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FEASIBILITY STUDY
ON INTRODUCING THE EMISSION TRADING SYSTEM IN MOLDOVA

Final Report

December, 2012

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CONTENTS

PREFACE

This document is structured as follows:

Section 1. Outlines the policy issues which are relevant for Moldova with respect to Emissions Trading.

Section 2. Presents an overview of the key issues for Emissions Trading in Moldova, including the options of a domestic ETS, linking to the EU-ETS and other related aspects.

Section 3. Addresses the Clean Development Mechanism (CDM), the present state of the CDM-projects developed in Moldova and the future options for so-called "project based mechanisms".

Section 4. Elaborates on the Strategic options for the Government of Moldova.

Section 5. Presents the conclusions and recommendations from the feasibility study

PROJECT FICHE

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Purpose	Elaborate the feasibility study on introducing an emission trading system in Moldova, with evaluation of costs, benefits and risks of implementing such mechanism in Moldova and linking it to the EU-ETS

Assignment tasks	**International consultant:** • Lead and manage the process of elaboration of the feasibility study and conducting the workshop; • With the inputs from national consultant, elaborate and submit the common inception report for the elaboration of the feasibility study; • Analyze all available information, taking into consideration the knowledge of networks in the subject area and EU countries' experience and good practices in planning and implementing the ETS; • Undertake a mission to Moldova to conduct interviews with a list of stakeholders to gather comprehensive inputs necessary to elaborate the feasibility study; • Elaborate and submit the first draft of the feasibility study; • Undertake a mission to Moldova to conduct a roundtable with stakeholders to discuss the risks and opportunities with reference to further implementation of ETS instrument in Moldova; • Based on the feedback from the stakeholders and round table, submit the final feasibility study to UNDP Moldova and Ministry of Economy; • Prepare and conduct (1 day) workshop for the transfer of knowledge and best practices to the representatives of the Government, private sector, civil society, academia and community of local experts on applying and managing ETS instrument. The workshop will be delivered during the second mission to Moldova. **National consultant:** • Contribute to the elaboration of common inception report; • Conduct the review of available information and analysis in the subject area; • Participate to the roundtable and/or interviews with a list of stakeholders; • Participate in the elaboration of feasibility study; • Contribute to the preparation and delivery of workshop for the transfer of knowledge and best practices on applying and managing ETS instrument.
Concerned stakeholders	Ministry of Economy Ministry of Environment, in particular Climate Change Office Ministry of Agriculture and Food Industry of the Republic of Moldova Ministry of Construction and Regional Development Academy of Sciences of Moldova, Academy of Economic Sciences of Moldova), Moldovan National Bureau of Statistics), UNDP Moldova Power sector stakeholders Private sector stakeholders Other stakeholders, to be determined

ABBREVIATIONS

ADP	Durban Platform for Enhanced Action
ANRE	National Agency for Energy Regulation
CC	Climate Change
CCS	Carbon Capture & Storage
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CH4	Methane (GHG)
CNG	Compressed Natural Gas
CO2	Carbon Dioxide (GHG)
COP	Conference of the Parties
CPA	CDM Project Activity (=bundle of biogas plants)
DNA	Designated National Authority
DOE	Designated Operational Entity (=CDM external auditor)
EEA	Energy Efficiency Agency
EU-ETS	EU Emissions Trading Scheme
ERC	Energy Regulatory Commission
ESD	Efforts Sharing Decision
GHG	Greenhouse Gas(es)
GS	Gold Standard (for verification of voluntary emissions reductions)
HLAD	High Level Accession Dialogue
IFI	International Financing Institution
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
LDC	Least Developed Countries
LEAP	Local Environmental Action Plans
LNG	Liquefied Natural Gas
LoE	Law on Environment
LPG	Liquid Petroleum Gas
MEC	Ministry of Economy
MoEnv	Ministry of Environment
MW_{th}	Megawatt thermal energy
N2O	Nitrous Oxide (GHG)
NAMA	Nationally Appropriate Mitigation Actions
NEAP	National Renewable Action Plan
NGO	Non-Governmental Organization
PCA	Partnership and Cooperation Agreement
PDD	Project Design Document (under CDM)
PoA	Programme of Activities (under CDM)
PPP	Public Private Partnership
REAP	Renewable Energy Action Plan
UNDP	United Nations Development Program
UNFCCC	United Nations Framework Conference on Climate Change
VER	Verified Emission Reduction

1. POLICY ISSUES

1.1. Moldova and the European Union

The key foreign policy goal of the Republic of Moldova is the acceleration of the European Integration Process (EU). Moldova currently has a Partnership and Cooperation Agreement (PCA) with the EU, which provides a framework for the EU's efforts to assist reforms in Moldova and for strengthening ties between the EU and Moldova. Moldova has implemented an Action Plan with the EU since 2005 in the context of the EU's European Neighbourhood policy, which details reforms that Moldova intends to make with the EU's help. In 2008 Moldova received from the EU the Autonomous Trade Preferences.

In January 2010, Moldova and the EU began talks on an Association Agreement to replace the current PCA. After eight rounds of negotiations on the Association Agreement, Moldova and EU have provisionally closed a number of 'chapters'. While the agreement would not recognize Moldova as a membership candidate, it would enhance EU-Moldova cooperation in many areas. Mid-term goals of the agreement include a free trade zone and visa liberalization.

The EU is heavily supporting Moldova's reform efforts, including fostering good government, the rule of law, the protection of fundamental freedoms, improving its social protection, and its health care and education systems. EU aid also is allocated to help Moldova diversify its energy mix and improve energy efficiency.

Specifically, the issues relevant to Climate change as comprised by the Partnership & Cooperation Agreement between the EU and the Republic of Moldova, are summarized as follows:

Moldova did not adopt the Energy and Climate Package of the EU, which is based on the "20-20-20" targets (although Moldova has set more ambitious 25-20-20 targets, see Section 1.3.):

- A reduction of the EU's GHG emissions to a level of -/- 20% below the levels in 1990: 20% of EU energy consumption is from renewable sources: A 20% reduction of primary energy use compared with projected levels, to be achieved by improving energy efficiency
- Moldova, however, has accepted more ambitious targets 25-20-20: reducing greenhouse gas emissions(compared to 1990) by 25% in 2020; more energy from renewable sources in total gross domestic consumption: 20% in 2020 with an intermediary target 10% in 2015; the National Programme for Energy Efficiency 2011-2020 will establish long-term energy savings amounting to 20% by 2020.

1.2. Moldova's position under the Kyoto Protocol and its successors

The 3rd Conference of Parties under the UNFCCC (Kyoto, 1997) adopted the Kyoto Protocol, which committed industrialized countries and economies in transition included in Annex I to Convention to reduce their total emissions of direct GHG by at least 5 percent against 1990 levels over the five-year period 2008-2012. The Republic of Moldova ratified the Kyoto Protocol on February 13, 2003 and as a non-Annex I Party, Moldova has no commitments to reduce its GHG emissions under the Protocol.

In 2011, the United Nations Climate Change Conference was held in Durban, South Africa, to establish a new treaty (to follow the Kyoto Protocol) to limit global carbon emissions. The conference agreed to a legally binding deal comprising all countries, which will be prepared by 2015, and to take effect in 2020.In Durban, the international community agreed that all countries - industrialized, industrializing and developing - were seeking for future reduction of greenhouse gas emissions under either a protocol, legal instrument or agreed outcome with legal force. A new working group on the Durban Platform (ADP) was established to coordinate the necessary negotiations on a legal

agreement to be adopted by 2015 and enter into force by 2020. The establishment of the ADP puts an end to the division of the world into industrialized countries which are obliged to reduce emissions and developing and industrializing countries whose commitment is limited to voluntary activities. Until the future agreement enters into force in 2020, a working programme will be established by the ADP to raise the worldwide level of ambition to reduce greenhouse gas emissions.

Moreover, countries decided in Durban on a second commitment period under the Kyoto Protocol from 1 January 2013 onwards. Unresolved issues such as the length of the second commitment period will have to be addressed by the end of the year. The next meeting of the Conference of the Parties (COP18) will take place in Doha, Qatar, from 26 November to 7 December 2012 will decide on the design of the second commitment period under the Kyoto Protocol and set the course for the structure of the future agreement.

Republic of Moldova firmly believes in the post-Kyoto process that should be further advanced on the basis of important lessons learnt at all levels to date. It welcomes and fully supports the adoption of an international legally binding document, as validation of all our efforts in the struggle against the adverse impacts of human activities on climate, as well as, of our efforts to stop global warming.

In facing today's climate change challenges, the Republic of Moldova views national commitments under the UNFCCC as crucial. Moldova has constantly worked to live up to its obligations, as a non-Annex I Party, and as implementing an overall environmental protection policy. In addition, Moldova associated itself with the Copenhagen Accord and submitted an emission reduction target, specified in its Appendix II: "A reduction of no less than 25% of the base year (1990) level total national GHG emissions have to be achieved by 2020 through implementation of global economical mechanisms focused on the climate change mitigation, in accordance with the Convention's principles and provisions."

The Republic of Moldova decided to make a transition to low emission development path, and as a first step developing a Low-Emission Development Strategy (LEDs). The strategy will allow access to the fast start financing in implementing LEDSs and National Appropriate Mitigation Measures (NAMAs). In accordance with the draft LEDs, in case of availability of additional international support for its implementation, the Republic of Moldova is adopting the following emission reduction target: "the decrease of the total national greenhouse gas emissions by 2020 with no less than 25% of the Business–As–Usual level".

Republic of Moldova acts in line with climate change adaptation policies, recently initiating in cooperation with UNDP Country Office, the process of developing the National Climate Change Adaptation Strategy. This strategy is an essential component for Moldova's aspirations to become part of the European Union. Through this strategy the Republic of Moldova aims to mainstream the climate vulnerability and adaptation response to the national planning and policy.

1.3. Moldova's Energy Strategy

The Moldovan energy sector is overwhelmed with difficulties. High dependence on imported gas and electricity, historical debts, outdated electrical generation systems, inefficient district heating systems, together with tariffs set well below economic levels, all contribute to the poor performance of the sector. There are several programmes and strategies of the Republic of Moldova related to energy. One of the most important energy policy documents is the Energy Strategy of the Republic of Moldova. The Energy Strategy until 2020 has been published in 2007 and the Energy Strategy until 2030 is planned to be adopted this year, replacing the previous strategy. The new Energy Strategy has to deliver a strong guidance for the development of the energy sector in order to support sufficient economic growth and social welfare. It has three main strategic objectives for the period 2012-2020: 1) security of energy supply; 2) competition and availability of affordable energy; and 3) environmental sustainability and combating climate change.

The Energy Strategy until 2030 targets 2020 as the year of full integration into the EU internal energy market. In line with this target, the legislation of the country has to approximate to the Energy Community *acquis communautaire* and to be convergent with the EU acquis in a timely manner. The Republic of Moldova aligned with the acquis and set targets at the level of the most ambitious targets which even the European Union is still struggling to impose. It targets energy savings amounting to 20% by 2020 and reducing greenhouse gas emissions by 25 % in 2020 (compared to 1990) .

