

**PROJECT INFORMATION DOCUMENT (PID)  
APPRAISAL STAGE**

Report No.: AB5756

<b>Project Name</b>	DISASTER AND CLIMATE RISK MANAGEMENT PROJECT
<b>Region</b>	EUROPE AND CENTRAL ASIA
<b>Sector</b>	Central government administration (100%)
<b>Project ID</b>	P115634
<b>Borrower(s)</b>	MOLDOVA
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<b>Implementing Agency</b>	Ministry of Environment and Natural Resources Ministry of Internal Affairs Ministry of Agriculture and Food Industry
<b>Environment Category</b>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> FI <input type="checkbox"/> TBD (to be determined)
<b>Date PID Prepared</b>	May 18, 2010
<b>Date of Appraisal Authorization</b>	May 27, 2009
<b>Date of Board Approval</b>	October 5, 2010

1. Country and Sector Background

Moldova is landlocked between Romania to the west and Ukraine to the north, east and south; the country has a surface area of 33,840 km<sup>2</sup>, and is home to about four million people. Moldova's rich soils and mild climate are ideal for year-round farming and the country is a major supplier of agricultural products to Eastern Europe. However, this ideal climate is changing; extreme climatic events such as early frost onset, flash floods, hailstorms, droughts, and other extreme weather are becoming more frequent. In 2009, estimated per capita Gross Domestic Product (GDP) was US\$1,514, making it the poorest country in Europe, and eligible for International Development Association (IDA) assistance.<sup>1</sup> Clearly, reducing Moldova's vulnerability to extreme weather events and natural hazards, and mitigating subsequent losses due to disasters are a priority for Moldova's economic development. The proposed Project would contribute to these goals.

Moldova's economy is in recession and the global financial crisis has undermined every main source of earlier economic growth: remittances, private consumption, exports, and private investment. The country suffered weakened domestic and external demand, fiscal imbalance,

<sup>1</sup> Population figure includes Transnistria; per capita GDP is in current market prices (source: International Monetary Fund, World Economic Database).

limited financial intermediation, and rising poverty. During 2009, Moldova experienced two Parliamentary elections, April 5 and July 29, which distracted Government from economic priorities just as the worst effects of the global financial crisis manifested.

Against this turbulent political backdrop, Moldova's fragile economy remains highly vulnerable to other shocks such as natural disasters, particularly in agriculture and related sectors. Moldova is exposed to many types of hazards, including floods, droughts, and earthquakes, which can lead to natural disasters and add to economic vulnerability. Historic records also reveal earthquake damage; for example, the 1986 Vrancea earthquake caused estimated losses equivalent to US\$500 million.<sup>2</sup>

***Institutional arrangements for disaster risk management.***<sup>3</sup> In Moldova, multiple government levels are responsible for disaster risk management (DRM). In 2001, Moldova created the Republican Commission for Emergency Situations as the main entity responsible for managing major emergencies. The Head of the Commission is the Prime Minister; the deputy head is the Director of the State Department of Exceptional Situations (DES), which is responsible for disaster prevention, response, relief and recovery. The Commission meets semi-annually and includes representatives from all line ministries and executive branches. District and local emergency commissions have a similar structure and include heads of local governments and relevant public services.

In addition to the DES, the State Hydrometeorological Service (SHS) under the Ministry of Environment provides critical support in disaster preparedness by providing Government, agencies, and the public with accurate and timely daily to five-day forecasts to prepare for severe weather emergencies. Floods, flash floods, severe weather, hail, and high winds are the biggest threats to human life. The existing SHS data network is inadequate to provide short-term (0-12 hours) or longer-term forecasts, and SHS lacks capacity to provide localized forecasts using weather radar.

## 2. Objectives

The Project development objective (PDO) is to strengthen the State Hydrometeorological Service's ability to forecast severe weather and improve Moldova's capacity to prepare for and respond to natural disasters. The PDO will be achieved through strengthened capacities to: (i) monitor weather and issue early warnings of weather-related hazards by providing timely and accurate hydro-meteorological forecasts and services; (ii) manage and coordinate responses to natural and man-made disasters; and (iii) help individuals, particularly farmers, be aware of, and adapt to natural hazards and climate variability.

## 3. Rationale for Bank Involvement

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<sup>2</sup> Using the prevailing exchange rate: US\$1=0.8 ruble). Source: Institute of Geology and Seismology of the Academy of Sciences of Moldova and a joint damage assessment by the International Red Cross and the Department of Exceptional Situations (DES).

<sup>3</sup> Disaster Risk Management is the systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster (Source: United Nations International Strategy for Disaster Reduction).

During 1984-06, the World Bank financed 528 projects, an estimated US\$26 billion in lending, to respond to natural disasters.<sup>4</sup> Historically, the Bank has provided post-disaster reconstruction assistance, but recently the focus has shifted to support disaster preparedness and mitigation, and catastrophe risk financing. In addition, the World Bank, in partnership with other organizations, has developed critical policy tools and knowledge products, including instruments to assess post-disaster damage, disaster area needs, hazards and vulnerability, and risk-transfer instruments. In the process, the Bank has developed a body of knowledge and practice that is useful to natural-hazard vulnerable countries such as Moldova.

