors which have the smallest impact on the environment, either in absolute or relative terms (as ratio of pollution to the value added generate);
3. **Based on the environmental impact of the products consumed**. This approach emphasizes the environmental impact that goods and services have after their disposal/consumption.

Identifying 'green' sectors in Moldova is difficult because of weak statistical evidence. For the best estimates of the extent of the Green Economy in Moldova based on any of the definitions above, it is necessary to analyze the goods and services classified according to the National Classifier of Products (Goods and Services) of the Republic of Moldova (known under the acronym CSPM)⁴⁰. However, the National Bureau of Statistics does not collect systematically data based on this comprehensive classifier. Only some analysis is possible based on the National Classification of the Industrial Goods and Services of the Republic of Moldova (PRODMOLD)⁴¹. This information is not publicly available, but in any case, the analysis is restricted only to the large companies from extractive industry, manufacture and energy sector, i.e., mainly to sectors polluting, less to the services which may influence pollution levels. With all these caveats in mind, even the approximate estimate of the magnitude of the 'green' ratio of the Moldovan economy is difficult to gauge and additional research based on more disclosed data is necessary.

Some data on the green economy in Moldova

In Moldova, published statistical data on the 'Green Economy' - and indeed on the Sustainable Development in general - are quite poor and non-systematic. There is some publically-available evidence on energy use⁴², waste disposal and recovery⁴³, and partially for the investment made by companies from the real sector in the environmental protection. Some more data can be derived applying indirect tools and additional analysis, or can be made available at request by the National Bureau of Statistics. However, many relevant indicators on patterns of produc-

³⁹ US DoC, 2010.

⁴⁰ Approved by Decision no.4 of the Collegial Board of the National Bureau of Statistics of the Republic of Moldova of December 26, 2008, available at <http://www.statistica.md/pageview.php?l=ro&idc=385&>.

⁴¹ Approved by Decision no.9 of the Collegial Board of the Department for Statistics and Sociology of the Republic of Moldova (presently National Bureau of Statistics) of 24 December 2004, available at <http://www.statistica.md/pageview.php?l=ro&idc=385&>.

⁴² Energy Balance of Moldova, available at <http://www.statistica.md/pageview.php?l=ro&idc=263&id=2197>.

⁴³ Natural Resources and Environment in Moldova, <http://www.statistica.md/pageview.php?l=ro&idc=350&id=3242>.

tion, use and consumption of the energy, materials, water and natural resources are not being calculated at all or are not calculated at industry-level.

Despite statistical data gaps, there is some more or less structured and permanent research on the energy, organic agriculture, waste recycling and on other aspects relevant for the Green Economy. Important research is being done by the Power Engineering Institute of the Moldovan Academy of Science⁴⁴. In 2011, the Institute reported about the development of a mathematical model for analysis of the energy security, combining environmental and economic analysis. The Institute is also experimenting some technological solutions for improving the energy efficiency, such as an innovative LED-based photovoltaic system, energy efficient windows with heating system, a heat-recovery solution for poultry farms, energy-efficient greenhouses, and a biogas experimental facility.

The Academy of Economic Studies of Moldova is doing some basic research on the applied environmental economics. For instance, Bacalu (2007) has made contributions to estimating the economic value of the national biodiversity and in evaluating economically the environmental damage of some industrial sectors⁴⁵. Feuras and Bahnaru (2011) made a recent attempt to combine data from international sources to estimate the economic impact on the natural heritage of Moldova⁴⁶.

The State Agrarian University of Moldova is home to serious applied research in some areas of the agriculture⁴⁷. Among the recent research projects relevant for the topic of the Green Economy we can nominate e.g. research at increasing efficiency of the energy consumption for production of the vegetables in protected environment, the development of intensive and environmentally friendly technologies for cultivation of the cherries, apple and quince.

■ Energy Efficiency

In the past decade, important shifts occurred in the energy use patterns in Moldova. The overall energy efficiency of economic activities improved: while in 2003, 0.1 tons coal equivalent was used to produce 1000 MDL GDP, in 2010 there 0.08 (a 17 percent increase in efficiency) was used for the same volume of output (in constant 2003 prices). At the same time, the situation has been somewhat different for the consumption of electricity.. The electric energy intensity indicator displayed an unsteady, but growing trend between 2003 (91.5 kWh/1000 MDL GDP) and 2010 (93.3 kWh/1000 MDL GDP). Accounting for 28 percent of the total electric power consumed, the industrial sector has been a significant and, as shown in Table 1, growing source of the electric energy use inefficiency. On average, every year between 2003 and 2010 the Moldovan industry has become 2.8 percent more intensive in consumption of electricity.. For the entire period, this amounts to almost 230 million MDL dead losses (USD 20 million). Production of wood products and furniture, machines and equipment, and food industry: these are sectors that in the past 8 years have seen their electric energy efficiency declining at a remarkable speed. It is interesting that these are among the sectors driving ahead Moldovan exports.

⁴⁴ Power Engineering Institute of the Moldovan Academy of Science, "Scientific results of the Energy Institute for 2011", available at: http://www.ie.asm.md/img/pdf/REZULTATE_STIINTIFICE.pdf.

⁴⁵ Petru Bacalu, "Economics of Environment Protection", Geography and Environmental Economics Chair, Academy of Economic Studies of Moldova, Chisinau, 2007.

⁴⁶ Feuras Eugenia and Bahnaru Aurealia, "Economy's footprint on Moldova's natural heritage", *Economica review*, Academy of Economic Studies of Moldova, http://ase.md/files/economica/2011/ec_2011_4.pdf.

⁴⁷ List of research projects of the SAUM available at <http://uasm.md/images/stories/cs/Proiecte%20de%20cercetare%20institutionale.pdf>.

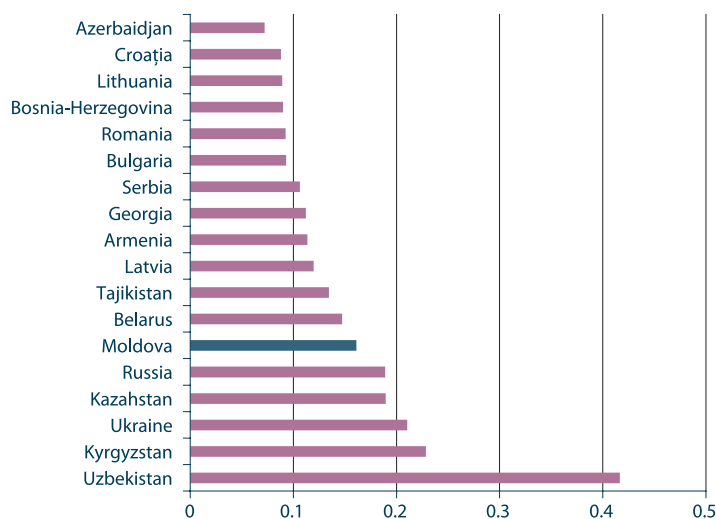
Table 1. ELECTRIC ENERGY INTENSITY BY INDUSTRIAL SECTORS
(KWH CONSUMED / 1000 INDUSTRIAL OUTPUT, CONSTANT 2003 PRICES)