Low energy efficiency and high energy intensity are the reasons why energy efficiency is considered to be one of the main aspects of the Energy Strategy in the Republic of Moldova by 2020. The existing energy savings potential is proved by audits and projects on the topic. The set of main energy efficiency measures to be implemented includes: development of centralized heat supply systems, CHP energy generation priorities, developed metering systems and devices for heat and energy, energy efficient buildings, etc. Within the framework of all the possible energy efficiency measures, those which are relatively simple in organization and provide a quick and visible effect have to be implemented earlier. Such an approach will lead to raised awareness of these issues and visibility of the results after the measures have been taken. The second stage of energy efficiency development in the country after 2020 will be based on the developed institutional framework, capacity and methodology infrastructure, practical experience in different industries, technology clusters and ownership. This background will let Moldova built up a more sophisticated policy and action items than in the previous time period before 2020.

It is assumed that Moldova will join the EU in the future, implying that the country will *mandatorily* join the EU Emissions Trading System (EU-ETS). In this case, CO_2 emissions policy will become an important factor in energy efficiency policy in Moldova. There is no final international solution on the CO_2 emissions policies framework, but most probably the policies will be based on the market-based instruments and price caps. What confirms such an approach is a decision on the CO_2 emissions limits and its pricing already applied by the EU. Therefore, Moldova has already to start preparing an institutional change and shift in the economics of all the green-house gas-emitting entities, including power-plants.

With respect to the EU-ETS it shall be stated that implementation of an ETS, for Moldova, would underline its ambition to converge with the body of European legislation, both in terms of political considerations as well as with respect to policy coherence. Implementing an ETS should, therefore, have priority with the Energy Strategy.

1.4. The EU-ETS

The basis

The EU Emissions Trading System (EU ETS) is a cornerstone of the European Union's policy to combat climate change and its key tool for reducing industrial greenhouse gas emissions cost-effectively. It is based on the EC Directive 2009/29/EC. Being the first and biggest international scheme for the trading of greenhouse gas emission allowances, the EU ETS covers some *11,000 power stations and industrial plants* in 30 countries. Apart from the 27 EU Member States, Norway, Liechtenstein and Iceland participate to the EU-ETS. In 2013 Croatia will join the EU-ETS.

The first and second trading periods

Launched in 2005, the EU ETS works on the "*cap and trade*" principle. This means there is a "cap", or limit, on the total amount of certain greenhouse gases that can be emitted by the factories, power plants and other installations in the system. Within this cap, companies receive *for free* emission allowances which they can sell to or buy from one another as needed. The limit on the total number

of allowances available ensures that they have a value. At the end of each year each company must surrender enough allowances to cover all its emissions, otherwise heavy fines are imposed. If a company reduces its emissions, it can keep the spare allowances to cover its future needs or else sell them to another company that is short of allowances. The flexibility that trading brings ensures that emissions are cut where it costs least to do so. The first trading period was 2005-2007, the second trading period is 2008-2012.

The following scheme presents the key aspects of the EU-ETS in phases 1 and 2.

Figure 1: *overview and comparison of EU-ETS Phases 1 and 2*

EU ETS	Phase I (2005-07)	Phase II (2008-12)
Installations covered	11,000	12,000
Countries covered	EU-25 with Bulgaria and joining in 2007	EU-27 with Iceland, Norway and Liechtenstein linked in
Sectors covered	Electricity supply, iron and steel, cement and lime, oil refining, glass, ceramics, pulp and paper	Added combustion and steel facilities. Aviation will be included from 2012.
GHGs covered	CO2	CO2
Free allocation	99% of the cap allocated for free	96% of the cap allocated for free with remaining 4% auctioned
Banking	No allowances allowed to be carried over to Phase II	Unlimited amount of allowances allowed to be carried over to Phase III
CER usage	Limited by specific NAP	1.4 GtCO2e
Other	€ 40 / tCO2e fine for failure to surrender allowances in time (allowances will still have to be surrendered later)	€ 100 / MtCO2e fine for failure to surrender allowances in time (allowances will still have to be surrendered later)

The third trading period: 2013-2020

From 2013 onwards the system for allocating emission allowances will significantly change compared to the two previous trading periods (2005-2012).

- Firstly, emission allowances will be distributed according to fully harmonized and EU-wide rules, meaning that the same rules will apply across all EU Member States.
- Secondly, auctioning will be the rule for the power sector, which means that the majority of allowances under the EU Emissions Trading System *will not anymore be allocated for free*.
- Thirdly, for *industry and heating sectors*, allowances will be allocated *for free* based on ambitious benchmarks. Installations that meet the benchmarks (and thus are among the most efficient installations in the EU) will receive all allowances they need. Installations that do not meet the benchmark will have a shortage of allowances and the option to either decrease their emissions (e.g. through abatement of GHG emissions) or to purchase additional allowances to cover their excess emissions.

The following scheme presents the key aspects of the EU-ETS in both phases.

Figure 2: *overview and comparison of EU-ETS Phases 2 and 3*

EU ETS	Phase II (2008-12)	Phase III (2013-20)
Installations covered	12,000	+12,000
Countries covered	EU-27 with Iceland, Norway and Liechtenstein linked in	Same as Phase II. Switzerland *may* link in from 2013
Sectors covered	Electricity supply, iron and steel, cement and lime, oil refining, glass, ceramics, pulp and paper. Aviation is due to enter the ETS from 2012	Same as Phase II + ferrous and non-ferrous metals, primary and secondary aluminum, nitric acid, adipic acid, glyoxal and glyoxylic acid, ammonia, soda ash, hydrogen, petrochemicals
GHGs covered	CO2	CO2, N2O, PFCs
Allocation method	National Allocation Plans	EU-wide allocation
Free allocation	96% of the cap allocated for free with remaining 4 % auctioned.	Most of power sector 0%.Free allocation remains however overall at least 50% to be auctioned in 2013.
Banking	Unlimited amount of allowances allowed to be carried over to Phase III	Unlimited banking allowed, however no borrowing from beyond 2020
CER usage	1.4 GtCO2e	Phase II + 0.2 GtCO2e = 1.6GtCO2e
Other	€ 100/ MtCO2e fine for failure to surrender allowances in time (allowances will still have to be surrendered later)	Same penalties as in Phase II, rising at inflation rate

Benchmarking

In accordance with Article 11 of Directive 2003/87/EC, Member States were required to submit to the Commission a list of installations covered by the Directive in their territory and any free allocation to each of those installations. This submission is referred to as the NIM (National Implementation Measures).

The free allocation as included in the NIMs submitted by Member States should be calculated in accordance with the rules set out in the "Benchmarking Decision". After submission of the list of installations and the corresponding preliminary total free allocation, the Commission has the obligation to carry out an in-depth assessment of each notification to ensure completeness and compliance with the legal provisions.

Cap for 2013 and beyond

The cap for the year 2013 has been determined at 2,039,152,882 allowances, i.e. just under 2.04 billion allowances. The cap will decrease each year by 1.74% of the average annual total quantity of allowances issued by the Member States in 2008-2012. In absolute terms this means the number of allowances will be reduced annually by 37,435,387. This annual reduction will continue beyond 2020 but may be subject to revision not later than 2025.

Linking of other trading systems to the EU-ETS

The European Commission sees carbon markets as the most efficient means of achieving emission reductions and the EU Emissions Trading System (EU-ETS) as an important building block for the development of an international network of emission trading systems. The EU has set out a vision for the development of an international carbon market: the market is expected to develop through bottom-up linking of compatible domestic cap-and-trade systems.

Linking emissions trading systems enables participants in one system to use units from another system for compliance purposes. Linking other national or regional cap-and-trade emissions trading systems to the EU ETS can provide a number of benefits including *reducing the cost of cutting carbon pollution*, increasing market liquidity, stabilizing the carbon price signal and supporting global cooperation on climate change.

From 2013 onwards, the EU will basically be *only cap-and-trade based emissions trading market*. Domestic national or regional cap-and-trade systems are also being implemented or discussed in the US, Canada, South Korea and New Zealand. Initiatives are being developed in Turkey, Ukraine, Kazakhstan and a few other countries. During the coming years, the EU seeks to connect with similar trading schemes. Such a link would contribute to the fight against climate change and increase economic incentives to reduce climate harming emissions. This step complements the extension of the EU trading scheme to Norway, Liechtenstein and Iceland. Currently, the Swiss ETS constitutes a voluntary alternative to a domestic fuel tax. It covers energy-related carbon dioxide emissions by around 400 companies. It is estimated that the scheme applies to around 6.5% of the 52 million tonnes CO_2eq emitted by Switzerland per year. Switzerland is currently reforming its ETS so as to step up action against climate change and make it more compatible with the EU's trading system.

Global players, such as China, India and others are strongly supporting the so-called sector based emissions reduction mechanisms (see Section 2.2).

1.5. Installations in Moldova

Which installations and which GHG under the EU-ETS?

Since its launch in 2005 the EU Emissions Trading System has covered power stations and other combustion plants, oil refineries, coke ovens, iron and steel plants and installations producing cement, glass, lime, bricks, ceramics, pulp, paper and board. As for greenhouse gases, it currently covers only carbon dioxide emissions.

As from 2013, the scope of the ETS will be extended to include other sectors and greenhouse gases. Inter alia, more CO2 emissions from installations producing bulk organic chemicals, hydrogen, ammonia and aluminum will be included, as will nitrous oxide (N_2O) emissions from the production of nitric, adipic and glyocalic acid production and perfluorocarbons from the aluminum sector. Installations performing activities which result in these emissions will be included in the EU ETS as from 2013.

Participation by Moldovan installations

On basis of an analysis of the GHG emissions in Moldova, it is concluded that some 50% of the emissions are produced by power plants and industrial installations (see table in Section 2.1). It implies that the achievement of Moldova's emission reduction objectives shall include policies for the reduction of GHG from these sectors. Introduction of an emissions trading scheme is a valid option for achieving such an objective.

This feasibility report explores the policy, technical and economic key aspects of introducing an emissions trading system in Moldova, whereby, basically the following 4 scenarios:

(1) Status Quo

(2) Domestic ETS

(3) Linking to EU-ETS

(4) Project based mechanisms

These options are elaborated in Section 4 of this feasibility report. However, before entering into a detailed analysis and development of scenarios, it shall be noted that a potential joining of Moldova to the EU-ETS would imply that installations within the categories referred to in Section 1.4 can participate to the system. The Directive clearly defines the type and capacities of the installations within the EU-ETS. Basically, participation is mandatory for these installations.

1.6. Transnistria

Transnistria is a breakaway territory located on the left bank of the Nistru River. The current Moldovan leadership favours a significant degree of autonomy for Transnistria, but only as part of a united Moldova. It is seeking the withdrawal of all foreign troops from Transnistria and the replacement of the current peacekeeping force by civilian observers. As Moldova benefits from its participation in the European Neighbourhood Policy and the Eastern Partnership, significant opportunities for assistance in terms of political and economic reforms have appeared and can potentially be exploited for the benefit of the whole population of Moldova.

Transnistria is more industrialised in contrast to Moldova and produces the largest share of Moldovan's industrial output and energy. The leading industry is steel, due to the Moldova Steel Works in Ribnita, which accounts for about 60% of the budget revenue of Transnistria. The largest company in the textile industry is Tirotex, which claims to be the second largest textile company in Europe. The largest power company Moldavskaya GRES (Kuchurgan power station) with a designed capacity of 2520 MWe is located in Dnestrovsc.