#### 4. Description

The Moldova DCRMP proposes three main components: (a) strengthen severe weather forecasting; (b) improve disaster preparedness and emergency response; and (c) initiate adaptation to climate risks in agriculture. A small fourth component will be to support project implementation.

##### ***Component A: Strengthen Severe Weather Forecasting***

This Component aims to strengthen the State Hydrometeorological Service's ability to forecast severe weather and provide decisionmakers and other users with more effective, diverse, and timely forecasts and warnings.

***Sub-Component A.1 – Develop Early Warning/Nowcasting Capabilities.*** Economic losses from severe weather, flash floods and floods can be significantly reduced by establishing a “nowcasting” system.<sup>5</sup> This sub-component will strengthen data, communications, and modeling technology to provide timely, accurate, and geographically precise weather hazard warnings.

***Sub-Component A.2 – Dual Polarization Doppler Radar Technology for Localized Forecasts.*** A Dual polarization Doppler radar is now the most effective meteorological tool to predict floods, high winds, hail, and other severe weather, and issue warnings. This sub-component will improve meteorological modeling systems by providing a mesoscale model and Integrated Meteorological Workstation, and eventually a hydrologic modeling system for predicting flash-floods.

***Sub-Component A.3 – Development of Plans for Seasonal/Climate Forecasts.*** Building a real-time hydrometeorological data system is a first step to improving medium- to long-term forecasting. This sub-component will support the SHS to develop plans for such a data system and, if resources permit, to provide investments for equipment.

##### ***Component B: Improve Disaster Preparedness and Emergency Response***

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<sup>4</sup> *Hazards of Nature, Risks to Development – An IEG Evaluation of World Bank Assistance for Natural Disasters*; Independent Evaluation Group (IEG), World Bank, 2006

<sup>5</sup> The forecasting of the weather within the next six hours is often referred to as nowcasting (Source: Glossary of Meteorology).

This Component aims to strengthen Government capacity to manage emergencies and coordinate disaster response among levels of government agencies units by establishing and operating the Emergency Command Center (ECC), and associated capacity-building activities.

**Sub-Component B.1 - Feasibility Study and Design.** The Project will support feasibility and design studies as a basis to establish the ECC.

**Sub-Component B.2 - Establish Emergency Command Center.** When feasibility and design studies are complete, the Project will support ECC establishment by financing the following: (i) facility renovation and refurbishment works; (ii) ECC furniture and equipment; (iii) information technology (IT) hardware; (iv) emergency information management software; and (v) communication equipment.

**Sub-Component B.3 – Capacity Building and Evaluation.** DES employees will staff the ECC on an as-needed basis, along with staff from other agencies, particularly during emergencies. The Project will support capacity building for DES and other agencies by providing training in emergency management information system, particularly operating the IT decision-support system, for an estimated 100 staff from 15 agencies and all regional and local DES units.

**Component C: Initiate Adaptation to Climate Risks in Agriculture**

This Component aims to enhance practical application of agro-meteorological information and pilot farm-based investments that will test and mainstream techniques to increase resilience to adverse weather.

**Sub-Component C.1 – Development of Just-in-Time (JIT) Communication Platform.** This sub-component will support development of a mobile JIT communication platform as a tool to rapidly disseminate critical local weather information to a large number of farmers and many rural communities.

**Sub-Component C.2 – Adverse Weather Adaptation Advisory Services.** The Project would support investments for farmers, farmer groups and rural communities to pilot and test activities to improve agricultural sector resilience to adverse weather.

**Component D: Project Management**

This Component will provide fiduciary support to implement Components A, B, and C, including technical assistance and training to SHS, DES, and MAFI project staff.

5. Financing

Source:	(\$m.)
BORROWER/RECIPIENT	0
International Development Association (IDA)	8.35
Total	8.35

6. Implementation

An inter-ministerial steering committee, chaired by the Minister of State, will coordinate Project implementation. The steering committee will include representatives from the Ministries of Finance, Agriculture and Food Industry, Environment, and Internal Affairs. The Ministry of Environment (through SHS) will implement Component A, the Ministry of Internal Affairs (through DES) will implement Component B, and the Ministry of Agriculture and Food Industry will implement Component C. An existing Project Implementation Unit (PIU) in the Ministry of Environment will manage fiduciary arrangements for all Components. In particular, PIU support will enhance the financial management and procurement functions and any technical aspects of Project implementation, including monitoring and evaluation.

## 7. Sustainability

*Institutional sustainability.* Borrower ownership has been clear during the Project preparation stage. The State Chancellery, which is in charge of donor aid coordination, has set up a Ministerial steering committee including the Ministry of Finance. The proposed fiduciary PIU includes well-qualified staff with experience in other Bank-financed projects and SHS and DES operations. The SHS has technically competent staff to work with Bank-financed equipment, although more training will be provided in collaboration with other partners such as the WMO and the Finnish Meteorological Institute (FMI) and with the help of a GFDRR grant. The DES communication and IT divisions are adequately staffed to support ECC operation.