	2003	2004	2005	2006	2007	2008	2009	2010	percentage, average per period
Total	54	50	53	58	60	54	63	64	2.8
Food, beverages, tobacco	30	29	29	34	35	33	34	39	4.2
Text., cloth., leather, footwear	47	46	44	47	52	55	47	46	0.0
Wood products and furniture	39	42	39	31	38	41	219	221	63.8
Printing and publishing industry	99	88	87	99	123	57	28	34	-7.9
Chemical industry	105	100	78	92	99	84	87	88	-1.8
Non-ferrous products	113	111	121	116	111	104	121	121	1.3
Machines and equipment	103	86	90	89	77	75	133	143	8.0
Energy sector	172	161	164	175	181	161	178	178	0.6

Source: calculated by authors based on NBS;

Despite improving overall energy intensity, an international comparison shows that Moldova has a long way to go to close the gap with its competitors (Figure 1). In terms of energy intensity Moldova seems to be more efficient against other countries in the CIS area, but it is far behind the Central and Eastern European and Balkan countries; among these countries there are those representing main competitors for the products Moldova sells on the European markets. Improving energy efficiency can thus be seen as a key precondition for Moldova to forge its international competitiveness.

Figure 1. GDP energy intensity in some CIS and Central European countries, tones P.E./ USD 1000 GDP, PPP, years 2009-2010



Source: author's calculations based on the NBS and IMF data;

Consumption of energy in the households' sector has grown at a remarkable speed in the recent decade, from 575 million tons p.e. in 2003 to 689 million in 2010, at an average growth rate of 3 percent per year. Compared with industries, households sector is a much bigger consumer of the energy, in 2010 consuming 48 percent of the total energy distributed for technological and economic consumption. Considering the current changes in lifestyle (including, using more home appliances) and growing income, one should expect that the consumption of energy in the households sector will continue growing steadily in the near future. This means that, if investment resources are available, the household sector is the one in which most of the efficiency gains could be made.

■ Environmental Impact

The absolute volume of air pollutants emitted by stationary sources in Moldova has registered a remarkable 24 percent decline from 2005 to 2010⁴⁸. However, this change is probably less attributable to the Moldovan industry becoming cleaner, and more to the reduction in total volume of industrial production. While controlling for the level of industrial production, it is possible to spot little, if any, changes in atmospheric pollution: following a U-inverted trend from 2003 to 2010 in the volume of discharged air pollutants, by 2010 Moldovan industry was just as dirty as in 2005. This implies that whenever the Moldovan industry begins to recover, the impact on environment could get worse again.

Among the economic sectors, the main contributors to total air pollution were: public administration and public utilities, with 15.7 percent of total emissions, retail and wholesale trade (14 percent), food, beverages and tobacco processing industry (12.8 percent) and production of non-ferrous products (10 percent). The latter is also the most air-polluting industrial sector in Moldova economy in unitary terms: production of 1 million MDL value-added requires 2.33 tone air-emissions from this sector (10 times more than the national average). This sector is followed closely by the extractive industry, where 1 million MDL valued added requires 1.83 tone air-emissions.

The volume of air pollutants discharged by the transport sector has steadily grown from 2001 to 2008, due to both a growing number of vehicles and more frequent and longer trips. When controlling the volume of fuel consumed, one can see a growing marginal impact on the environment of each additional unit of fuel consumed.

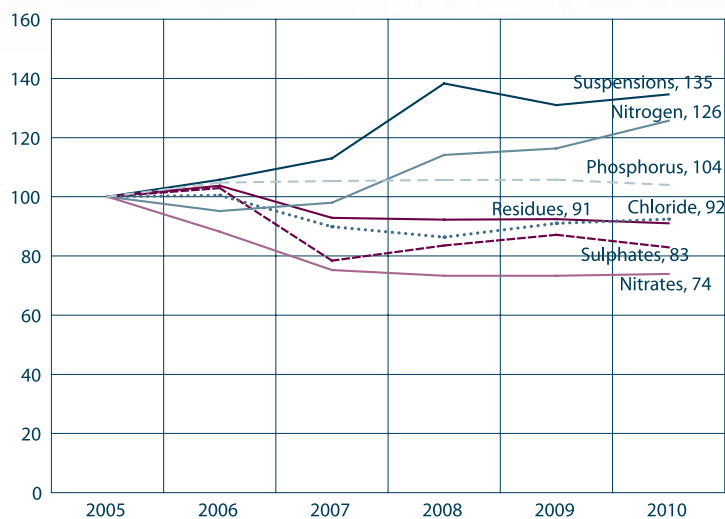
In the case of water pollution statistical data are less disaggregated and do not provide for an adequate analysis by sector. On aggregate, volumes of some pollutants – such as residues, sulphates, chloride, and nitrates - discharged with waste water in rivers have declined remarkably in only five years as highlighted in the Figure 2. At the same time, efforts have been less successful in reducing the volumes discharged of other pollutants, including some as dangerous as phosphorus.

The percentage of samples with deviations from the sanitary norms has grown from 52 percent in 2006 to 65 percent in 2010 in the case of water taken from the centralized sources of water supply⁴⁹. This raises a significant concern over the current policy of piped water supply: while following the quantitative targets of the Millennium Development Goals no.7, attention ought to be given to the quality of the water which consumers eventually receive.

⁴⁸ Data and calculations in this paragraph are based on NBS, "Natural Resources and Environment in Republic of Moldova", 2011.

⁴⁹ NBS, "Natural Resources and Environment in Republic of Moldova", 2011.

Figure 2. Volume of key water pollutants discharged with residual waters in rivers, tones per 1000 cubic meters of water, 2005=100percent



Source: National Bureau of Statistics of Republic of Moldova;

■ Waste generation and recycling

From 2003 to -2010, Moldova generated between 3.8 and 5.6 million tons of waste, both industrial and municipal. In this period,, only 21 percent to 37percent of waste was recycled every year, mainly in the industrial sector. The main 'demanders' of waste recycling services are the metallurgical sector (according to National Accounts statistical data, in 2010 about 18 percent of industry production costs were for waste collection and recycling services), production of other non-ferrous metal products (3.6 percent) and constructions sector (1.6 percent). The small figure in case of constructions sector is raising particular concern, considering the sheer economic size of the sector and the huge volume of waste generated.

Overall, the industry of waste recovery and recycling accounts for a tiny 0.1 percent of the gross value added generated by the Moldovan economy in 2010, and, , this share has in fact shrunk in time (compared with 2 percent in US⁵⁰). This is somewhat counter-reflectd by the fact that the end-of-year waste stocks have grown from about 8.6 million tons in 2005 to 11.2 tons in 2010. Producing 56 percent of total waste, the households sector is the most important generator of waste in Moldova. Looking deeper into the regional distribution of waste generated, the area of Chisinau contributes almost 70 percent to the total volume of the households waste. Just how 'dirty' the households' sector is can be seen comparing Moldova against other European countries. Such a comparison comes up with surprising results: in per capita terms, Moldovan municipal sector (which in Moldova includes less than half of the population) generates 0.63 tons of waste, which is 29 percent more than the European average.