1.7. Stakeholders

Authorities

The Ministry of Economy (MEC) is in charge of developing and implementing energy policy in the Republic of Moldova. Its main tasks related to the energy sector comprise the development of strategies and state policies such as the Energy Strategy 2020. Furthermore, it elaborates and implements measures to ensure the energy security in the country and organizes and coordinates the draft legislative and normative acts in the area of energy. In 2008, the Ministry of Industry and Infrastructure, which took over the responsibilities of the energy sector from the Ministry of Energy in 2005, was dissolved, and the Ministry of Economy has taken over the responsibility of the energy sector.

The Ministry of Environment (MoEnv) is in charge of development policies and strategies in the field of environmental protection and economical utilization of the natural resources. On behalf of the Government of the Republic of Moldova, MoEnv is responsible for implementation of international environment treaties to which the Republic of Moldova being a part of (including the UNFCCC, signed by the Republic of Moldova on June 12, 1992, ratified by the Parliament on March 16, 1995, as well as the Kyoto Protocol, ratified by the Republic of Moldova on February 13, 2003). The Minister of Environment further performs the function of the Global Environmental Facility Political and Operational Focal Point, as well as UNFCCC Focal Point.

The Climate Change Office of the Ministry of Environment is mainly focused on the implementation of climate change programmes and projects. Priority fields of the CC Office are related to decreasing of GHG and adaptation to new climate conditions. Furthermore, the Climate Change Office serves as secretary for Designated National Authority and provides logistical assistance in implementation and promotion of provisions of the United Nation Framework Convention and Climate Change and Kyoto Protocol.

The National Agency for Energy Regulation (ANRE) was established in 1997 and is a permanent authority of public administration having the status of a legal entity which is unsubordinated to any other public or private authority. Its role is to regulate economic and trading activities in the electricity, natural gas, oil and oil derivatives sectors by, amongst others, issuing licenses, establishing suitable tariff policies and supporting consumer rights.

The Agency for Energy Efficiency (EEA) was established in December 2010 and is responsible for implementation of the state policy in energy efficiency and renewable energy sources and participates in drafting normative acts including technical regulations and standards in energy efficiency and renewable energy. EEA also supports the MoE in training energy managers, energy auditors and boiler inspectors and take part in drafting national programmes and action plans on energy efficiency.

The State Chancellery is in charge of State's public policies and strategic planning, European integration, country reintegration, decentralisation policies and foreign aid coordination.

Academia

The Academy of Sciences of Moldova (ASM) is the main scientific organization of the Republic of Moldova and coordinates research in all areas of science and technology. The Institute of Power Engineering of the ASM is a scientific organization which performs research works in the field of power end electrical engineering. The main directions of research being: energy security and efficiency of functioning of a power complex of Republic of Moldova; new technical decisions in construction of electric transmission and distribution lines, the equipment for management of regimes of smart energy networks; efficient use of electricity and heat; installations and systems for energy conversion from renewable sources.

Technical University of Moldova (TUM) is the only higher education institution in the Republic of Moldova offering engineering and technological programs for almost all sectors of the national economy. Directly involved in the field of energy are the Faculty of Electrical Power Engineering, the Faculty of Mechanical Engineering and Management, as well as the Faculty of Urban Planning and Architecture.

Donors and implementing agencies

The United Nations Development Programme (UNDP) supports and supplements the national efforts at solving the most important problems of its economic development and to promote social progress and better standards of life. In the Environment and Climate Change programme, UNDP helps countries to strengthen their capacity to address environment and climate change challenges at global, national and community levels, seeking out and sharing the best practices and providing innovative policy advice.

European Commission (EC) has provided more than € 300 million of assistance to Moldova since 1991 that includes assistance under the TACIS programme (including its national, regional and cross-border components) as well as support under thematic budget lines such as the Food Security Programme and the European Initiative for Democracy and Human Rights. One of the objectives of EC is to protect, preserve and improve the environment for future generations.

The World Bank (WB) current portfolio in Moldova includes 27 active projects totaling US $317.5 million of net commitments. Since 1993, the Bank has provided US $961 million to finance over 70 operations, which have been aimed at supporting economic policy reforms, industry infrastructure, rural and human development and the financial and private sector. Environment is also on WB agenda which support developing countries to address climate change and environmental challenges. In Moldova WB has in its energy efficiency and heat power sector a portfolio of 8 projects of which 4 are active.

The U.S. Agency for International Development (USAID) launched an assistance program in Moldova in 1992 to support establishing health and social safety net programs, fostering democratic processes, and helping to restructure and privatize key industries to jump-start economic growth. In support of Moldova's democratic and free-market reforms, USAID works to promote Economic Growth and to strengthen Democratic Governance. USAID's projects are implemented in partnership with the Government of Moldova by international and localNGOs, U.S. businesses, and U.N. agencies.

The Swedish International Development Agency (Sida) is a governmental agency, under the Swedish Ministry of Foreign Affairs. The cooperation with Moldova is governed by a Cooperation Strategy for the period of 2011 – 2014 adopted by the Swedish Government in February 2011. The Swedish support comprises three sectors: 1) democracy, human rights and gender equality; 2) sustainable infrastructure, and 3) market development. Sida is supporting programmes in Moldova within a country allocation of around 110 million SEK per year and through a special allocation to NGOs which amounts to around 5 – 7 million SEK per year.

Private sector

Lafarge is a French industrial company specialising in four major products: cement, construction aggregates, concrete and gypsum wallboard. Lafarge came to Moldova in 1999 and since then it has invested over 40 million Euros in modernization of industrial assets. Currently, Lafarge holds 95.31% of the share capital of Lafarge Cement (Moldova) SA, has 333 employees and recorded a turnover of 512 million MDL in 2010.

Glass Container Company is a joint venture specialized in manufacturing of glass containers for wine, sparkling wine, cognac and beer. Its capacity is of 114 million bottles per year. The factory started operating in August, 1997.

AO Macon is a leading manufacturer of high quality wall building materials on the territory of Moldova. The company provides a supply of all types of brick, expanded clay concrete block, limestone, consumers all across the country and abroad.

2. EMISSIONS TRADING

The policy paper "*Emission Trading as Catalyst for Energy Efficiency Improvements: Options and Potential for Moldova*" by GET Moldova and presented to the Ministry of Economy, evaluates the issue and suggests that a feasibility study on estimating the costs and benefits of introducing an emission trading scheme is necessary. This study is the starting point for the actual Feasibility Study.

2.1. GHG emissions in Moldova

The Feasibility Study seeks to address the possible overall reduction of emissions level and Moldova's emissions trading potential, based on already existing estimates. There is a large number of reports and documents available on the current GHG-emissions in Moldova. In June, 2009 Moldova submitted it's Second National Communication to the UNFCCC and the National Inventory Report 1990-2005[1]. During this period, Moldova's GHG-emissions have decreased dramatically and were at 11,883 Gg CO_2-eq (11.883 Mt) in the year 2005. See also the graph below and Moldova country profile[2].

With the major share of Moldova's GHG-emissions in the energy sector (approx.65 %, see table below), opportunities for emission reductions shall primarily be identified within this sector. Besides, GHG-emissions from the energy sector are expected to almost double by the year 2020 (see table1). The other two sectors of significance for Moldova, i.e. the agricultural sector and the waste sector, are expected to grow by some 50%.It is concluded that major opportunities for emissions reduction are to be identified in these *three* sectors.

Table 1: *Moldova's GHG –emissions, historical and projected values*

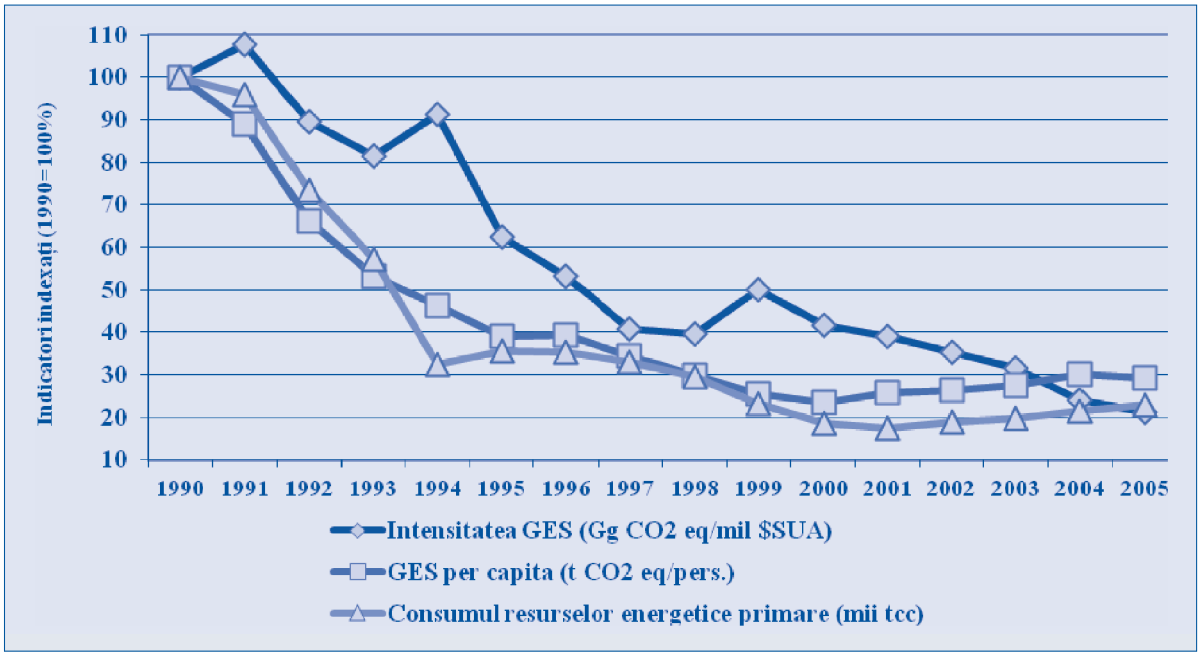
	1990	1995	2000	2005	2010	2015	2020
	Historical Values				Projected Values		
	GHG emission trends by sector,MtCO2 equivalent						
Energy	34.52	11.14	5.44	7.72	10.27	12.34	14.44
Industrial Processes	1.35	0.38	0.33	0.58	0.76	0.98	1.29
Agriculture	5.32	3.39	2.31	2.13	2.65	3.16	3.73
LULUCF	-1.67	-0.76	-1.35	-1.38	-1.42	-1.45	-1.49
Waste	1.63	1.83	1.73	1.40	1.54	1.84	2.24
Total(With LULUCF)	41.21	16.00	8.49	10.50	13.81	16.86	20.21
Total(Without LULUCF)	42.89	16.76	9.84	11.88	15.22	18.31	21.70

The figure 1 below presents clearly the decline of GHG-emissions in Moldova over the period 1990-2005. It shall be noted that, in 2005, some 64% of the GHG-emissions concerns CO_2 and some 24% from CH_4 (methane). Emissions of N_2O (nitrous oxide) represent some 12%. The shares of CH_4 and N_2O are remarkably high in comparison to other European countries. The emissions of these two compounds seem to be linked to agricultural activities.

