

PN-ACB-144

# **Environmental Policy and Technology Project**

Contract No. CCN-0003-Q-09-3165-00

## **MOLDOVA**

### **Recommendation on the Procurement of Chemical Analytical Equipment to Support Improved Environmental Monitoring in Moldova**

**Delivery Order #09, Task M2  
December 1996**

Prepared for:

**U.S. Agency for International Development**  
Regional USAID Mission to Ukraine, Belarus & Moldova

Bureau for Europe & the New Independent States  
Office of Environment, Energy & Urban Development  
Environment & Natural Resources Division

Prepared by:

Ukraine, Belarus & Moldova Regional Office  
Environmental Policy and Technology Project  
For the New Independent States of the former Soviet Union

A USAID Project Consortium Led by CH2M HILL

A

## PREFACE

Under the 1992 Freedom Support Act, the United States Congress initiated a program to provide various forms of assistance to new independent states (NIS) of the former Soviet Union. Cooperative Agreements were signed between representatives of the U.S. government and each country in which assistance was to be undertaken. The U.S. Agency for International Development (USAID) was given the responsibility to coordinate all U.S. government assistance to the NIS under the Act.

Through competitive bidding, USAID awarded a multi-year contract to a team managed by CH2M HILL International Services, Inc. (CH2M HILL) to support implementation of an environmental assistance program to republics of the former Soviet Union. Under this contract, termed the Environmental Policy & Technology (EPT) Project, CH2M HILL is to assist USAID's missions in Moscow, Kyiv, and Almaty undertake a program to promote environmental improvements in the NIS. The USAID mission in Kyiv supports environmental, and other, assistance programs to Ukraine, Belarus, and Moldova. CH2M HILL established an office in Kyiv from which to perform services in these countries under the EPT Project.

This report was prepared as a contractually required deliverable under a contract between USAID and CH2M HILL. Although work on this report was conducted in cooperation with the assisted governments and USAID, the findings and recommendations are those of the CH2M HILL team. They do not necessarily represent official positions of the governments of the assisted countries nor of the United States of America.

The CH2M HILL team includes the following organizations:

- Center for International Environmental Law
- Clark Atlanta University/HBCUMI Environmental Consortium
- Consortium for International Development
- Ecojuris
- Environmental Compliance, Inc.
- Harvard Institute for International Development
- Hughes Technical Services Company
- International Programs Consortium
- International Resources Group, Ltd.
- Interfax Newsagency
- K&M Engineering
- Ogden Environmental and Energy Services Company
- Price Waterhouse
- World Wildlife Fund (US).

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## ABBREVIATIONS, ACRONYMS & GLOSSARY

AAS	Atomic Absorption Spectrophotometer.
BOD	Biological Oxygen Demand.
CH2M HILL	CH2M HILL International Services, Inc. A U.S.-based international environmental engineering consulting firm under contract to USAID to implement a large component of the EPT Project.
COTR	[USAID's] Contract Officer's Technical Representative.
DO	Delivery Order.
EPT	Environmental Policy & Technology (Project). A USAID-funded program to provide environmental assistance to New Independent States of the former Soviet Union.
MDEP	Moldova Department of Environmental Protection.
USAID	U.S. Agency for International Development.
USEPA	U.S. Environmental Protection Agency.
UV	Ultraviolet.

## Section 1

# INTRODUCTION

## 1.1 BACKGROUND

As part of a United States government bilateral assistance program, the U.S. Agency for International Development (USAID) is supporting environmental management in Moldova. Under direction from USAID, a consortium led by CH2M HILL International Services, Inc. (CH2M HILL), is implementing part of USAID's Environmental Policy & Technology (EPT) Project by undertaking various tasks that have been agreed to by representatives of the governments of both countries.

USAID authorized CH2M HILL to perform a series of tasks in Moldova under Delivery Order (DO) #9. Task M2 (Farm Environmental Management Demonstration Project) includes a requirement (Subtask 1: Capabilities Assessment) for CH2M HILL to:

*... conduct and prepare a report on an assessment of the analytical capabilities and capacity of Moldova to conduct environmental monitoring of the impacts from such [agricultural production] practices and any benefits from improving such practices*

and also (Subtask 6: Monitoring Equipment and Supplies) for CH2M HILL to:

*... request from USAID/Kiev and the COTR [Contract Officer's Technical Representative] authorization to prepare an estimate of the types and quantities of monitoring and/or laboratory equipment necessary to support improved agricultural practices and management in Moldova. Once such authorization is granted, the contractor shall provide an assessment report to USAID of such monitoring equipment and/or laboratory needs.*

A report on assessing the analytical capabilities has been presented under separate cover<sup>1</sup>. The report herein is in response to USAID's requirement to submit an assessment of chemical analytical equipment needs.