■ Investment in the protection of environment

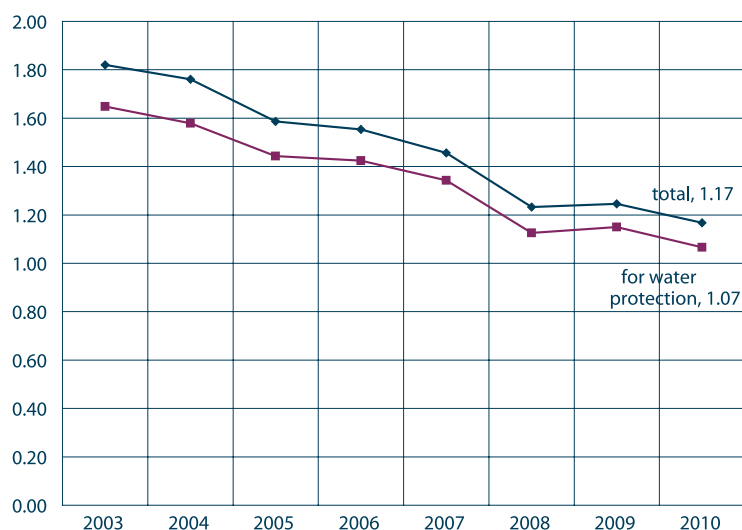
A general idea about how 'extended' the Moldovan green economy is can also be based on NBS data on the investment volume reported by companies in equipment used to protect the environment. From 2003 to 2010, the volume of 'green' investment – i.e. fixed capital investment for environmental protection (including investment for protection and rational use of water resource, lands and atmospheric air) - has been somewhat erratic, but negligible, both in absolute and comparative terms.⁵¹

⁵⁰ <http://eponline.com/articles/2008/04/14/recycling-makes-up--2-of-us-gdp.aspx>.

⁵¹ An important remark is that other 'environment-friendly' investment are not included in this figure. Examples of 'environment-friendly' investment not accounted for properly in Moldovan statistics would include investment in paper-less investment technologies, more energy efficient home and office-appliances, and other similar.

In absolute figures, the volume of ‘green’ investment hovered between a minimum of USD 540,000 (!) in 2009 and the maximum of USD 8 million in 2008. In relative terms, ‘green’ investments have varied between only 0.05 percent of total capital investment in Moldovan economy and the maximum of 1.1 percent in 2003. As a result, while the total stock of capital in the Moldovan economy has grown almost doubled in nominal figures, the share of ‘green’ capital in total working capital has declined from slightly more than 1.8 percent of total stock in 2003 down to 1.17 percent of total stock in 2010; more than 90 percent of the ‘green’ capital has been represented by equipment for water protection (Figure 3).

Figure 3. Share of investment in equipment used to protect the environment in total productive capital in the Moldovan economy, percent



Source: author's calculations based on data of the National Bureau of Statistics of Republic of Moldova (NBS).

Analysis of some flagship “Green Economy Initiatives”

‘Greening’ the Moldovan economy may have large and positive economic effects. These effects will not be limited only to the sectors concerned, but actually can result in a systemic change. A Computable General Equilibrium Model of Moldovan economy has been used to estimate the impact of the improved energy efficiency on the Moldova economy, and the results suggest a strong and positive impact, which would be probably even higher if dynamic effects are considered (more details in Box 9). At the same time, there are large positive economic impacts arising from several sector-based ‘flagship’ initiatives, i.e. initiatives which are worthwhile pursuing because of the large economic and social impact involve. These initiatives are presented below.

Box 9. USING A COMPUTABLE GENERAL EQUILIBRIUM MODEL TO SIMULATE THE ECONOMIC IMPACT OF IMPROVED ENERGY EFFICIENCY

The main goal of the exercise below is to show how that an improvement in the energy efficiency of the Moldovan economy has positive net effects and is worthwhile pursuing by policy tools. To analyze the economy-wide impact of changes in energy prices and demand, a static Computable General Equilibrium model was used. The model is calibrated on a highly disaggregated Social Accounting Matrix, based, inter alia, on Moldova's National Accounts data for the year 2010.

Improved efficiency in use of energy has been simulated by a 20% reduction in the demand for electric energy (ELEC_EFF) and gas (GAS_EFF), while holding other components of the intermediary demand constant.

In result of achieved increase in efficiency, the GDP is expected to increase by 2.2 percent more compared to the base scenario. Fixed investments are expected to rise by 9.9 percent, thus raising further the productive capacities of the Moldovan economy. This growth is largely achieved in result of more domestic resources being freed up for investment, whereas the need for foreign savings declined by 0.3 percent.

Interesting to note is that as the economy's competitiveness increases, with exports expected to add 0.6 percent, while imports – 0.3 percent leading to a decline in the trade deficit by -1.1 percent.

Obviously, there are negative impact effects on the energy sector, whose output is expected to decline by 13 percent, which reflects in a corresponding reduction in the labour force demand. At the same time, the total sales per economy growth positively (+0.2 percent). The sectors benefiting most from the increased energy efficiency will be constructions (+6.5 percent in the volume of production), services rendered mainly to companies (+4.6 percent) and the production of machines and equipment (+2.4 percent).

The net effect on labour employment is positive (+0.2 percent). Due to the effects of growing demand for labour and income substitution effects, the welfare of the households increases, as shown by the consumption expenditures level growing by 0.13 percent both in rural and urban areas. The increased energy efficiency also associates with a budget deficit 0.3 percent smaller than in the base case scenario.

Source: author's calculations based on Moldovan CGE model

■ Use of biomass as renewable energy source

Current situation and prospects: According to an academic source, in the next 25 years, Moldova energy demand will grow annually by 40-60 MW⁵². Moldova has to carefully balance the opportunity of covering this growing demand by importing more energy against generating domestic energy. In favour of imports speaks the fact that, according to the research done in Moldova, in the short- to medium-term period importing electric energy is likely to remain cheaper than producing it locally. For instance, the price of the energy derived from the agricultural biomass is estimated at 3.1 MDL / kWh, compared with 1.33 MDL / kWh of traditional electricity. At the same time, many energy projects already being implemented in Moldova demonstrate that heat produced from local renewable resources is cheaper than the heat produced from the imported gas⁵³. Even more, as conventional energy gets more expensive, the opportunity costs of the renewable energy sources (RES) are declining. Moldova's potential of producing energy from major kinds of RES is estimated at 2700 ktoe or 4100 ktce, which is 1.3 times more than the overall total consumption of energy resources in 2010⁵⁴. Biomass represent roughly 20 percent of this potential (while solar and wind energy combined have a share of 70 percent). The quoted source projects that in the next 10 years biomass and hydroenergy shall persist as key sources in the volume of energy obtained from the RES.