[1] National Communication to the UNFCCC with National Inventory report 1990-2005, Chisinau, January 2010

[2] Overview of the Mitigation / Adaptation Policy Instruments in Republic of Moldova - Task Leader: Prof. Anca Popescu - Institute for Studies and Power Engineering, Romania, 2011s

Figure 3: *trend in GHG emissions per capita and per unit, 1990-2005 (from NIR 2010)*



2.2. Cap-and-Trade or Emissions Reduction Credits?

A key question to be addressed by the Feasibility Study is whether a "*cap-and-trade*" system or a "*carbon credit*" system shall be pursued.

The Feasibility Study takes into account the global framework for emissions trading, as it is per 2012. In addition to the issues mentioned above, we have taken into consideration a number of factors that will influence Moldova's strategy:

(1) COP negotiations under UNFCCC

The outcome from the Durban summit (Dec 2011) was that there will be a transitional period for the carbon credit based mechanisms. CDM will continue after 2012, however, the structure and mechanisms are highly uncertain and probably not very relevant for Moldova (see figure 2 and Sections 3.1.)

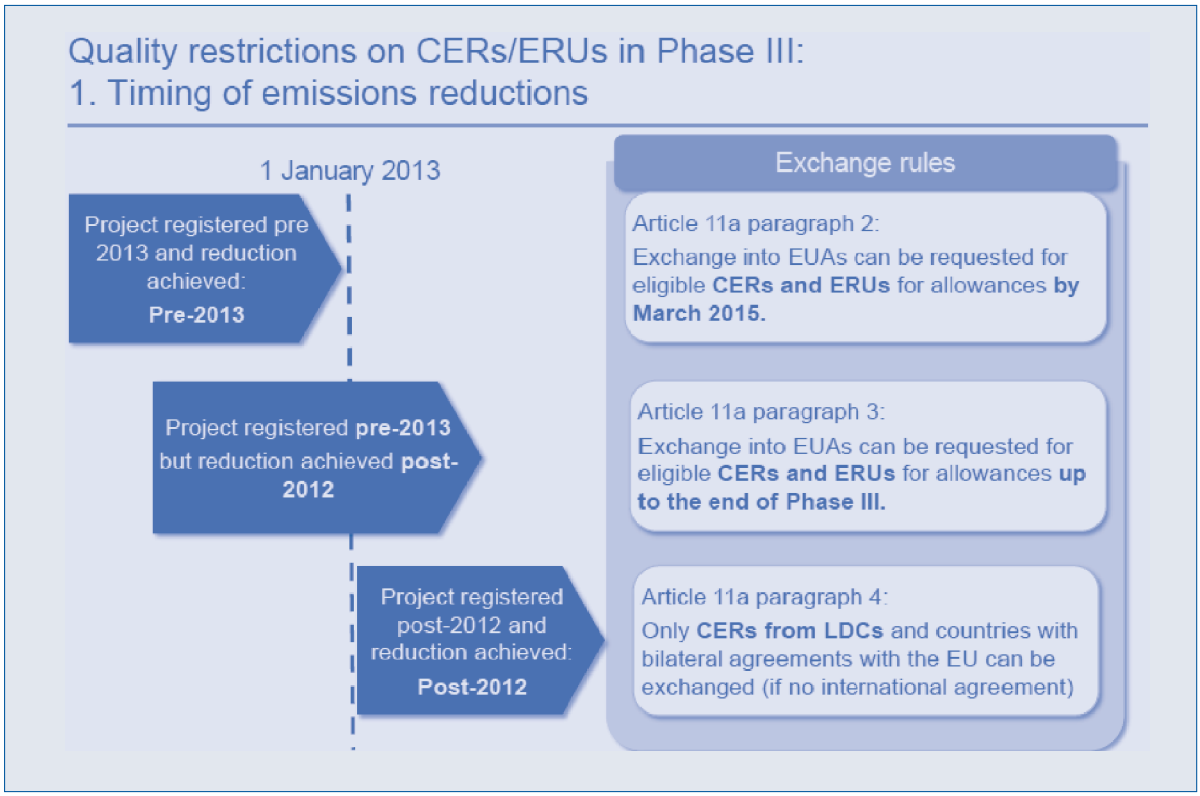
(2) Sector based mechanisms

From 2013 onwards, the EU will basically be only cap-and-trade based emissions trading market. Initiatives are being developed in Turkey, Ukraine, Kazakhstan and a few other countries. Global players, such as China, India and others are strongly supporting the so-called sector based emissions reduction mechanisms. Although the details of these initiatives are not yet fully known, it is evident that most of the new markets will be based on cap-and-trade principles. However, it shall be noted that "cap-and-trade" may imply that the system may allow for economic growth as well as for growth of emissions. In other words, "cap-and-trade" may be understood as capping emissions with respect to a certain baseline.

(3) EU-ETS from 2013 onwards

The EU-ETS, being the largest emissions trading market, will change drastically after 2012. Carbon Credits from CDM can only be supplied from projects which have been registered before 31 December 2012 or from CDM-projects in Least Developed Countries, not including Moldova. Section 3.1 further elaborates on the link between the EU-ETS and CDM.

Figure 4: *overview of EU-ETS Phase 3 principles*



According to RISOE's CDM pipeline database, several of the Moldovan CDM-projects are still in the stage of validation and are not yet being registered. As a consequence, the Carbon credits from these projects may then not be imported to the EU-ETS. See scheme above.

2.3. Other relevant aspects

The Feasibility Study addresses a number of issues which are particularly relevant to Moldova, such as:

- Evaluation of risks (macro-risks, including the possibility of future economic development leading to overall increase in carbon dioxide emissions, reduced ability to protect national industry from EU regulations, as national standards need to meet European guidelines, reduced ability to control prices due to impact of allowances costs, eventual impossibility of the activities to cover also the left bank of the Dniester river (if political solution for reaping the joint benefits is not found), the decrease in the sovereignty level and other administrative, legislative, institutional and political risks; as well as enterprise-level risks, like the risk that high emitting companies move operations to less costly regimes);

Furthermore, the outcome from the Study addresses a framework for a future emissions trading scheme in Moldova, including issues such as:

- Technicalities of connecting a Moldovan emissions registry to the Union Registry.
- The required institutional framework and its costs
- Lesson learnt from other countries that have developed a new emissions trading scheme, for example Croatia.

Sector based mechanisms and New Market Mechanisms

The EU supports the design of new *sectoral crediting mechanisms* for actions in developing countries, preferably within the UNFCCC framework. These mechanisms could help scale up emission reduction activities in developing countries and result in real, verifiable and additional emission reductions against ambitious crediting thresholds. From 2013 onwards, operators covered by the EU-ETS could use sectoral credits as substitutes for the project-based Joint Implementation/Clean Development Mechanisms (JI/CDM) credits for compliance within the overall limits set herefore.

EU legislation provides for participants in the EU-ETS to use most categories of JI/CDM credits from mechanisms established under the Kyoto Protocol towards fulfilling their obligations under the EU ETS. Credits from afforestation, reforestation and nuclear projects cannot be used.

In the 2008-2012 trading period, the EU laws allow operators to use JI/CDM credits up to a percentage determined in the National Allocation Plans (NAPs). Unused entitlements are transferred to the next trading period (2013-2020). Between 2008 and 2020, the EU ETS legislation provides for use of credits up to 50% of the overall reductions below 2005 levels made under the EU-ETS. The exact amount per operator is to be determined in line with methodology outlined in Directive 2009/29/EC - Article 11a(8).

It is common understanding at the COP that the instruments of JI and CDM should be substantially reformed at the UNFCCC level, in order to improve their environmental integrity and efficiency. Project based CDM offsets should be replaced over time by sectoral crediting mechanisms for *advanced developing countries*. These types of mechanisms go beyond the pure offsetting of emissions from the EU and could form stepping stones towards a system of globally linked economy-wide cap-and-trade systems. CDM would then be focused on and be limited to the Least Developed Countries.

Other relevant EU policies

Under the so-called Effort Sharing Decision, EU Member States have taken on binding annual targets for reducing their GHG emissions from the *sectors not covered* by the EU ETS, such as housing, agriculture, waste and transport (excluding aviation). Around 60% of the EU's total emissions come from sectors outside the EU ETS.

The national targets, covering the period 2013-2020, are differentiated according to Member States' relative wealth. They range from a 20% emissions reduction (compared to 2005) by the richest Member States to a 20% increase by the least wealthy (though this will still require a limitation effort by all countries). Member States must report on their emissions annually under the EU monitoring mechanism.

Further pieces of EU legislation relevant for climate change are focusing on:

- national targets for renewable energy
- carbon capture and storage (CCS)

2.4. List of installations

In order to develop valid options for a Moldovan emissions trading scheme, it is essential to have a picture of the industrial and power sector in the country.

Although a national inventory of the Moldovan installations, which would comply with the definitions of the EU-ETS, is not available, the authors of this report have been able to compose a first draft of such a list of installations. The list has been composed on basis of data provided by the relevant Moldovan institutions, by individual experts and by data from external sources. It shall be noted that no on-site investigations have been made and no verified GHG emissions data were provided by these installations. Nevertheless, the data seem to be reasonably accurate and the authors are confident that the list comprises the majority of the Moldovan installations[3]. For a few installations, an estimated figure for the GHG emissions is given.

[3] Note: the list is provisional and offers a basis for further elaboration. The authors of the report have investigated the available data on emissions from these installations and have consulted with experts. For the selection of the installations, the authors have applied the criteria of the EU-ETS, phase 3.

The provisional list of Moldovan installations comprises 22 power plants and industrial plants of which 3 (?) are located on the eastern side of the Dniester river.

The list comprises 6 power plants, 5 sugar mills, 4 brick factories, 2 cement ovens and 5 other installations.

The largest GHG emitters are:

- Tiraspol power plant (1240 MW)
- Chisinau CHP-2 (240 MW)
- The cement ovens in Rezina and Ribnitsa

The majority of the installations can be characterized as relatively small GHG emitters. In this respect, the Moldovan situation is not much different from EU countries.

Table 2: *First draft of ETS installations in Moldova*

No.	Installation	Location	Capacity	Emissions (t/y)
	CHP-1	Chisinau	66 MW	
	CHP-2 (240 MW)	Chisinau	240 MW	550,000
	CHP-3	Balti	28.5 MW	
	CHP 1240 MW - **TD**	Tiraspol, TD	1240 MW	
	Moldova zahar	Cupcini	(4,500 t/d)	
	Sudzucker Moldova	Drochia	(4,000 t/d)	
	Sudzucker Moldova	Falesti	(4,000 t/d)	
	Magt-West	Glodeni	(3,000 t/d)	
	Magt-West	Donduseni	(2,500 t/d)	
	Glass Container	Chisinau		
	MACON brick factory	Chisinau	(350 t/d, 46 million bricks)	
	Tiraspol brick factory	TD	(30 million bricks)	
	Balti brick factory	Balti		
	Tvarditza brick factory	Tvarditza		
	LaFarge Cement	Rezina	1.15 million ton clinker /y	
	Ribnitsa Cement	Ribnitsa, TD	approx. 1 million ton klinker /y	
	Air Moldova	Chisinau		
	Moldavian airlines	Chisinau	Not included in the EU-ETS	< 10,000
	Tirotex textile	TD	< 10 MW?	
	Boiler house-1	Chisinau		
	Boiler House-2	Chisinau		
	Moldovagaz compressor station	---	< 10 MW?	