## 1.2 APPROVAL TO PREPARE REPORT

In accordance with the scope of work specified in DO #9, Task M2 (Subtask 6), CH2M HILL submitted a written request to USAID/Kyiv on 7 Nov 96 for authorization to proceed with preparing this analytical equipment needs report. Approval from USAID/Kyiv was received on 12 Nov 96; a written request for approval was then submitted to the COTR on the same day, for which approval was received on 21 November 1996. Appendix A contains a copy of this correspondence.

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<sup>1</sup> See the report: *Moldova: Assessment of Chemical Analytical Capabilities for Environmental Monitoring*, submitted by CH2M HILL's EPT Project to USAID in November, 1996.

## Section 2

### JUSTIFICATION FOR EQUIPMENT

The need for chemical analytical equipment for environmental management was documented in the report *Moldova: Assessment of Chemical Analytical Capabilities for Environmental Monitoring*, which included an evaluation of six chemical laboratories representative of such facilities in that country. The assessment found that laboratories typically focused on standard drinking water quality parameters, and did not perform analyses associated with reviewing environmental impacts of agricultural activities. While the laboratories did have experienced personnel needed to conduct the required analyses, their instruments were rudimentary. Most analytical equipment was outdated, with limited support and peripheral equipment, and generally without acceptable reagents for analytical procedures or standards for calibration procedures, which are critical for producing accurate and precise data. The assessment concluded that overall capabilities of chemical analytical laboratories were insufficient to generate environmental data of known quality and validity, and that they likely could not produce the data needed to determine environmental impacts from agricultural operations, particularly data on agrochemical applications and their degradation products.

Procurement of chemical analytical equipment would help achieve a primary objective of Task M1 of DO #9 -- that is, to introduce in Moldova the concepts and techniques of environmental risk assessment and risk-based decision-making. This would be accomplished by providing the analytical tools necessary to implement risk assessment methodologies in Moldova, and build upon the foundation established with Task M1 and M3 activities. One of the targets under Task M1 was for the Moldova Department of Environmental Protection (MDEP) and other government agencies to formally consider adoption and use of environmental risk decision-making processes as a means of prioritizing and targeting investments for environmental improvements. Achievement of this target is evident in the following:

- MDEP's creation of an Office for Public Information to improve public access and participation in environmental risk decision-making processes
- ministerial endorsement and implementation of a risk assessment/risk management curriculum in the higher education system of Moldova, currently involving over 600 students at 5 universities
- adoption and approval by the State Commission on Official Language of risk assessment/risk management terminology and definitions
- an MDEP initiative to establish an interdisciplinary environmental information/data network, in order to enhance access and exchange of data across disciplines for environmental analyses and management
- signing of a joint memorandum between the MDEP and the Ministry of Health to coordinate efforts in investigating agricultural impact on environment and public health

through risk analysis, implementation of risk assessment and risk management methodologies, and creation of an integrated training program for students and post-graduates in environmental protection, risk assessment, and chemical investigations in the field of environmental protection and public health.

By helping to strengthen chemical analytical capabilities in Moldova, USAID, through its EPT Project, would have an excellent opportunity to capitalize on and leverage the broad-based support for, and interest in, implementing environmental risk assessment and risk management initiatives which the project has helped to generate. Procurement of analytical equipment would also provide the opportunity to develop linkages between USAID-supported Moldovan and Ukrainian counterparts in the area of environmental monitoring and analysis, that would ensure a sustained regional effort in improving chemical analytical capabilities in key environmental management agencies. Experience and results in providing chemical analytical equipment to Ukraine under Task U4 (Kaniv Reservoir) of DO #9 are applicable to procurement and utilization of similar equipment for Moldova. This serves as a tangible example of regional dissemination of lessons-learned, and the fostering of exchange of ideas and experience between Ukrainian and Moldovan environmental specialists.