Ways of using the biomass: Biomass can be used in three basic ways, with various economic and environmental implications⁵⁵:

- *Growing the green mass for the purpose of producing bio-fuel (bio-ethanol and bio-diesel).* The Institute of Ecology and Geography of the Academy of Sciences of Moldova assessed that there are about 25 varieties

⁵² I. Comendant, A. Sula, S. Robu, Iu. Dupleva Moldova Power Sources Development including Nuclear Power Plant possible participation,

⁵³ http://www.undp.md/projects/Biomass/Leaflet_biomass_RO.pdf

⁵⁴ I. Timofte, Natalia Timofte, V.Brega, „Development Of Bioenergy In Moldova”, Problemele Energeticii Regionale 2(10) 2009

⁵⁵ Idem;

of annual and perennial plants which can be grown on large-scale and significant areas in the Republic of Moldova and will make it possible to industrially produce biomass for obtaining biofuel. The most feasible and cost-effective operation in Moldova is deriving fuel from ethyl alcohol. Production of biodiesel is another option to provide agriculture with fuels and lubricants. Currently, about 30 percent of farmers' incomes derived from the cultivation of crops is used to cover the costs of obtaining fuel. *In extremis*, as an alternative to purchasing fuel, 30 percent of ploughed lands could be used to produce their own biodiesel. Rape seed (cole seed) has been identified as the most appropriate energy culture for this purpose in Moldova. However, any competition of energy crops with food production should be avoided and the production of energy crops shall be promoted only on lands not suitable for other purposes.

- *Biogas*. This technology can contribute to solving multiple problems in rural areas, such as the elimination of waste, obtaining fuel and energy, accessing environmentally clean fertilizers and food products, enhancing soil fertility and improving working and household conditions. Opposite to deliberate growth of the biomass for fuel production purposes, biogas is produced from the organic residuals available, without creating any additional stress on soil. According to the study that is quoted, available technologies allow for cost-efficient biogas technologies usable from individual holdings to large cattle-breeding farms, poultry factories and even cities. Such technologies are already being produced domestically (currently in the demonstration stage) or can be imported⁵⁶.
- *The use of solid agricultural and municipal residues*. Solid biomasses comprise residues from cleaning and trimming of gardens, vineyards, sanitary cleaning of forests, materials of vegetation origin (stems of maize, sunflower, tobacco, thatch), waste from timber processing, solid industrial and communal organic wastes. These types of solid biomass are primarily used for the heating of living premises and for cooking using various devices (heating boilers, incinerators). Many projects have recently started in Moldova using these boilers to provide heat supplies for institutions in rural areas, which use equipment for the briquetting of plant wastes and boilers for burning them.

The advantages of using biomass:

- Significant reduction in GHG emissions (presently, energy sector of Moldova accounts for around 70 percent of national emissions);
- Energy from biomass and biogas is cheap and the investment return period is short. For instance, the prices of a model of a biogas installation produced in Russia (reactor volume varying between 2.5-20 cubic meter) costs from 6,000 to 12,000euros, with an investment return period of between 1.1 and 2.2 years. In the case of Moldova, the price and investment return period can be significantly lower because the biogas installation developed by the Power Engineering Institute can be produced using equipment which is presently considered scrap metal (cisterns, diesel equipment); in fact, getting this equipment back into the economy brings additional positive effect on the environment;
- Reduced dependency on imported energy resources (according to some officials' statements, by 20percent⁵⁷);
- Direct and indirect creation of new jobs; for instance, a 1MW power plant producing electric energy from biomass means the creation of 25 new jobs⁵⁸; the biogas facility designed by the Power Engineer-

⁵⁶ Institute of Power Engineering of the Academy of Sciences of Moldova has proposed the process scheme of a comprehensive bioenergy installation for generation of electric power, hot water and gas by using manure, poultry dung and solid organic waste as starting materials. Suggested technical solution ensures practically 100% usage of the burned gas energy due to implemented feedback between the power plant and the bioreactor. The installation comprises a bioreactor of 0.26 m3volume, reservoir for biogas of 0.08 m3, heating device, instruments for measuring and controlling output parameters, pressure attenuator.

⁵⁷ Statement by Minister of Economy Valeriu Lazar, quoted in http://curierul.md/index.php?option=com_k2&view=item&id=1226:moldova-g%C3%A2nde%C5%9Fte-eco-urmeaz%C4%83-s%C4%83-ac%C5%A3ioneze-eco&Itemid=44

⁵⁸ Ion Comendant, "Identificarea soluțiilor de acoperire a cererii de energie din sursele regenerabile", problemele energiei regionale 2(16) 2011.

ing Institute requires 2-3 manhours a day for maintenance. Only four such facilities would generate one Full Time Equivalent job, which suggests that wide use of the biogas facilities in Moldovan villages may trigger specialization of some rural labour force in maintenance in the biogas facilities;

- To represent sources of significant alternative revenues for the farmers (straws collected from 20 ha can provide additionally 5280 MDL income to the 24000 MDL income derived from selling the wheat harvested from the same area⁵⁹);
- In the case of biomass for thermal energy production and biogas, technologies are simple to use and maintain even by low-skilled operators;
- In case of biogas, there are very useful residual outputs which can be used as valuable organic fertilizers.

Problems related to the use of renewable resources:

- Some types of large scale biomass installations require significant investment: for instance, a 200 MW municipal waste-powered station would require 200 million Euro⁶⁰;
- Accordingly, if the scale of the installation is not carefully calculated, the price of the energy from some renewable sources may end up being higher than of the energy derived from traditional sources. Construction of the above-mentioned 200 MW waste-powered station would require a 40-50percent increase for the energy consumers' prices compared to the energy produced from traditional resources⁶¹.
- Food security considerations put limits on the area of land under cultivation of the energy crops. In EU this index is 20percent; according to the expert estimates, in Moldova this index should be set at 10-11 percent of the agricultural land;
- Measures have to be put in place to avoid the overuse of agricultural residuals as biomass fuel sources to avoid negative impacts on soil fertility; a certain share (which has to be calculated by the scientists) of the solid agricultural residuals should remain in the field as organic fertilizer for the next harvest;
- There is a need for additional considerable investments involved when small generators of electric power from the RES have to link-up to distribution grids.