Generation of electricity and heat is organized at CHP-1 in Chisinau with an installed 66 MW electric and 296 MW thermal capacity, at CHP-2 in Chisinau with an installed 240 MW electric and 1,397 MW thermal capacity and at CHP–Nord in Balti with an installed 24 MW electric and 165 MW thermal capacity. Heat is also produced by heat-only plants and some small CHP plants in smaller cities.

2.5. *Technical aspects and preconditions of ETS*

Free allowances and benchmarks

It has been outlined in Section 1 that, during 2013-2020, emissions allowances (EUAs) in the EU-ETS will be allocated *for free* based on ambitious benchmarks. Installations with emission levels above the benchmark, will have to buy EUAs for the emissions *above* the benchmark. In other words, older and less (energy) efficient installations will have to buy more EUAs than modern, more efficient installations.

In 2011 the European Commission has set the rules for the allocation of allowances (EUAs)[4]. The most important aspects of the *benchmarking* principle are:

- In defining the principles for setting the benchmarks in individual sectors or sub-sectors, the starting point should be the average performance of the 10 % most efficient installations in a sector or sub-sector in the EU in the years 2007-2008.
- The benchmarks should be calculated for *products* (production processes)
- The benchmark values should cover all pr*oduction*- related direct emissions, including emissions related to the production of measurable heat used for production.
- Member States have to provide the list of installations to the EC.
- The level of free allocation will gradually decrease between 2013 and 2020.
- Obviously, it is the European Commission and not the Member States to determine the benchmarks.

Although the specific emission factors for the Moldovan installations are not available in the framework of this feasibility study and, consequently, a comparison with the EU benchmarks cannot be made, it is thought useful to present the benchmarks which are relevant to the Moldovan installations (*see table 3*).

Table 3: *Benchmarks from the EU-ETS which are relevant for the Moldovan sectors*

Sector	**Benchmark (EUA per ton product)**
Glass	0.306 (bottles, colour glass)
Bricks manufacturing	0.139 (facing bricks)
Cement ovens	0.987 (white cement clinker)
	0.766 (grey cement clinker)

Sector	**Benchmark (EUA per 1000 tonne-kilometre)**
Airlines	0.6797 (*)

(*) for 2012

[4] COMMISSION DECISION of 27 April 2011 "Determining transitional Union-wide rules for harmonized free allocation of emission allowances pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council (notified under document C(2011) 2772) - (2011/278/EU).

Sector	Benchmark (EUA per tonne TJ)
Sugar mills	62.3 (heat benchmark)
	56.1 (fuel benchmark)
Industrial boilers	62.3 (heat benchmark)
	56.1 (fuel benchmark)

Legal and institutional aspects of an ETS

Implementing a Moldovan (domestic) ETS or linking to the EU-ETS implies the implementation of legal provisions. In the framework of this feasibility study, the *key requirements* are listed below. Note: for purposes of clarity, it is assumed that the executive aspects (such as monitoring, reporting etc. of a domestic ETS and a linked ETS are identical.

(1) Participants. The list of installations which will participate to the ETS shall be determined. It means that production data shall be collected as well as data on fuel consumptions of these installations.

(2) Legal. The legal framework shall be developed for the ETS. In case linking to EU-ETS the Government of Moldova shall seek to adopt and implement the EU-package (Section 1.1.) under Moldovan legislation. Provisions shall exist in Moldovan legislation which enables to collect data from installations. Confidentiality obstacles in current legislation shall be eliminated in order to allow for data collection.

(3) Reporting and verification. Legal provisions shall be implemented for reporting of emissions data by the operators and for verification of the reported data by independent auditors (verification entities). Accreditation of auditors is needed.

(4) Enforcement. A body shall be established for enforcement of the ETS, including the supervision of emissions trading structure and the imposing of penalties. See Section 5.3.

Technical aspects of an ETS

The technicalities which need to be taken care of when an ETS will be implemented are mainly the following:

(5) Calculation of specific emissions factors. On basis if the collected data from the energy sector and the industrial installations, the specific emissions factor shall be done and shall be compared to the benchmark.

(6) Emissions trading registry. In order to allow companies to do emissions trading, there shall be an emissions trading registry in Moldova. This registry shall record, verify and transfer EUAs (or comparable quota). In case of linking to the EU-ETS, such a registry shall be linked to the EU-ETS' common registry. The single European Union registry, operated by the Commission. The Union registry covers all EU Member States as well as Norway, Iceland and Liechtenstein. It is an online database that records:

- National plans indicating the allowances assigned in Phase 3 (2013-2020);
- Accounts of companies holding those allowances;
- Transfers of allowances ("transactions") performed by the account holders;
- Annual verified CO2 emissions from installations;
- Annual reconciliation of allowances and verified emissions, where each company must have surrendered enough allowances to cover all its verified emissions.

The European Union Transaction Log (EUTL) automatically checks, records, and authorizes all transactions that take place between accounts in the Union registry.

(7) Monitoring, Reporting and Verification. For any ETS, a system for monitoring, reporting and verification of emissions shall be set-up. Such a system shall be transparent, well-defined and at low possible cost. Guidance shall be given to the operators on how to monitor their emissions and instructions to the operators shall be developed for the reporting formats. A Moldovan Accreditation Entity shall assign accreditations to independent verifiers (companies or natural persons) for the verification of the emissions reported by the operators.

2.6. Economic feasibility of ETS

In order to provide an assessment of the key economic factors which determine the feasibility of an ETS in Moldova, we have identified three key economic factors, i.e.

1. The direct cost related to the introduction and maintenance of an ETS
2. The cost and benefits of emissions trading to the participants
3. The macro-economic cost and benefits (not quantified)

(1) Cost of an ETS

The costs of an ETS are basically determined by (i) the setting-up and maintenance of the supervisory body and/or the competent authority and (ii) the costs involved for monitoring, reporting and verification. The cost of governance of an ETS consists mainly of the staffs and the cost of the registry. The cost for monitoring, reporting and verification are basically with the operators. The table 4 below provides an estimate of these cost categories for Moldova.

The following table presents the total cost of maintaining an ETS in Moldova, not taking into account the existing staffs and capabilities. So, additional cost mainly refer to items 2 (partly), 3 and 4.

Note: the cost estimate refers to the total cost of an ETS in Moldova. As for item 1 (Government staffs), of course, it can be considered to integrate existing structures and staffs into the supervising authority. In such as situation, the additional cost will be much less. For this alternative, cost are estimated at 60% less.

Table 4: *Cost estimates for operation of ETS in Moldova*[5]

	Cost item	**Cost for**	**Cost estimate (1) in Euro per year**
1	Staff of the supervisory body (4-8 staff + registry operation)	Government	200,000(2)
2	Monitoring & reporting	Mainly for operators, partly for Government	170,000(3)
3	Accreditation	Government	50,000(4)
4	Verification	Operators	250,000(5)

(1) for 20-25 installations in Moldova

(2) staff cost + office + international travel

(3) cost of monitoring & reporting is set at an average of approx.€ 7,500 per installation per year

(4) maintaining accredited entities

(5) cost of verification is set at an average of approx. € 10,000 per installation per year

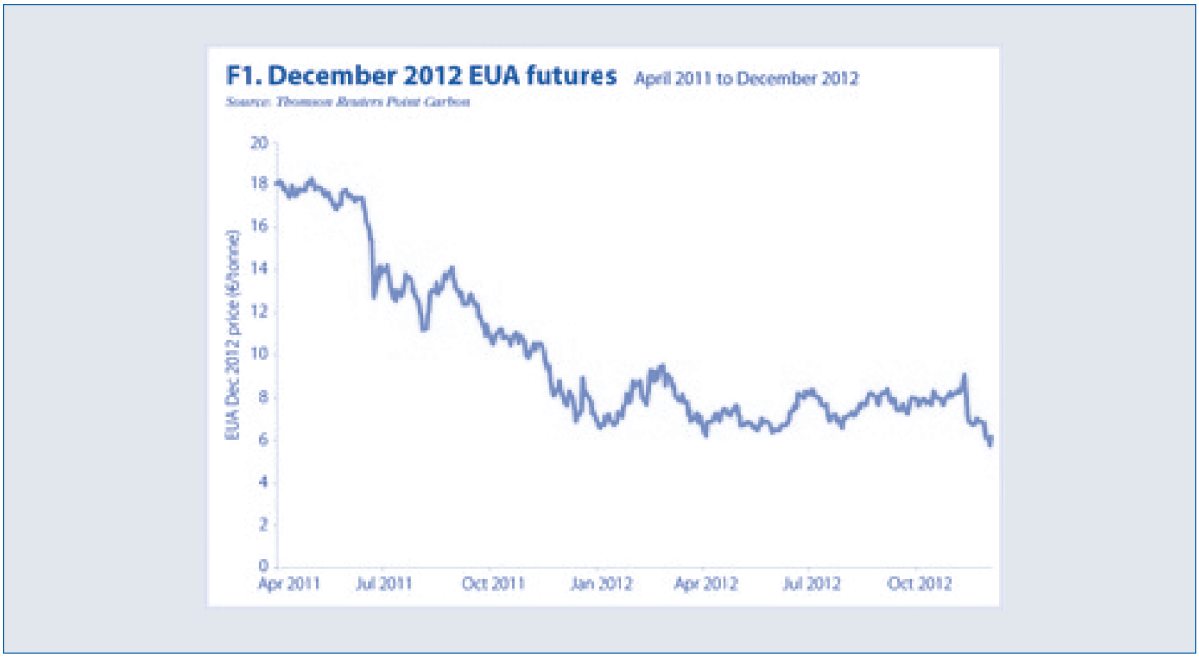
[5] Cost estimates are based on (i) experiences from EU Member States and (ii)estimate of the specific requirements for Moldova. For information: The Netherlands has approx.350 installations under the EU-ETS with a total emission of approx. 80 million tonnes CO2-eq. The staffs of the managing Authority amounts to some 15 persons. There are approx. 5 verifying (international) organizations active in The Netherlands. Typical cost of a yearly verification of the monitoring report of an installation, has a cost of € 3,000 to €15,000 per year. Croatia is accessing to the EU in 2013 and has prepared itself for joining the EU-ETS during the period 2008-2011. The country has approx. 100 installations which corresponds to approx. 15 million tonnes CO2-eq. The management of emissions trading, including the operation of the emissions registry, involves approx.6 persons. Cost ofa verification report is typically between € 2,000 to €9,000 per year

(2) Cost and benefits to the participants

A very important question for the economic assessment of an ETS is whether or not the operators will be able to benefit from emissions trading. This question can only be answered if the specific emissions of the Moldovan installations are assessed. The key question is here: how much are the emissions above or below the benchmarks (of the EU-ETS)? An economic key issue for introducing an ETS in Moldova and the linking to the EU-ETS is in the fact that, during 2013-2020, the EU-ETS is based on the principle of *benchmarking*.[6]

Furthermore, the value of emissions quota, or EUAs, is an important factor in answering the question. Now, recently, the price of EUAs traded has dropped significantly. The economic crisis in Europe has caused installations to emit less carbon dioxide. Consequently, a relative surplus of EUAs exists. The graph below[7] presents the price development of EUAs and shows that price dropped from 12-15 € in 2010/2011 to approx 6-7 € in the second half of 2012.