Procurement of chemical analytical equipment for Moldova, and training of Moldovan personnel in its operation and application, also provides the U.S. Environmental Protection Agency (USEPA), using USAID funds, with an opportunity to extend into a neighboring country its experiences and achievements in Ukraine developed during the Kaniv Reservoir Project. With USEPA involvement, the likelihood of long-term sustainability for implementation of risk assessment/management techniques in Moldova would increase due to strengthened relations and contacts between environmental and public health personnel from both countries.

## Section 3

### RECIPIENT ORGANIZATIONS

Under the EPT Project, CH2M HILL has become familiar with the principal environmental management agencies in Moldova, and recommends that chemical analytical equipment be procured for the following entities:

- Ministry of Health:
  - ▶ Laboratory of Environmental Health and Food Toxicology of the National Scientific and Practical Center of Hygiene and Epidemiology
  - ▶ Laboratory of Environmental Health in the Department of Hygiene of the State University of Medicine and Pharmacy
- Department of Environmental Protection Inter-regional Laboratory of Control and Analysis of the Central Region Ecological Agency.

Details on these entities are provided below.

### 3.1 MOLDOVA MINISTRY OF HEALTH

#### 3.1.1 Laboratory of Environmental Health and Food Toxicology of the National Scientific and Practical Center of Hygiene and Epidemiology

The National Scientific and Practical Center of Hygiene and Epidemiology was established in accordance with Government of Moldova Decision No. 529 (July 1995). The Center is divided into the following organizations: the Chief Sanitary and Epidemiology Administration; the National Center for Hygiene and Epidemiology ("Sanatate"); the Republican Center for AIDS Control; and the Divisions of Prevention, Hygiene, and Epidemiology under the Institute of Scientific Research in Preventative and Clinical Medicine. The Center forms the central organizing body for the Ministry of Health's functions in health, sanitation, and hygiene. The newly formed Center is to investigate soil, water, and air pollution and the impacts of environmental pollutants on public health; it has established subdivisions in Environmental Health, Toxicology, and Food Safety.

The Center coordinates the monitoring and analytical activities of 40 territorial agencies located throughout Moldova. There are 12 such agencies on the Prut River, 10 on the Nistru (Dniester) River, 5 on the Reut River, 5 on the Byk River, 5 on the Kogylnic River, and 3 on the Lunga River. In addition, sampling and analysis of points at inland reservoirs, and one point at the Dunai (Danube) River, are also performed by the Center.

### **3.1.2 Laboratory of the Department of Hygiene of the State University of Medicine and Pharmacy**

Within the State University of Medicine and Pharmacy, the Department of Hygiene serves as Moldova's premiere training entity for the State's hygienists, epidemiologists, and laboratory specialists and technicians. Graduates and post-graduates from the Department of Hygiene form the primary resource for positions within the National Scientific and Practical Center of Hygiene and Epidemiology, scientific and practical laboratories for hygiene, and all departments and agencies dealing with environmental protection, environmental health, and occupational health and safety. The Department of Hygiene has been the lead collaborator with the EPT Project in introducing environmental risk assessment and risk management courses and training, both within the State University of Medicine and Pharmacy and other universities. The laboratory of the Department of Hygiene serves both as a training center and for scientific investigations, with a full-time staff of 4 scientific researchers, 4 laboratory specialists (post-graduates), 3 laboratory assistants (special graduates), and 2 technicians. The laboratory maintains close working relationships with the National Scientific and Practical Center, the Department of Environmental Protection, and the Institute of Water Problems. The laboratory is slated to conduct some of the first scientific investigations in the field of chemical risk assessment and implementation of methodologies and practices, introduced through USAID's EPT Project.

### **3.2 MOLDOVA DEPARTMENT OF ENVIRONMENTAL PROTECTION, INTER-REGIONAL LABORATORY OF CONTROL AND ANALYSIS OF THE CENTRAL REGION ECOLOGICAL AGENCY (REPUBLICAN ANALYTICAL CENTER)**

The Department for Environmental Protection of the Republic of Moldova is a relatively new entity, established in 1990. In 1994 it was renamed the Department for Environmental Protection and Natural Resources. MDEP exercises its duties through a network of 10 regional Ecological Agencies. Duties of the MDEP include formulation of regulations; monitoring environmental pollution; sampling water, soil, and air for contaminants; and inspecting local industrial enterprises, wastewater treatment plants, and other facilities for environmental violations. They impose fines and penalties for abuses and discharges which exceed approved limits. The 10 regional Ecological Agencies implement and enforce the MDEP's rules and regulations relating to water.