Optimal strategy to follow:

More comprehensive research has to be done, but the evidence available from the studies quoted in this section strongly suggest that for Moldova the net economic effect from transitioning to biomass as source of energy is positive, and will only expand as price of energy from traditional sources grow. In order to gain maximum benefits, the following plans of action are suggested:

- Continue developing RES by giving preference not only to biomass, but also to the biogas; use of agricultural residuals for production of biogas is accompanied by production of a valuable 'residual' product – organic fertilizers which can significantly contribute to the higher crop yields;
- Promoting small-scale rather than large-scale technological solutions for use of biogas and biomass which are able to satisfy the needs of a small group of rural households or communities;
- The agricultural subsidies policy should include a specific measure of subsidizing the biogas installations;

⁵⁹ "Renewable Energy Sources: challenges and expectation", presentation by dr.hab. Vladimir Berzan, Institute of Power Engineering, given at Moldovan Business Week 2010, http://mbw2010.miepo.md/uploads/2010/05/6.Mr_-Vladimir-BERZAN-Director-of-Energy-institute-the-Academy-of-Sciences-of-Moldova.pdf

⁶⁰ Ion Comendant, "Identificarea soluțiilor de acoperire a cererii de energie din sursele regenerabile", problemele energeticii regionale 2(16) 2011.

⁶¹ Idem.

- Better financing of the relevant R&D and of the technological transfer, including through a public-private partnership;
- Fiscal concessions for the import of biomass and biogas equipment (0 percent customs tariff for installations and components);
- Fiscal concessions for the domestic production of biomass and biogas equipment (0 percent VAT).

■ Promotion of the organic agriculture

Current situation: In the past decade the Moldovan agriculture has undergone significant structural and technological changes. Generally, the income levels remain depressed, while the gap between efficient farms and the subsistence-oriented peasants' households has further widened. Recent reports suggest that the most detrimental impact of the agriculture on environment comes from the improper crops-rotation, drastic reduction in use of organic fertilizers, the improper use of chemical fertilizers, especially in the small farms, overgrazing, significant cuts in the field-protecting forest strips⁶². The organic agriculture has been identified as one of the key paths to reduce the environmental footprint of the agriculture. Moldova has already implemented many practical measures to launch and promote the organic agriculture and these been appraised⁶³. However, these efforts have not been systematically supported by enabling policy tools; for instance, agricultural subsidies for organic agriculture have been abolished in 2012. The current extent of the 'green' agriculture is represented by the following figures: 32 thousand ha (1.7 percent of total agricultural land) are either certified or are under conversion for the organic agriculture; 253 farms practice organic agriculture (a tiny 0.03 percent of total 903,000 registered agricultural entities). At the same time, the aggregate performance of these producers is impressive: in total, Moldova exported 32,374 tons of organic products totalling US\$46 million, representing 11 percent of the country's total agricultural export value in 2009. In 2011, the national trademark "Organic agriculture of Moldova" was introduced, with an estimated 100 companies as potential candidates for being allowed to export under this trademark⁶⁴. Some of the Moldovan producers of the organic food are already prized at international fares⁶⁵, setting the path for more positive examples to emerge. The results achieved so far advocate for a more palpable financial support from the state budget and more active promotion of the organic agriculture. A comparison with countries having natural conditions which are less agriculture friendly, suggest that Moldova can significantly increase its output of organic farming: Moldova uses only 1.7 percent of its agricultural land for organic farming, compared with 10 percent in Switzerland, 19 percent in Sweden, 5.1 percent in Uruguay and 2.4 percent in Costa-Rica.

Advantages of the organic agriculture:

- Considering the fact that Moldova does not meet natural conditions for intensive agriculture (as Ukraine and Romania do), organic agriculture is the best long-term option to provide sustainable job opportunities in rural communities, while the past decade has seen an ongoing trend of labour reduction;
- The widespread lack of chemical fertilizers use in traditional agricultural entities in Moldova can be harnessed as a real opportunity to pursue organic forms of agricultural production;
- A key characteristic of the organic agriculture is the replacement of chemical fertilizers with organic ones; from this perspective, the development of organic agriculture can be significantly supported by the increased use of the biogas installations in rural households and farms;

⁶² MoE and others, "State of Environment in Republic of Moldova in 2007-2010", National Report.

⁶³ UNEP, "Organic agriculture: a step towards the Green Economy in the Eastern Europe, Caucasus, and Central Asia. Case studies from Armenia, Moldova and Ukraine", 2011;

⁶⁴ <http://www.ecomagazin.ro/din-2011-moldova-exporta-produse-agricole-ecologice-sub-marca-nationala/>

⁶⁵ Falesti-based company "Logofat-Prim" was awarded the highest prize at the "Organic Marketing Forum" held in Warsaw, Poland, May 2012, <http://www.europalibera.org/content/article/24582308.html>.

- Organic farming benefits society substantially by reducing pollution; conserving energy, soil, nutrients, fish, and wildlife; and ensuring the supply of food for future generations; The level of the GHG emissions of the organic agriculture is estimated to be half of the traditional one⁶⁶;
- There is a steadily growing foreign and domestic market for organic agriculture products (10-20 percent annual growth⁶⁷); The global market of organic food in 2010 was estimated at USD 60 billion; Key trade partners of Moldova are important consumers of the organic produce: EU consumes 45 percent of the organic products produced globally⁶⁸, while in Russia the total market turnover is about USD 2-3 billion;
- Organic farming provides for higher incomes for the farmers able to market their products, as prices for organic food are 20-30 percent higher than in case of non-organic⁶⁹, while according to other estimates, these are 50-60 percent higher⁷⁰;
- The organic agriculture is the only option for Moldova to conserve the high fertility of its soil, the most valuable of all its natural resources;
- Some international evidence shows that organic agriculture generates⁷¹ 40 percent more employment than conventional farming, even though jobs may not be full time and constant..

Problems impeding the organic agriculture:

- In Moldova, there is little understanding about how and why organic food is produced and consumed; according to some sources, more than 75 percent of the consumers interviewed do not know anything about the organic agriculture⁷²;
- If not carefully taking into consideration existing technologies, yields in case of some organic crops may be lower than in case of traditional ones; in Romania yields in the 'organic farms' have been reported to be 20-50 percent lower than on traditional ones⁷³; this is why, in most countries, the transition to organic agriculture is a relatively slow process;
- A larger output of organic agricultural products also require more certified processors/ producers of agricultural food;
- Organic agriculture is a sophisticated alternative agricultural system requiring medium- to high-level of professional training for all farmers involved and higher inputs of labour than conventional agriculture;
- Poor quality of water used in agriculture is a significant constraint in the case of Moldova, as it can undermine efforts put into growing organic crops;
- In Moldova, there is still limited interest among the main retailers to promote organic sales on a large scale;

⁶⁶ Idem;

⁶⁷ <http://www.unep.org/greeneconomy/SuccessStories/OrganicagricultureinUganda/tabid/29866/Default.aspx>

⁶⁸ Avantajele agriculturii ecologice și pașii spre certificare, <http://inagro.md/uploads/user/Avantajele%20agriculturii%20ecologice%20%C5%9Fii%20pa%C5%9Fii%20spre%20certificare.pdf>

⁶⁹ <http://www.europalibera.org/content/article/24582308.html>.

⁷⁰ Avantajele agriculturii ecologice și pașii spre certificare, <http://inagro.md/uploads/user/Avantajele%20agriculturii%20ecologice%20%C5%9Fii%20pa%C5%9Fii%20spre%20certificare.pdf>

⁷¹ Matt Lobley/Matt Reed and Allan Butler, "The Impact of Organic Farming on the Rural Economy in England" Center for Rural Research, University of Exeter, 2005.