Figure 5: *EUA price development in 2011 and 2012*[8]



On the basis of statistical data and analysis of the overall GHG emissions data of Moldova, we estimate that the size of ETS will be 3.5-5.5 Mt CO_2 (per year). The total economic value of the allowances is then between 30 and 40 million € per year. Considering the age of the installations and the technologies applied, it can be assumed that, in general, the specific emissions of Moldovan installations is, on average, 30% above the EU's benchmark, the cost for purchase of allowances is assessed as follows:

Table 5: *Estimates for operators for purchase of allowances EUAs) under ETS in Moldova*

Sector	Emissions per year (*)	Cost estimate in Euro per year
Power sector	2.0-3.0 Mt	12.0-21.0 million
Industry	1.5-2.5 Mt	3.0 - 5.0 million

[6] COMMISSION DECISION of 27 April 2011 determining transitional Union-wide rules for harmonised free allocation of emission allowances pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council.

[7] EEX carbon exchange, Frankfurt, October 2012.

[8] ECX, London.

(*) on basis of figures from EU countries it is estimated that the shares of power sector and industry are roughly the same. i.e. 50% of the total. Power sector is obliged to purchase all allowances, industry will receive for free allowances to some extent.

Benefits of an ETS are mainly in the following areas:

- Basically, an ETS connects the Moldovan operators to a larger market and so to more cost-effective reduction potential. A larger and well-established market creates more liquidity and price stability as the small scale of the Moldovan market currently impedes trading and price formation.
- Besides, Moldovan companies could operate in the same emissions market as their business partners in the EU and with access to the EU market, companies would have more flexibility in the way they meet their CO_2 targets.

(3) Macro-economic costs

Emissions in the EU have been reduced at costs that are *significantly lower than projected*, though transaction costs are related to economies of scale and can be significant for smaller installations[9]. Overall, the estimated cost was a fraction of 1% of GDP. It was suggested that if permits were auctioned, and the revenues used effectively, e.g., to reduce distortionary taxes and fund low-carbon technologies, costs could be eliminated, or even a positive economic impact could be created.

The macro-economic effects of introducing an ETS are difficult to assess precisely and definitively go beyond the scope of this feasibility study, however it was concluded by several in-depth economic studies that an ETS generates net benefits for the industry, which are basically derived from improved competitiveness of the industrial installations resulting from improved energy efficiency, modernization of the production installations and increased attractiveness for foreign investors. These benefits, however, are not achieved on short term but rather on medium terms (3-7 years).

[9] Grubb, M. et al. (3 August 2009). "Climate Policy and Industrial Competitiveness: Ten Insights from Europe on the EU Emissions Trading System". Climate Strategies. Retrieved 28 June 2010.

3. CDM

3.1. The future of CDM

With the end of the first Kyoto Protocol (KP) commitment period due to expire on 31 December 2012, there have been many questions raised about the future of the Clean Development Mechanism (CDM). The agreement of a second commitment period to the Kyoto Protocol (KP2) will provide some certainty that Kyoto flexible mechanisms such as CDM will be supported beyond 2012.

The CDM has been a great success and has developed the carbon market in developing countries, including monitoring, reporting and verification of emissions reductions. More precisely, Non-Annex 1 countries were able to benefit from CDM, including a number of European countries such as Moldova, Cyprus, Albania, Serbia and others. It has also leveraged considerable investment in these countries. At the same time, there have been a number of concerns such as environmental effects, transaction costs, uneven distribution of the benefits between countries but also a real or perceived lack of technology transfer. In addition, increasingly more questions are raised about the future of the CDM or any other post-2012 flexible mechanism if designed as off-setting mechanism for Annex-1 emissions.[10]

The Clean Development Mechanism (CDM)

CDM allows Annex I (industrialized) countries to meet their emission reduction targets by paying for green house gas emission reduction in non-Annex I (developing) countries. For example, a company in Moldova (a non Annex I country) switches from coal power to biomass. The CDM board certifies that by doing this the company has reduced Carbon dioxide emissions by 100,000 tonnes per year. It is issued with 100,000 CER's (Certified Emission Reductions). Under the Kyoto Protocol, the United Kingdom (an Annex I country) has to reduce its green house gas emissions by 1 million tonnes of carbon dioxide each year. If it purchases the 100,000 CER's from the Moldova company, this target reduces from 1 million tonnes/year to 900,000 tonnes per year making the goal easier to achieve.

At the COP meeting in Durban, it was agreed that work had to be completed no later than 2015 to adopt a new instrument at the 2015 UN Climate Conference which would replace the KP and be implemented from 2020. It was decided that flexible mechanisms will continue in the post-2012 period. In the interim, CDM will survive but is likely to change over time particularly in countries such as China, India and Brazil where they are looking to develop their own emissions trading schemes. It was agreed that the Least Developed Countries (LDCs) will continue to host CDM projects. LDC's are the UN's list of the most underdeveloped countries. At the present time they do not have the institutional infrastructure or the capacity, to invest in alternative approaches which require an administration to implement regulations, permit activities, monitor performance and gather reliable performance data.

Many ideas have been developed to adapt and modify the existing flexible mechanisms in line with the post-2012 GHG reduction requirements. Proposals include, for example, sector-based approaches such as the 'no-lose targets' for developing countries, sustainable development policies & measures, worldwide, binding sectoral targets and mechanisms to focus on technology, avoided deforestation (REDD) or adaptation. However, it is obvious that CDM, in its current form will no longer be a feasible option for Moldova in the post-2012 period, mainly because Moldova is not a LDC and because a substantial part of the CDM-projects will not be registered before the deadline of 31 December 2012.

[10] BENEFITS OF THECLEAN DEVELOPMENT MECHANISM 2011, UNFCCC, Bonn, 2011.

3.2. CDM-projects in Moldova

The Feasibility Study has taken into account that Moldova has already registered a number of CDM-projects (= carbon credit mechanism). The table below lists the projects from UNEP RISOE's CDM pipeline database[11].

Table 6: *CDM projects from UNEP RISOE's database (April 2012)*

CDM-registration	Project name	CERs from start until 2020
CDM06356	Moldova Community Forestry Development Project	1,101,000
CDM09929	Landfill Gas Recovery and Energy Production at the Tintareni Landfill Site, Chisinau	1,278,000
CDM00231	Moldova Biomass Heating in Rural Communities-1	179,000
CDM00226	Moldova Biomass Heating in Rural Communities-2	179,000
CDM00227	Moldova Energy Conservation and Greenhouse Gases Emissions Reduction	116,000
CDM01559	Moldova Soil Conservation Project	2,214,000
CDM10302	Moldova Community Forestry Development Project	1,622,000
CDM09090	Reducing gas leakages within 'Tiraspoltransgaz-Pridnestrivie' LLC gas distribution network	1,476,000
CDM08664	Reducing gas leakages within the MoldovaGaz distribution network	6,744,000
CDM06738	Biogas production from sugar beet press pulp Suüdzucker Moldova sugar plant	190,000
CDM05555	Construction of Combined Heat and Power Plant (CHPP) at JSC "Tirotex", Tiraspol City, Pridnestrovian Moldavian Republic	6,648,000
CDM05184	Fossil fuels switch at local heating systems in Moldova	113,000
CDM02216	Landfill Gas Recovery and Energy Production at the Tintareni Landfill Site, Chisinau	797,000

Moldova's CDM-pipeline has a total of approx. 22.5 million CERs until the year 2020. At the market prices as per April 2012 (of 4 to € per CER), this volume represented a market value of approx. 90 million €. However, very recently (i.e. during summer of 2012), the CER-prices on the emissions trading market have dropped to record low levels. By beginning of September, CER-prices amounted to approx. 1.50 – 2.00 €. Market watchers do expect that prices will not recover within the next 6-12 months. At these levels, the economic value of CDM-projects is very low.

Note 1: *as per December 2012, CER-prices have dropped to record low levels, i.e. below 1.50 €.*

Note 2: *a total of approx. 22.5 million CERs until the year 2020 would imply an estimated emissions reduction of approx. 2.25 million CO2-eq per year, which corresponds to 10-20% of Moldova's GHG-emissions (see table in Section 2.1.)*

Note 3: *during the field work for this feasibility study, information was obtained that a number of the CDM-projects from the table above, are still in preliminary stage of development. As per date (September 2012) it can be assumed that registration of these projects will not take place before 31 December 2012 and so these projects will fail to obtain CERs.*

Note 4: *at the COP!18 of Doha it was decided to extend the Kyoto Protocol until 2020. It includes the extension of the CDM. However, remains valid that the EU-ETS, being the largest emissions trading market, will change drastically from 2013 onwards. CERs from CDM will be allowed only from projects which have been registered before 31 December 2012 or from CDM-projects in Least Developed Countries, not including Moldova.*

[11] www.cdmpipeline.org.

4. STRATEGIC OPTIONS

This Section explores a number of strategic options based on the status of the international climate change negotiations and the framework of the EU-ETS, phase 3. Besides, upon the analysis of different options, conclusions are drawn on the relevance of the options for the national energy strategy.

Options no. 1 would basically mean a continuation of the present status, while options no.2 and 3 compare the introduction of an ETS, either domestically or linked to the EU-ETS and option no.4 describes a possible scenario for a future system based on new international market mechanisms.

4.1. Status Quo as non-Annex-1 country

Under the Kyoto Protocol, Moldova is a non-Annex-1 country and it has, as such, no emission reduction obligations. However, under the Copenhagen Accords, Moldova has committed to an emissions reduction of no less than 25% in comparison to the base year 1990.

In view of a future in association with or in accession to the EU, the position of Moldova as non-Annex-1 country will be an issue. Reference shall here be made to a few facts:

(1) Presently, 26 of the 27 EU countries are under Annex-1 of the Kyoto Protocol.

(2) It is the policy of the EC to obtain uniformity of all EU countries. This is relevant in respect of the fact the EU (as a whole) is a Partly to the UNFCCC and the fact that EU Member States have agreed on Burden Sharing for climate change mitigation.

(3) Recently, The EU Member State of Malta has become Annex-1 country and discussions are on-going for Cyprus to do the same. The new EU Member State of Croatia is already Annex-1 country.

Maintaining the Status Quo of Moldova as non-Annex-1 country and not introducing and Emissions Trading Scheme might see the following consequences:

- There will basically be no future for continuation of CDM in its present form. Only those projects which have been registered at UNFCCC before 31 December 2012 will be eligible as CDM-projects under the EU-ETS' Phase 3. Although these might generate carbon credits, it is questionable to what extent trading of these credits will be possible or be economically attractive.
- GHG emission reduction in the private sector will be slow. Enforcement of GHG emissions reduction can only be done through specific environmental legislation or by implementation of energy efficiency legislation. Experiences from other countries show that such a process is slow indeed. Implementing ETS, however, has the potential to substantially speed up this process as it will comprise approx. 50% of Moldova's GHG-emissions and it will create a system which enables monitoring and enforcement as was outlined in Section 2.
- Maintaining the present status is the strategic option with the most favorable short term economic impact. It is a "low-cost" option, however, it is not an option that sees the future and does not support the energy transition of Moldova.