The Inter-regional Laboratory of the Department of Environmental Protection is a state-level analytical center, and includes the state Ecological Inspection. The laboratory is organized into four subdivisions: Water Analysis Group, Air Analysis Group, Soil Analysis Group, and Technical Services Group. The analytical center coordinates and manages the methodological and scientific activity of all analytical control (monitoring) stations and laboratories of the 10 regional Ecological (Inspectorate) Agencies.

These three laboratories are part of the environmental protection system of Moldova, and they work together with various state organizations in health and environment (mentioned above), as well as in agriculture, particularly the "Moldova Standards" State Department under the Ministry of Agriculture. In addition, these laboratories collaborate with non-governmental organizations, including the Ecological Movement of Moldova, the Medical Foundation of Moldova, and Terra Nostra Ecological Association.

### **3.3 AGREEMENT BETWEEN USAID AND COUNTERPARTS**

A preliminary allocation of responsibilities of USAID and Moldovan counterparts regarding the procurement, training and operation, and application of the chemical analytical equipment, is outlined in a draft *Letter of Joint Cooperation* presented in Appendix B. This draft is to serve as a basis for subsequent negotiation and agreement of responsibilities.

## Section 4

### RECOMMENDED EQUIPMENT

Recommended equipment is listed in Appendix C. The list was based on information obtained during an analytical capabilities assessment conducted in Spring and Autumn 1995 (see Section 1), consultations with USEPA representatives collaborating on the Kaniv Reservoir Project in Ukraine, and discussions between Moldovan specialists and technical staff at the Ukraine Ministry of Environmental Protection & Nuclear Safety's Water Analysis Laboratory in Kyiv.

Cost opinions have been provided for each type of equipment/instrument. Fees, delivery, air-freight, handling charges, and other costs associated with procuring, delivering, and installing equipment are not included in the estimates. The opinions on cost shown, and any resulting conclusions on project financial or economic feasibility or funding requirements, have been prepared for guidance to USAID regarding equipment recommendations evaluation from information available at the time the opinions were prepared. Final costs will depend on competitive market conditions, actual site conditions, final project scope, implementation schedule, continuity of personnel, and other variable factors. As a result, the final equipment costs may vary from the opinions of costs presented herein.

**Appendix A**

**APPROVALS BY USAID TO PREPARE REPORT**



A USAID Project Consortium led by CH2M HILL

**ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT**

CH2M HILL International Services, Inc.

Center for International Environmental Law

Clark Atlanta University and the Historically Black Colleges and Universities and Minority Institutions

Consortium for International Development

ECI Environmental Compliance, Inc.

Ecojuris

Harvard Institute for International Development

Hughes Technical Services Company

Interfax News Agency

International Programs Consortium, Inc.

International Resources Group, Ltd.

K & M Engineering Consulting Corporation

Ogden Environmental and Energy Services Company, Inc.

Price Waterhouse

World Wildlife Fund, Inc.



November 12, 1996

Mr. Carl Mitchell  
Contracting Officer's Technical Representative  
U.S. Agency for International Development  
ENI/EEUD/ENR  
320 21st Street, N.W., Room 4440 NS  
Washington, D. C. 20523

Dear Mr. Mitchell:

Subject: Environmental Policy and Technology Project, Delivery Order #09, Task M2, Subtask 6  
Request for Approval: Develop Moldova Analytical Chemical Equipment Recommendation

This is to request your authorization to prepare an estimate of the types and quantities of monitoring and/or laboratory equipment necessary to support improved agricultural practices and management in Moldova. A description of and justification for this request is presented in the attached document *Analytical Equipment Recommendation for Moldova*. USAID/Kyiv approval of the request is also attached for your information.

Please indicate your approval by signing and dating below and returning a copy of the signed letter to my attention. I would appreciate a response by November 19, 1996.