⁷² <http://www.europalibera.org/content/article/24582308.html>.

⁷³ <http://informatorulmoldovei.ro/agricultura-ecologica-un-pas-spre-viitor/>.

- Agricultural subsidies allocated for organic products are very small and unstable (2 million MDL in 2007, 4 million in 2008, 2 million in 2009, 2.6 million in 2010); while in 2011 more than 5.3 million MDL organic subsidies have been approved (less than 1.3 percent of total fund for agricultural subsidies), only 786,000 MDL have been effectively disbursed; with an average amount of 60,000 MDL subsidy / beneficiary, the 'organic' farmers received the smallest subsidies compared with all other beneficiaries of subsidies; to compare, in 2010 the 494 beneficiaries of subsidies for fertilizers and phytosanitary products received 49 million MDL.

Optimal strategy to follow:

Organic farming is a sophisticated alternative agricultural system. Attention should be given to optimum approaches for conversion to organic farming. However, most of the international evidence suggests that for the developing countries the net social and economic effects from transiting to the organic agriculture are positive. To harness these benefits, it is necessary to adopt a gradual policy of transition, according to the following points:

- The Ministry of Agriculture and Food Industry in partnership with relevant stakeholders to collect necessary data and to conduct additional economic research in order to compare economic performances of the organic farmers with the conventional ones; the research should look separately at different crops, animals, regions, and locations;
- Support the national research institutions to conduct organic-conventional agriculture research on controlled conditions for plots; these studies will allow better understanding of the optimal conditions and techniques maximizing the net effects of the organic agriculture and identify those crops which should remain part of the conventional agriculture (e.g. for food security reasons);
- Reshuffle agricultural subsidies policies, by putting more emphasis on subsidies for organic agriculture; for this, increase by 5 percentage points annually the share of organic subsidies in total agricultural subsidies budget;
- Introduce subsidies for the acquisition of services of farmers training on land conversion and organic certification;
- Compensate organic farmers the cost related to certification process itself;
- As a key objective of the foreign policy, pursue the liberalization of the trade regimes for the food imports from Moldova by the key economic players: EU, Russia, China and US;
- Information and training needs of organic farmers should be surveyed and information and training delivery systems should be tailored to meet those needs;
- Raise consumers' awareness about the benefits of consuming organic food.

■ **Increasing residential buildings energy efficiency**

Current situation and prospects: Consumption of the energy in the households sector has increased at a remarkable speed in the recent decade. In 1997, the residential sector accounted for 35.4 percent of all energy consumed, while in 2007 the share had risen to 38 percent. In the urban sector the consumption of the energy is higher due to the fact that most homes are connected to municipal heating systems, and use natural gas. In rural settlements, most households still rely on traditional wood- or coal-based stoves for heating. In Republic of Moldova buildings account for about 50 percent of thermal energy consumed, 38 percent of the gas, and 31 percent of the electric energy⁷⁴. At the same time, a large proportion of the buildings are not properly heated and cooled; a study by the EBRD estimated the consumption of the energy in the residential buildings of about 129 kWh/m²,

⁷⁴ Citrus Partners, "Republica Moldova: Studiu Privind Îmbunătățirea Eficienței Energetice A Clădirilor De Locuit", 2011.

compared with the standard 179 kWh/m² necessary for thermal comfort. Because of constant underinvestment, residential buildings are very energy intensive, generating a permanent burden on the public and households' budgets. The bills for the municipal heating services often are not transparent. Cross-subsidies at apartment building level are widely used by the administrations of the multi-rise buildings.

Advantages of investing in the buildings energy efficiency:

- Increased households' welfare, which will result in the reduction of energy bills (on average, about 5 percent of the households budget expenditures in Moldova are for heating; at the same time, the poorest quintile spent three times more, which is an indicator of the energy poverty in Moldova);
- Increased heat comfort, improved health conditions and reduced demand for medical services and medicines;
- Longer periods of exploitation of residential buildings;
- Significant reductions in GHG;
- Building energy efficiency programmes have very large positive impact on employment, by direct (construction sector) and indirect creation of new jobs. International evidence suggests that from 10 to 50 jobs can be created in result of investing EUR 1 million in buildings' energy efficiency programmes⁷⁵. Up to one third of the employment gains are due to the indirect effects on other sectors that supply the construction industry and the induced effects from the increased spending power of higher employment levels.

Problems undermining investment in buildings energy efficiency:

- Shortage of domestic investment capital;
- Unclear or contradictory property rights with regards to the condominium;
- Shortage of trained specialists in the audit of buildings' energy efficiency;;
- Lengthy administrative procedures related to the approval of the buildings' rehabilitation;
- Lack of a cooperation culture among individual owners of apartments in multi-apartment buildings;

Optimal strategy to follow:

There are several possible strategies to improve the efficiency of the residential buildings: The comprehensive approach, targeting the 'entire home', will bring the highest gains. At the same time, the more piecemeal approach would save Moldova some resources, but bring also somewhat smaller benefits. However, the two approaches can also be combined in a case-by-case scenario.

- Research evidence suggest that 'deep' retrofitting bringing building to a passive state can bring significant enormous savings. In Hungary, research has demonstrated that up to 85% of heating energy use, and the corresponding CO₂ emissions, can be avoided by a consistent and widespread deep retrofit programme in the country. However, this is the option economically most costly option: according to a relevant study, proper insulation and introduction of energy-efficient measures would require investment worth 3.85 billion euro for the entire residential sector in Moldova⁷⁶. Using the most conservative job intensity indicators from international evidence, such an investment would generate about 40,000 jobs (for the sake of comparison, in 2010 the construction sector employed 68,000 people). At the same

⁷⁵ Center for Climate Change and Sustainable Energy Policy, "Employment Impacts of a Large-Scale Deep Building Energy Retrofit Programme in Hungary", CEU, 2010, http://3csep.ceu.hu/sites/default/files/field_attachment/project/node-6234/employment-impacts-of-energy-efficiency-retrofits.pdf.

⁷⁶ Citrus Partners, "Republica Moldova: Studiu Privind Îmbunătățirea Eficienței Energetice A Clădirilor De Locuit", 2011.

time, this strategy would result in highest savings possible, with an estimated 60 percent reduction of the energy bill, while ensuring the minimal thermal comfort⁷⁷.