4.2. Domestic ETS

The option of implementation a domestic ETS can be described as follows. Under this option:

- The size of the Moldovan ETS will be small. The total size of the domestic ETS is estimated at 3.5-5.5 $GgCO_2$-eq (or Mt) per year. Assuming that 5% of these emission will be traded during any given year and assuming a market price of 10 € per tonne, the size of the market in Moldova will be 35-55 million € per year. This is small and will probably create little incentive and limited

opportunity for companies to trade their surpluses. Note: At ECX in London, the daily trade volume is 6 million EUA's (tonnes) with a market volume of 2,000 million EUA's (tonnes) per year. This means that less than 1% of the total allocation is traded on yearly basis.

- If the Government of Moldova decides to a provide realistic GHG-allowances to Moldovan ETS companies, i.e. these are based on the current energy intensity, so the ETS-companies will have time available to adapt to the competitive market conditions in the EU.
- The Government of Moldova might decide to include other sectors or other type of installations under this domestic scheme. A domestic ETS allows the Government to design the ETS in accordance with its national priorities.
- A domestic ETS will fully depend on national emissions reduction targets set by the Government.
- A domestic ETS will require Moldova to develop appropriate national legislation, to set up the enforcement structure and to provide for monitoring, reporting and verification schemes.

For policy purposes, an overview of the pros and cons for each option are summarized by the Overview Table at the end of Section 4.

4.3. Linking to EU-ETS

Connecting Moldova to the EU-ETS shall be an instrument in the framework of Moldova's agenda for cooperation and, possibly, its future accession to the EU.

The "SCHEDULE FOR TRANSPOSITION OF EU LEGISLATION INTO THE NATIONAL LEGISLATION OF THE REPUBLIC OF MOLDOVA" presents the parts of EU legislation which have been accepted and will be transposed into Moldovan legislation. The EU's Emissions Trading Directive 2009/29/EC is not part of this schedule. It implies that, before any linking to the EU-ETS might take place, negotiations with the European commission are required.

The Energy & Climate Package of the EU, which was accepted in 2008 and creates the foundations of the EU's climate policies and is based on the "20-20-20" targets:

- A reduction of the EU's GHG emissions to a level of -/- 20% below the levels in 1990
- 20% of EU energy consumption is from renewable sources
- A 20% reduction of primary energy use compared with projected levels, to be achieved by improving energy efficiency

Moldova, however, has accepted more ambitious targets 25-20-20. The EU's 20-20-20 targets shall be met in the year 2020 and comprise *substantial, steady and supportable reduction of GHG emissions throughout the 27 Member States, differentiating according to the countries' GDP.*

The 20-20-20 targets comprise the ETS sectors and the non-ETS sectors. Although the targets for each EU Member State are different and are less ambitious for those countries with low GDP, the Package has substantial effect on the economies of the EU Member States.

Linking of the Moldovan ETS sectors to the EU-ETS will therefore

- connect Moldova to the Energy & Climate targets of the EU (although, strictly speaking, Moldova might decide to accept only the ETS part and not accept the non-ETS part of the Package)
- oblige Moldova to adopt the legal framework of the EU-ETS, which principally consists of adopting the Emissions Trading Directive, the Monitoring Reporting Regulation, the EU Registry Regulation and the other related pieces of legislation

- impose on Moldova's ETS sector the principles of the EU-ETS, including the principle of allocation of allowances on basis of benchmarks; as the specific GHG emissions from installations in Moldova is above most of the benchmark levels, as a consequence, Moldova's ETS companies will hardly get any free allocation and will therefore be faced with high additional costs
- oblige Moldova to implement the entire regulatory system for allocation of emission rights (EUA's), monitoring and verification.

From a Moldovan perspective, linking up to the EU-ETS might offer environmental and economic benefits:

- The small scale of the Moldovan market currently impedes trading and price formation, while a larger market for emission allowances offers more cost-effective reduction potential.
- A larger and well-established market creates more liquidity and price stability.
- Moldovan companies could operate in the same emissions market as their business partners in the EU. This will definitively make the Moldovan industry and energy sector more attractive to foreign investors.
- With access to the EU market, companies would have more flexibility in the way they meet their CO_2 targets.
- Integration with the EU-ETS will boost the improvement of the energy efficiency of the Moldovan installations as well as the modernization of the production plants.

Furthermore, the option of linking to the EU-ETS will have other consequences:

1. Inventory. Before connecting ETS installations to the EU-ETS, GHG-emissions from these installations shall be determined. At present, there is limited information available on these GHG emissions. A detailed and in-depth analysis of the national GHG-inventory shall therefore be required, whereby different scenarios (including the "business-as-usual" scenario and the national energy strategy scenario) shall be considered.
2. EU support. The EU is very supportive to countries which aim to be linked to the EU-ETS. Substantial funding and technical assistance will probably become available to the Government of Moldova and, possibly, to the ETS sector in Moldova.
3. Economic competitiveness. Although introducing an Moldovan ETS and linking it to the EU-ETS will generate substantial cost to the industrial operators, the scheme will surely enhance the attractiveness of the Moldovan industry to foreign investors and partners. Transparency and certainty of environmental restrictions is much appreciated by foreign investors. As long as the environmental standards are in line with the practices in the EU, these standards will not create significant barrier for investors.

Finally, linking of Moldova to the EU-ETS shall be an instrument in the framework of Moldova's agenda for cooperation and, possibly, its future accession to the EU.

EU acquis communautaire on Emissions Trading

Connecting Moldova to the EU-ETS implies that the EU's legislation is adopted and that the provisions are transposed to national legislation. The table on the following page provides an overview of the key parts of the legislation on emissions trading. Besides, it gives an overview of the key areas covered, the key stakeholders, the required governance level and the required actions.

Overview of EU Acquis Communautaire for the EU-ETS and its relation to national legislation of Moldova

EU EMISSIONS TRADING SYSTEM	Key areas covered	Key institutions in MD	Key governance level for action	Actions
2003/87/EC Emissions Trading Directive	GHG from industry and power generation	MEc & MoEnv/CC office	National	GHG emissions data inventory Adoption of legislation
280/2004/EC Monitoring Mechanism	GHG from industry and power generation	MEc & MoEnv/CC office	National	GHG emissions data Adoption of legislation
280/2004/EC Registries	GHG from industry and power generation	MoEnv/CC office	National	Establishment of Registry Adoption of legislation
2007/589/EC Monitoring and reporting	GHG from industry and power generation	MEc & MoEnv/CC office	National + local	GHG emissions data Adoption of legislation
2010/2/EU Carbon leakage	GHG from industry and power generation Economic competition	MEc	National	Policy development Adoption of legislation
2011/278/EU Benchmarking	GHG from industry and power generation Economic competition	MEc	National + local	Policy development Adoption of legislation
1031/2010 Auctioning	GHG from industry and power generation Economic competition	MEc	National	Policy development Adoption of legislation
2008/101/EC Inclusion of aviation into the EU ETS	Aviation sector Economic competition	MEc & MoEnv National Aviation Authority	National	Policy development Adoption of legislation

4.4. Project based mechanisms and similar instruments

Project based mechanisms

Section 2.2 was referring to the ambition of the EU to support the creation of a global system for emissions trading based on cap-and-trade. It was also referring to the fact that project based CDM offsets should be replaced over time by sectoral crediting mechanisms for *advanced developing countries.*

Although Moldova is clearly not a developing country, there are valid arguments for supporting the idea of developing a national strategy based on the use of sectoral crediting mechanisms. Potential for sectoral emissions reduction exist in the forestry sector, in the agricultural sector and possible other sectors. A sectoral approach could also be applied to the energy sector and to industry.

New Market Mechanisms (NMM)

With the CDM being under reform and, presently, passing through a very difficult period, initiatives are being made for the development of New Market Mechanisms. Based on principles of the CDM, the international community seeks to establish new market based instruments within the international climate policy framework that would generate carbon credits that can be used to meet part of developed countries targets (current or potential future ones) under the UNFCCC.

NMMs are supposed to cover a whole (sub-) sector in a developing country. The principle of their design is based on "Sectoral Trading" (e.g. a cap-and-trade scheme) and "Sectoral Crediting" (e.g. based on a baseline-and-credit approach). Any kind of such mechanism would need to be governed by the UNFCCC (e.g. at least as a rulemaking body and a registry for the credits). Several industrial sectors, among which the cement sector which very active, do support the principle of NMMs.

Note: although it has not been investigated by the consultants, in the framework of this feasibility study it shall be mentioned that the so-called "voluntary carbon credit"- market might be of relevance to Moldova. This voluntary market is a project-based mechanism which has many similarities with the CDM-market, however, carbon credits generated are not entering into the official UN-system. So, the carbon credit cannot be used by companies or other organization which seek to purchase carbon credit for compliance purposes. Carbon credits from the voluntary market are being purchased by buyers who wish to "green" their businesses and wish to compensate the GHG-emissions generated by their activities. Presently, the voluntary market is large and the volume of the market is growing. Voluntary crediting schemes allow for many types of emissions reduction projects from different sectors, including forestry and agriculture.

4.5. Overview of options

The key issues of the 4 strategic options as described in the previous paragraphs are summarized by the Overview Table on the next page.

Comments on the table: the criteria presented relate to legal aspects, economic aspects and to the question whether or not an option results in GHG emissions reduction within the next 8 years (2013-2020). Further, the criteria has been assessed and have resulted into scores (1=low, 10=high)

Costs for participants to ETS: defined as the direct cost to operators of installations during the period up to the year 2020

Costs for implementation in Moldova: defined as the institutional cost (mainly Government related) during the period up to the year 2020

Score Emissions Reduction: will the strategic option result in emissions reduction in the ETS sector of Moldova? The score is rated in function of the probability that emissions reduction targets will be achieved within the period until the year 2020

Score Economic: which economic effect will the strategic option have on Moldova? Both private and public sectors are taken into account.
Overview of Strategic Options for an Emissions Trading Scheme in the Republic of Moldova

OPTION	Principle	Participants	Emissions Reduction potential	Legal constraints	Benefits	Costs for participants to ETS	Costs for implementation in Moldova	SCORE Emissions Reduction	SCORE Economic
Status Quo as non-Annex-1	No ETS scheme in Moldova CDM no future	Projects (not installations) in and outside ETS sector	Low potential or even non-existing	None	Non further legislation to be developed Moldovan ETS companies have no restrictions	None to Low	Low	2	9
Domestic ETS	EU-ETS alike scheme based on "cap-and-trade" No linking to EU-ETS	List of "EU-ETS"-installations can be extended to other type of objects or emitters	Emissions Reduction potential is determined by nationally set targets.	Development of national legislation is required. Enforcement structure to be implemented. Verification scheme to be developed	Moldovan ETS companies have no or lower restrictions and there will be time to adapt to the market conditions in the EU	Moderate	Moderate to High	6/7	7
Linking to EU-ETS	Moldovan ETS will become part of EU-ETS	EU-ETS installations (= approx. 22)	High. Industry will generate substantial part of Moldova's ER in 2020	Implementation will take several years. Full EU-ETS require-ments must be met and must be implemented	Moldovan companies will be forced to modernize and implement emission reduction measures	High	Moderate to High	9	4
Project/ sector based mechanisms	Broad Emissions Reduction strategy linked to UNFCCC, including Low Emission Development Strategies and NAMAs	Industry, power sector, agriculture, residential sector etc.	Very low before 2015, higher after 2015, assuming that enforcement is done and economic incentives will be given	Complicated international framework which needs administrative capacity to be built in Moldova	Moldovan industrial sectors will have time to adapt to competitive market conditions and environmental performance	Unknown to Fair	High	5	7

5. CONCLUSIONS & RECOMMENDATIONS

5.1. UNFCCC and the international climate change negotiations

In November 2012, at COP18 Parties have decided not to let end the Kyoto Protocol but to extend it Protocol until 2020. The number of 37 Parties, however, has decreased significantly and now represents approx. 15% of the global GHG emissions. The extension of the Kyoto Protocol does not entail significant changes for Macedonia in comparison to the present situation.