Sincerely,

CH2M HILL - EPT Project

Jean M. Shaikh  
Deputy Director

Request Approved By:

Carl Mitchell  
Contracting Officer's  
Technical Representative

Date: 11/21/96

Enclosures

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Environmental Policy and Technology Project  
Delivery Order #09  
Task M2.6 - Moldova

## Analytical Equipment Recommendation for Moldova

### INTRODUCTION

The Scope of Work of Delivery Order #09 (MOD3) for Moldova Task 2, Subtask 6: Monitoring Equipment and Supplies states:

*If the information developed by the contractor in the implementation of other tasks and subtasks of this delivery order indicate the need for monitoring and/or laboratory equipment, the contractor shall request from USAID/Kiev and the COTR authorization to prepare an estimate of the types and quantities of monitoring and/or laboratory equipment necessary to support improved agricultural practices and management in Moldova. Once such authorization is granted, the contractor shall provide an assessment report to USAID of such monitoring equipment and/or laboratory needs. Procurement of any monitoring equipment shall be subject to normal USAID procurement requirements.*

is described below, CH2M HILL believes that information developed in the implementation of other tasks and subtasks of this delivery order does indicate the need for monitoring and/or laboratory equipment and, in the attached letter, requests COTR authorization to prepare an estimate of the types and quantities of monitoring and/or laboratory equipment necessary to support improved agricultural practices and management in Moldova. The type of equipment to be procured will be analytical and monitoring equipment for enhancing technical capabilities in assessing environmental contamination and developing data for conducting risk assessment/analysis at strategic Moldova laboratory facilities. The Department of Environmental Protection and the Ministry of Health will be the principal counterparts/recipients and will coordinate monitoring and analyses for environmental and public health decision-making processes. Funding of about \$400,000 for this equipment, which was included in the budget for Task M1 of the original DO#09 and was, by error, not shifted to the budget for Task M2 when CH2M HILL prepared its proposed budget for DO#09 MOD3, remains. In addition, due to cost efficiencies in the implementation of other Moldova tasks and in Moldova program management, approximately \$300,000 in non-equipment funds remain in the Moldova budget and are available to support the procurement, delivery, and installation of the equipment, operator training, and for management of Subtask M2.6.

### JUSTIFICATION

The need for analytical equipment to ensure effective monitoring of demonstration project long-

term impacts is clearly documented in the *Analytical Capabilities Report*, dated June 1995 and revised October 1995, prepared under Task M2. This report contains information taken from the findings of an analytical capabilities assessment conducted in May 1995 and describes the analytical capabilities of the three Moldovan Center for Hygiene and Epidemiology laboratories in the vicinity of the three demonstration sites and of other Moldovan institutional laboratories. The assessment found that the laboratories assessed have typically focused on various drinking water parameters and have not performed the surface water or soil analyses which would be required to assess the environmental impacts of the agricultural demonstration projects. The assessment found that, while the laboratories do have the experienced personnel needed to conduct the required analyses, instrumentation at the laboratories inspected was elementary. Most analytical equipment was found to be outdated, with limited support and peripheral equipment available, and the inspected laboratories did not have acceptable reagents for analytical procedures and the standards for calibration procedures which are critical for producing accurate and precise data. The assessment concluded that the overall capabilities of the water quality monitoring and analysis laboratories were insufficient to generate environmental data of known quality and validity and that the laboratories could not produce the data needed to determine environmental impacts from agricultural operations, particularly data on insecticides, herbicides, and their degradation products.

In addition, procurement of analytical equipment under Subtask M2.6 will help achieve the primary objective of Task M1 - to introduce Moldova to the concepts and techniques of risk assessment and the risk decision-making process - by providing the analytical tools necessary to make the implementation of risk assessment methodology possible in Moldova and build on the foundation laid under Task M1 and M3 activities. One of the targets for Task M1 was that the Department of Environmental Protection (DEP) and other government agencies formally consider adoption and use of environmental risk decision-making processes as a means of prioritizing and targeting investments for environmental improvements. Achievement of this target is evident in the following:

DEP's creation of an Office of Public Information to improve public access and participation in environmental risk decision-making processes

Ministerial endorsement and implementation of a risk assessment/risk management curriculum in the higher education system of Moldova, currently involving over 600 students at 5 universities

Adoption and approval by the State Commission on Official Language of risk assessment/risk management terminology and definitions

A DEP initiative to establish an interdisciplinary environmental information/data network to enhance access and exchange of data across disciplines (e.g. agencies) for environmental analyses and management

Signing of a joint memorandum between the DEP and the Ministry of Health to coordinate efforts in investigating agricultural impacts on environmental and public

health through risk analysis, implementation of risk assessment and risk management methodologies, and creation of an integrated training program for students and post-graduates in environmental protection, Risk Assessment, and chemical investigations in the field of environmental protection and public health.