- The *piecemeal approach* targets punctually the main sources of the energy inefficiency. It may not achieve spectacular gains immediately, but allows for incremental gains. For instance, international evidence suggests that in some cases merely repairing windows can improve energy efficiency by up to 42 percent⁷⁸. Obviously, this scenario will be less generous in terms of number of jobs created and of the GHG emissions reduction.
- In the case-by-case scenario, larger resources have to be invested in a more comprehensive retrofitting, in cases when owners can afford them. At the same time, preference should be given to simple technical solutions for improving the efficiency of buildings, including, applying special window films that can help lower cooling/heating costs and reduce energy consumption, windows repair, in cases when it is technically possible, replacing 'classic' windows with multiple-glazed (at least double-glazed) windows, installing circulation valves and thermostats in the vertical connections-based central heating system, insulation of external walls, implement heat recovery equipment in ventilation systems.
- Under any strategy, it would more optimal to give preferences to multi-apartments projects, in order to achieve higher energy efficiencies rather than to individual owners of the apartments. To implement this strategy, Moldova can use its own and foreign resources. In this respect, on May 18, 2012, the EBRD has offered EUR 35 million resources for providing loans to Moldovan banks and establish working teams composed of national and foreign experts helping the end-beneficiaries to prepare technical projects⁷⁹.

■ Promotion of the energy-efficient home appliances

Current situation and prospects: Consumption of electric energy represents 14 percent of the total energy consumed in the households' sector. In total, households consume about 40 percent of the total electric power delivered and the general trend is upward. Behind the trend is the growing number of energy-consuming home appliances, especially air-conditioners and refrigerators. In this respect, replacing the old equipment with more energy-efficient can be seen as a reasonable investment bringing households significant savings. According to a recent study, the energy bill for a C-class refrigerator consuming 285 kWh annually in 2010 was 473 MDL, compared with the 171 MDL energy bill for an A++ refrigerator consuming 103 kWh annually⁸⁰. Currently households in Moldova are poorer than their EU counterparts in terms of endowment with home appliances, but the situation is rapidly changing, due to rising incomes and changing consumption patterns. The prospects of the steadily growing electricity consumption make it reasonable to promote the consumption of the energy-efficient home appliances and equipment.

Advantages of using energy-efficient home appliances:

- Increased households' welfare, as a result of reduced energy bills (currently, about 4 percent of the households budget expenditures in Moldova are for electricity);
- Longer periods of exploitation of the home appliances;
- Significant reduction in GHG;

Problems related to promotion of the energy-efficient home appliances:

- Energy-efficient home appliances require higher upfront investment than the 'classic' ones;

⁷⁷ Idem.

⁷⁸ Idem.

⁷⁹ <http://www.ebrd.com/english/pages/news/press/2012/120518c.shtml>

⁸⁰ Ministry of Economy, "Public policy proposal to promote efficiency consumption of the electricity in the households sector", 2011.

- Some energy-efficient electric equipment (such as some fluorescent bulbs) require special disposal technologies and sites;
- Transposing and enforcing the EU energy directives will involve additional costs for the public budget;
- Testing home appliances for the energy-efficiency requires laboratories and expensive equipment;
- The producers/importers of the electric energy will see their turnover declining.

Optimal strategy:

Moldova has several options for promoting energy efficient home appliances, which can be applied separately or combined: transposing the EU directives; educating the public regarding the economic soundness of investing in the energy-efficient home appliances; provide fiscal stimulus for import (0 percent customs tariff) and selling (0 percent VAT) of (some of) the energy-efficient home appliances; provide financial stimulus to the end-consumers.

The quoted study estimates that the optimal strategy for promoting the energy-efficient home appliances includes the following elements:

- Transposing EU energy-efficiency directives, starting with some which are of highest priority;
- Educating the public regarding the economic soundness of investing in the energy-efficient home appliances;
- Provide fiscal stimuli for the import and production of the energy-efficiency home appliances.

To understand the implications of the analysis and figures brought in this chapter, it has to be recalled that Moldova is a resource and energy poor, small and open economy. Human resources and fertile land are Moldova's main endowments. When corroborating these figures with the strategic assessment of the Moldova's development environment in previous chapter, it becomes clear that "greening" economic growth can bring many opportunities for Moldova. More than simply ensuring economic survival, a green economy may help Moldova itself as country sourcing green exports and attracting green investments, a sort of "green economy paradise." To achieve this, coordinated and dedicated actions are required from many actors, with the Government in general, and Ministry of Economy and Ministry of Environment, in particular, obliged to play a central role.



The Future We Want

Moldova adopts the “Green Economy Paradise” as the vision guiding country’s development in the long-term. The future based on the Green Economy means that Moldova will use highly efficiently its own and imported resources, using technologies minimizing society’s impact on environment, while at the same time creating conditions enabling the benefits of the economic growth to reach every member of the society. For this vision to become true, much work needs to be done by Moldova itself in terms of defining sustainable development enabling policy tools, refining its domestic institutional framework to support a more integrated and coherent policymaking and of adopting specific actions needed for “greening” the country’s economy.

Chapter IV.

Vision and future priorities

The UN CSD Rio+20 Outcome Document “The Future We Want” reconfirms and reinforces the commitments of Governments to promote SD and Green Economy principles, using market and policy initiatives, adequate investments, promoting eco-innovation, facilitating awareness and information campaigns in this field, mobilizing and applying new knowledge and skills, including the promotion of education for sustainable development at all levels.

In this context, the Republic of Moldova supports proposals for the development of the:

- Green Economy Roadmap;
- Framework for actions at global, regional and national levels;
- SD goals, based on existing and updated MDGs.

Based on the development priorities of our country, we consider that political commitment for the promotion of sustainable development in the next decade should be focused on the following areas:

- Rational use and protection of water resources;
- Energy efficiency;
- Sustainable production and consumption;
- Food security and sustainable agriculture;
- Climate change mitigation and adaptation;
- Integration of environment protection and sustainable development principles in all spheres of the social-economic development of the country;
- Integration of the strategic assessment of the policy initiatives on the sustainable development as part of the national and sector-level policy cycles;
- Promotion of education for sustainable development.

The most important implication from the analysis conducted in the chapters above is that, *to go forward as a competitive country, Moldova needs to adopt new, more sustainable, models of development. Moldova will have to gradually transit from a country that is heavily dependent on imported resources which it uses inefficiently to being a country using more efficiently its own and imported resources, minimizing impact on environment, creating conditions under which the benefits of the economic growth would reach everybody.* This will allow Moldova to successfully pursue its quest for higher living standards while not breaching its resources frontier.

Transitioning to the green economy model represents the strategically best solution for Moldova to achieve a quality shift in the socio-economic model on which the country is based. Moldova aims for a green economy model which will help reconfigure businesses and infrastructure to deliver better returns on natural, human and economic capital investments, while at the same time reducing greenhouse gas emissions, extracting and using less natural resources, creating less waste, and reducing social disparities. Sustainable production and consumption, green jobs, green procurements, green office, green meetings, green building, green budgeting, and e-governance will be broadly promoted and applied by all existing and new instruments. To achieve successfully this transition, the Moldovan government will work more efficiently to adopt the sustainable development principle at the core of its policy cycle and will actively promote their adoption by other national stakeholders. In this respect, the Government’s existing partnerships with civil society and donors will be used and further consolidated.