*Technical sustainability.* The long-term sustainability of investments made under the proposed Project depends upon continuing Government budgetary support. Given the level of commitment demonstrated by the lead agencies and members of the steering committee, and the fact that the ECC and weather forecasting systems and equipment will be in daily use, there is every reason to believe that Government support will continue for DCRMP initiatives. Furthermore, as explained in the PAD section on critical risks, locating the Doppler radar at a site owned by MoldATSA, the airport authority, will significantly reduce ongoing O&M costs for the SHS, due to cost sharing with the airport authority.

## 8. Lessons Learned from Past Operations in the Country/Sector

*Focus on ex-ante disaster risk reduction measures.* The international community recognizes the importance of reducing and mitigating hazard risks. Mitigation benefits are difficult to measure because costs associated with disaster impacts are financial, humanitarian, social, and environmental, and many benefits are realized only in the longer-term. Nevertheless, there is a broad consensus that ex-ante disaster risk reduction is more cost-effective than post-disaster actions and recovery.

*Importance of regional cooperation and coordination.* Natural hazards cross borders and sectors, so managing disaster risks, emergency preparedness, and mitigation requires institutional coordination and collaboration among neighboring countries. Successful regional cooperation rests entirely on building national capacity to respond to disasters, thereby gaining sufficient capacity to support other countries during disasters. Therefore, Project components are designed to reduce Moldova's risk *and* contribute to international and regional cooperation.

*Integration of weather forecasting systems.* The World Bank has supported projects to enhance weather forecasting in countries such as Poland, Turkey, and Russia, building a body of knowledge and experience. Ensuring sufficient system integration to achieve full functionality is key to successful weather forecasting; hence, Project activities to strengthen weather forecasting capacity will be clustered in a few contracts to ensure inter-operability of SHS systems.

## 9. Safeguard Policies (including public consultation)

<b>Safeguard Policies Triggered by the Project</b>	Yes	No
<a href="#">Environmental Assessment (OP/BP 4.01)</a>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Natural Habitats ( <a href="#">OP/BP 4.04</a> )	<input type="checkbox"/>	<input type="checkbox"/>
Pest Management ( <a href="#">OP 4.09</a> )	<input type="checkbox"/>	<input type="checkbox"/>
Indigenous Peoples ( <a href="#">OP/BP 4.10</a> )	<input type="checkbox"/>	<input type="checkbox"/>
Physical Cultural Resources ( <a href="#">OP/BP 4.11</a> )	<input type="checkbox"/>	<input type="checkbox"/>
Involuntary Resettlement ( <a href="#">OP/BP 4.12</a> )	<input type="checkbox"/>	<input type="checkbox"/>
Forests ( <a href="#">OP/BP 4.36</a> )	<input type="checkbox"/>	<input type="checkbox"/>
Safety of Dams ( <a href="#">OP/BP 4.37</a> )	<input type="checkbox"/>	<input type="checkbox"/>
Projects on International Waterways ( <a href="#">OP/BP 7.50</a> )	<input type="checkbox"/>	<input type="checkbox"/>
Projects in Disputed Areas ( <a href="#">OP/BP 7.60</a> )*	<input type="checkbox"/>	<input type="checkbox"/>

In accordance with the World Bank's safeguard policies and procedures, including OP/BP/GP 4.01 Environmental Assessment, this project has been classified as a Category B project for environmental assessment purposes. Based on that, the project Environmental Assessment (EA) includes an EA of the project sites and of the proposed construction activities, as well as a simple Environmental Management Plan (EMP) which specifies mitigation measures, monitoring activities, and implementation arrangements. The EA and EMP address the needs of the applicable laws and regulations of the Government of Moldova, and the World Bank's safeguard policies and disclosure requirements.

It is expected that the project will not generate any large scale and significant environmental and social impacts. There will be no need for land acquisition triggering resettlement. Construction of 6 new weather stations will be done on land that is owned either by the state or the local public administration and which is not legally or illegally used by the local population. Public consultations were conducted for five sites within the framework of the EA and the EMP before appraisal in which the local population was informed about the scope, impact and expected benefits of the project. Consultations for a sixth site will be conducted separately and the results of the consultation will be included in the final EMP, which will then be re-disclosed.

## 10. List of Factual Technical Documents

- i. World Bank, Albania Disaster Risk Mitigation and Adaptation Project (P110845). Approved: June 19, 2008; current closing date: February 28, 2012. Latest ratings: Unsatisfactory for Implementation Progress and Development Objective.

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\* *By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas*

- ii. World Bank, Croatia Disaster Risk Mitigation and Adaptation Project (P109603). (Pipeline).
- iii. Weather and Climate Services in Europe and Central Asia: A Regional Review, World Bank.
- iv. Country Profile: Moldova for the UN/ISDR Project: “Strengthening of Hydrometeorological Services in South Eastern Europe”.
- v. National Strategy for Natural Hazard Mitigation (NSNHM) 2008 – 2015; Business Consulting Institute, Chisinau, Moldova.
- vi. Rural Productivity in Moldova – Managing Natural Vulnerability; World Bank (2007).

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