I. One of the priority actions is to improve the national data base system and facilitation of the National Communication channels and appointing of a national institution with technical, software and HR competency for management of the CC information system. For Moldova, a centralized inventory system is preferred. One of the options is assignment for CC inventory information system to the Climate Change Office having environmental data-collection capacity. The establishment of a centralized system should be based on previous analysis of the best practices.

II. The national database shall elaborate on the two areas where availability of data is weak, i.e. (i) GHG emissions from industrial installations and power generators and (ii) GHG emissions data from Transnistria. It is recommended to strengthen the position of the CC office as central entity for emissions data collection, however, taking into account that integration of the "bottom-up" data collection, as required for an ETS, with the "to-down" data collection, as applied for the national inventory, shall be improved.

5.2. European Union

Connection of Moldova to the EU-ETS shall be seen in the framework of Moldova's agenda for cooperation and, possibly, its future accession to the EU. Connection of Moldova to the EU-ETS will be consequential to this policy. Therefore, the following is recommended:

I. Adoption of the legislative body on emissions trading is a key conditions for starting of an ETS and its linkage to the EU-ETS. See Section 4.3.

II. At present, a few non-EU countries are participating to the EU-ETS. The process of negotiation with the European Commission will take a few years. Moldova has to prepare itself for these negotiations, including an inventory of installations and their GHG emissions, the establishment of a registry and provisions for monitoring, verification and reporting. Upon a decision of the Moldovan Government to implement an ETS and to link to the EU-ETS, negotiations shall start shortly.

III. Improving the competitiveness of the Moldovan industry and energy sector is key for successful linking to the EU-ETS. The transitional period 2013-1016 (see Section 5.6.) shall be used to reduce the specific energy consumption of the installations and so to improve the CO_2-emissions benchmark.

IV. A detailed economic assessment of the costs of linkage to the EU-ETS for Moldovan operators shall be made. Such study shall not only entail the costs for monitoring, verification and reporting of GHG emissions, but, in the first place shall include an analysis of the economic aspects of an ETS in terms of surplus or shortage of emissions allowances.

V. Linking to the EU-ETS or even integration with the EU-ETS will require a substantial legal, technical and institutional effort. Preparedness the key for successful linking or integration. The integration in 2005 of 8 new Member States into the EU-ETS took about 1.5 year, however, it must be said that those countries had completed their EU Accession Chapters. The integration of Romanian and Bulgaria, in 2007, did occur less smoothly, mainly due to

insufficient institutional preparation and lack of emissions data. In Bulgaria, furthermore, at the time the staffs of the competent Ministry was replaced entirely. Towards the years 2010/2011 these countries were properly functioning under the EU-ETS.

5.3. Institutional aspects & costs & staffing

Institutional aspects

The Ministry of Economy of Moldova, being one of the initiators of the feasibility study, plays a key role in the economic development of Moldova's ETS sector. Aspects such as the functioning of the trade markets, the competitiveness of the Moldovan industry etc. are within the competence of this Ministry.

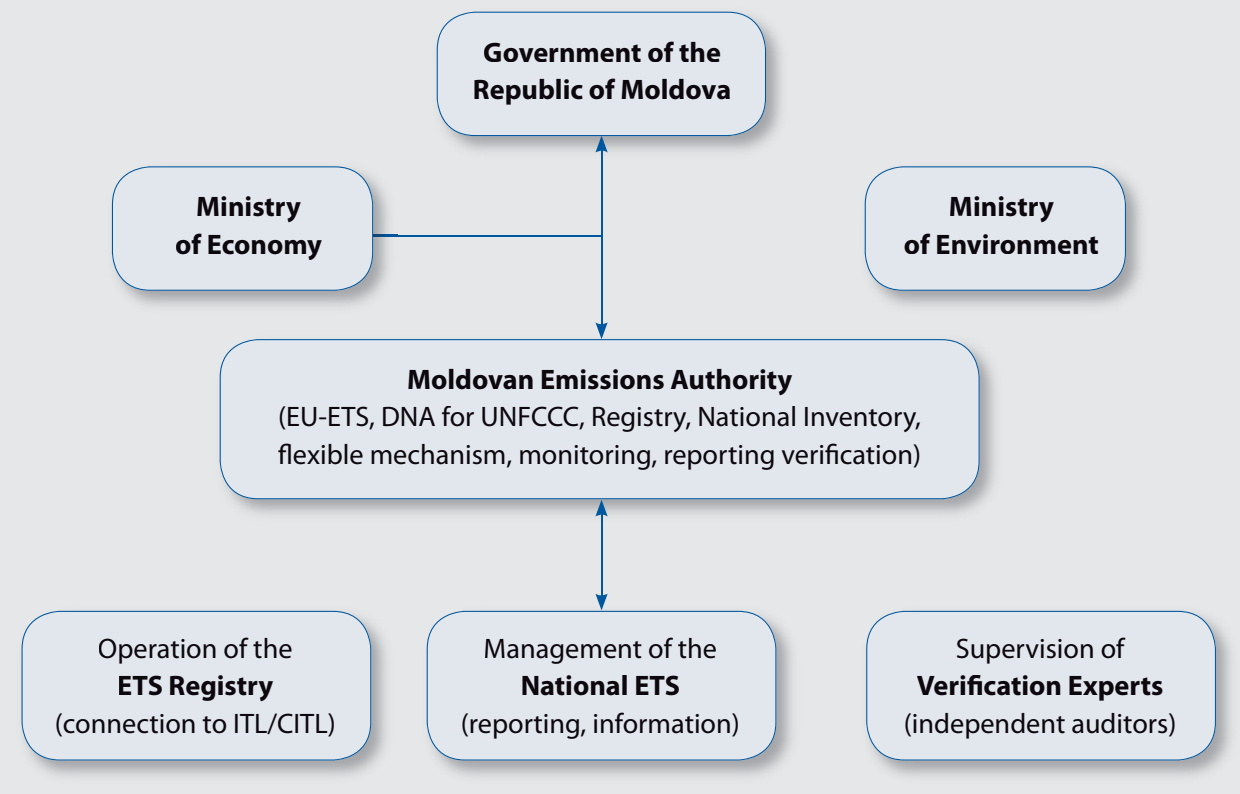
On the other hand, the Ministry of Environment is a key player for the national environmental policy a competent authority for climate change issues. Besides, this Ministry represents the Republic of Moldova at the global climate negotiations. Finally, the Ministry, through its climate change office, is responsible for reporting on the domestic GHG emissions.

Costs and staffing

Before entering into any discussion with the key stakeholders to an ETS, we present a possible and appropriate structure for governance of issues concerning an ETS. See schedule below. The schedule is based on the involvement of the two key Ministries and envisages the establishment of a Moldovan Emissions Authority.

As for the operation and the cost of an emissions authority (or similar supervisory body), it is estimated that the number of staff required may be between 4 and 8 persons. The total of the operational cost, including salaries, equipment, registry operation etc., estimated to be no more than € 250.000 per year.

Figure 6: *proposed model for emissions trading governance in Moldova*



Such an Emissions Authority shall act as the key body for the supervision, management and the enforcement of the ETS. It will also be a centre of expertise on climate change issues, GHG-emissions and on the legal and technical aspects of emissions trading.

It may be considered to integrate the current Climate Change Office into the Emissions Authority of Moldova. As such, the Emissions Authority will be acting on behalf of the competent authority, i.e. the Government of Moldova and, in particular, the Ministry of Economy and the Ministry of Environment.

The Emissions Authority will have all expertise required for being the focal point of Moldova for the EU, the UNFCCC and possibly the COP.

5.4. Legal framework, capacity building & funding

In order to develop an appropriate framework for emissions trading in Moldova, a number of conditions have to be fulfilled. These conditions relate to legal framework, capacity building and funding.

Key recommendation are here:

I. Development of integrated and coordinated Climate Change policies. Adoption of the EU legislative body on emissions trading and transposition into national legislation.

II. Upon drafting the key legislation on emissions trading, the inventory of GHG emissions from installations shall take place. These two activities can occur simultaneously.

III. Operators of installations shall be informed on emissions trading. It is recommended that, upon completion of the legal provisions for emissions trading, a pilot programme will started by which installations monitor their GHG emissions during a period of 1 or 2 years.

IV. Capacity building of MoEnv staffs on EU-ETS and related Directives such as the ESD, REAP and alike.

V. Capacity development under the 3rd National Communication shall be executed in order to improve the quality and consistency of Moldova's GHG emissions data and the linkage to the system of ETS.

VI. Funding of the implementation of an ETS and its linking to the EU-ETS shall comprise: establishment of an Emissions Trading Authority or Agency, the build-up of the emissions trading registry and its connection to the Common European Registry. Further funding will be required for the execution of the inventory of installations, the development of tools for monitoring & reporting by installations and the certification scheme for independent auditors for GHG emissions.

5.5. Options for Moldova: Road Map

The options for Moldova are to look at where it starts from and what is the baseline in terms of what it will be anyway putting in place as part of already made commitments, policy documents, EU negotiations etc. On this basis of this, an indicative Road Map has been developed, outlining the basic actions to be taken and providing a tentative time schedule.

In order to meet the requirements for integration with the EU-ETS, a transitional period of 4 years will be needed. The key areas are:

- The development of the legal framework on emissions trading, including the adoption of the EU acquis in this field;
- Technical work, in particular for the inventory, the benchmarking, the registry;
- Institutional arrangements for the establishment of the Authority.

The following table provides a tentative Road Map:

	Field of Action	2013	2014	2015	2016	2017
I.	*Climate change policy development*	■				
ii.	*Emissions Trading Law & adoption of ET legislation*		■			
iii.	*Establishment of Emissions Authority or Agency*		■	■		
iv.	*Establishment of emissions trading registry*		■	■		
V.	*Inventory of GHG from installations*	■	■			
VI.	*Monitoring of GHG emissions from installations*			■	■	
VII.	*Negotiations with EU for connection to EU-ETS*	■	■	■	■	
IX.	*Connection to EU-ETS*					■

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