Making it happen: key actions needed

In order to accelerate the adoption of a socio-economic development model of the country, based on SD and GE principles, a number of recommendations have been formulated in consultation with major stakeholders and coordinated with governmental agencies. These recommendations encompass policy tools necessary to be adopted, the institutional framework, and specific actions needed for “greening” the country’s economy. Proper implementation of these actions will require maintaining high-level policy dialogue and policy coordination, involving civil society in the policy dialogue and coordinating well the work with development partners.

■ Policy instruments

- Mainstream Sustainable Development (SD) and Green Economy (GE) principles in the national development policy documents; in this regard, relevant development policy documents adopted in the past will be updated, while the new ones will be developed based on the SD and GE principles;
- Develop a National Sustainable Development Concept and the National Sustainable Development Strategy and integrate sector-level actions to promote practical measures for the implementation of SD and GE in Moldova;
- Implement the provisions of the National Energy Efficiency Programme from 2011 to 2020 and the National Energy Efficiency Strategy 2020, monitor the implementation and produce annual progress reports;
- Implement the Programme of production and commercialization of the ecological agricultural products;
- Adopt and implement the provisions of the National Environmental Strategy 2012-2022, with the major objective to promote Green Economic Development of the country, monitor the strategy’s implementation and produce annual progress reports; ensure that National Environmental Strategy bases on a plan of actions with clear budgetary reflections;
- Adopt the new version of the Law on environment protection, with SD, GE and ESD principles in definitions and responsibilities at all levels;
- Further amend the tariffs policies, in order to ensure that the prices of resources reflect their scarcity, and their contribution to /impact on sustainable development; to minimize the negative social consequences, the tariffs’ adjustment policy will continue to be accompanied by improving social protection policy;
- Ensure transparent and competition-based allocation of resources from national public budget, including from the Environmental Funds, Energy Efficiency Fund and National Regional Development Fund;
- Mobilize internal resources for the promotion of GE, including the National Ecological Fund, conduct environmental fiscal reform and revise the subsidies system;
- Promote Education for Sustainable Development as part of SD/GE promotion at the national level. Start by integrating the Green Economy and Sustainable Development modules in the core curricula of the key universities (Technical University, Agrarian University, and Academy of Economic Studies).
- It is necessary to do more to transfer the sustainable development-oriented research results into the economic and social sector. A key prerequisite in this respect is establishing at earliest stages of research a close cooperation between the research units and potential users of the technology and research. Also, the policy impact of policy recommendations from the part of the scientific community would be more visible if the researchers address high-priority policy issues which may be identified in direct dialogue with the beneficiaries of the policy dialogue.

■ Institutional framework for sustainable development

- Ensure proper policy monitoring, evaluation and reporting, across all national-level and sector-level development strategies and programmes;
- Update the composition and reactivate the National Sustainable Development Council (under the President of the Republic of Moldova) and ensure that the members of the Parliament, all line ministries and civil society are adequately represented in the NSDC;
- Extend the mandate of the Parliamentary Standing Committee on Economy, Budget and Finances to include responsibilities for the promotion of GE principles; ensure that the staff of the Committee receives adequate training on GE principles;
- Define more explicitly the mandate of the Parliamentary Standing Committee on Environment and Climate Changes covers the promotion of the state's sustainable development policy; ensure that the staff of the Committee receives adequate training on the SD principles;
- Strengthen the capacities of the central government and local authorities to integrate and promote sustainable development principles within the process of decision making at all levels;
- Ensure adequate training on policy costing for the ministerial staff involved in Mid-Term Budget Framework, to ensure the adequate budgetary reflection of the development priorities;
- Strengthen the capacities of the Regional Development Agencies and of local public administrations at all levels in understanding and promoting the SD in regional and local development programmes and projects;
- Increase the role of the Agency for Energy Efficiency and of the Energy Efficiency Fund to promote GE principles in the energy sector and beyond;
- Promote integrated policy planning and decision-making process at all levels, by legally enforcing the analysis of policy sustainable development impact analysis; for this, build on the good experience Moldova has in conducting ex-ante business regulatory impact.
- Promote Climate Change Mitigation and Adaptation measures as part of SD and GE actions in Moldova, especially in the priority sectors of economy;
- Elaborate the sustainable development impact analysis methodologies and train staff on how to apply them;
- Involve civil society organizations from all sectors in the promotion of SD, GE and ESD principles at all levels;
- Develop the National Plan for Territorial Planning to serve as master plan for regional and local development plans;
- Strengthen inter-ministerial and inter-municipal collaboration to enable the elaboration of territorial planning documents as a tool to ensure balanced development of localities and towns.

■ Green economy specific measures

- Promote the Green Economy in all new draft national development policy documents, social, economic and environmental strategies, in all relevant legislation (including the definitions) and into the sectors development strategies (including energy, agriculture, industry, trade, transport, constructions, as well as public health, waste management and natural resource sector);
- Develop policies enabling the private and public education institutions to adopt curricula better reflecting the GE labour requirements and which are conducive to life-long learning and on-job learning of the labour force;
- Start promoting Green Office by Government showing positive examples with effective implementation of the e-government strategy;
- Promote Green Public Procurement by introducing e-procurement system, to minimize the volume of the paper and resources used;
- Strengthen the Private-Public Partnership for the promotion of the GE principles and actions, starting by establishing a private-public project for the retrofitting of the existing public buildings in a small municipality, so that this can serve as good practice with a high potential for replication;
- While promoting biomass as renewable source of energy, carefully consider the respect of the optimal balance between energy gains and need of the agricultural sector to develop organically;
- Promote more actively biogas installations to be used in rural households and rural communities;
- Using the results of the Ministry of Economy's public policy study on consumption of electricity in households, promote high energy efficiency electric devices operating environmentally friendly technologies; for this, launch a media campaign, raise consumers' awareness, implement economic and financial mechanisms to foster the promotion of these technologies, implement adequate technical standards and norms;
- Develop the national "Green Moldova" trademark for products and processes. Identify the 'green' companies receiving the right to use the "Green Moldova" trademark through transparent and fair selection;
- Harmonize agricultural policy with industrial policy to stimulate multifunctional rural development and enable job creation for people leaving agriculture;
- Mainstream SD principles into harmonized agriculture and rural development policy to: integrate location-specific organic resource inputs and natural biological processes to restore and improve soil fertility; achieve more efficient use of water increase crop and livestock diversity; support integrated pest and weed management and promote employment and smallholder and family farms;
- Encourage the development and implementation of public-private investment policy in Sustainable Agriculture in order to develop production and disseminate green agricultural inputs, higher yields and more resilient crop varieties and livestock, to enhance and expand supply-side capacities with farmer training, extension services, and demonstration projects focused on green farming practices appropriate for local conditions.

- Speed up the adoption of the Law on the buildings' energy performance and develop the technical standard and methodologies necessary for the implementation of the Law;
- Consider the use of new financial mechanisms, such as the ecologic conversion of external debts;
- Build the institutional capacities necessary to promote green energy across the economy, including by establishing energy managers positions within local public authorities, creating an energy auditing system, and establishing the function of an energy inspector.

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