It is clear that the DEP and other government agencies have, indeed, formally considered adoption and use of environmental risk decision-making processes as a means of prioritizing and targeting investments for environmental improvements. By helping to strengthen the analytical capabilities needed to support the implementation of risk assessment/risk management initiatives, USAID, through the EPT Project, has an excellent opportunity to capitalize on and leverage the broad-based support for and interest in implementing environmental risk decision-making initiatives which the project has helped to generate.

The procurement of analytical equipment also provides the opportunity to develop linkages between Moldovan and Ukrainian counterparts in the area of environmental monitoring and analysis that will ensure a sustained regional effort in improving analytical capabilities in key agencies. Experience and results of the provision of analytical equipment under Task U4 (Kaniv Reservoir) of DO#09 would be applicable to the proposed procurement initiative in Moldova, and the proposed initiative has the potential to serve as a tangible example of regional dissemination of lessons learned and to foster regional exchange of ideas and experience between Ukraine and Moldova environmental specialists. Like Ukraine, Moldova lacks centralized analytical laboratory capabilities to serve as a benchmark in quality assurance/quality control in monitoring and chemical analyses relating to environment. Experience and lessons learned with the Kaniv Reservoir activity are transferrable to Moldova conditions, and will help to expedite implementation of assessment and procurement of analytical equipment for Moldova.

Finally this option provides an opportunity for USEPA to take on a coordination role, capitalizing on its experience and achievement in Ukraine. With USEPA involvement, the likelihood of long-term sustainability for risk assessment/risk management implementation in Moldova would increase due to strengthened relations and contacts between USEPA personnel and the environmental (health) protection community of Moldova.



ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT  
Ukraine, Belarus & Moldova Regional Office

ПРОЕКТ ПРИРОДООХОРОННОЇ ПОЛІТИКИ І ТЕХНОЛОГІЇ  
Регіональний офіс України, Білорусії та Молдови

U.S. Agency for International Development  
Regional Mission for Ukraine, Belarus & Moldova  
19 Nizhniy Val Street  
Kyiv 254071, Ukraine

7 November 1996

ENVIRONMENTAL POLICY AND  
TECHNOLOGY PROJECT

A Project Financed by  
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Проект фінансується  
Агентством Міжнародного  
Розвитку США

Serving Countries of the  
Former Soviet Union

Служить странам бывшего  
Советского Союза

Managed by CH2M HILL

Проект управляется CH2M HILL

Attention: Ms Lea Swanson

Dear Ms Swanson

Re: Delivery Order #9, Task M2, Subtask 6  
Request for Approval: Develop Moldova Analytical Chemical  
Equipment Recommendation

Following our recent discussions regarding procurement of analytical  
laboratory equipment for Moldova, this letter is to request, in accordance with  
Task M2, Subtask 6, of Delivery Order (DO) #9, your written  
"...authorization to prepare an estimate of the types and quantities of  
monitoring and/or laboratory equipment necessary to support improved  
agricultural practices and management in Moldova".

If you approve this request, please sign both copies of this letter, and return  
one to me. I will then forward a copy to our Washington office for them to  
pass on to the Contract Officer's Technical Representative with a request for  
approval. Thank you for your consideration of this request.

Sincerely yours,

Ties van Kempen, Regional Director

*I hereby approve the request to develop an estimate of the types and quantities  
of laboratory equipment for Moldova.*

Name: Lea Swanson, USAID/Kyiv

Signature:

Date: 11/12/96

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## Appendix B

### SUGGESTED LETTER OF COOPERATION BETWEEN USAID AND MOLDOVAN COUNTERPARTS

The following is a draft *Letter of Joint Cooperation* between USAID and Moldovan counterparts regarding chemical analytical equipment. The purpose of the letter is to outline responsibilities of each party with regard to equipment procurement, operation, and application.

---

[Date]

The Minister  
Moldova Ministry of Health

and

The Director  
Moldova Department of Environmental Protection

**Re: Joint activities on chemical analytical equipment for environmental monitoring**

#### **BACKGROUND**

I am writing to you in my capacity as director of the U.S. Agency for International Development (USAID) mission in Ukraine. Over the past 18 months, representatives from the Moldova Ministry of Health and Department of Environmental Protection, in cooperation with USAID and together with our Environmental Policy & Technology Project contractors (led by the company CH2M HILL International Services, Inc.), have been engaged in activities to improve Moldova's ability to its environment and natural resources more effectively. Some of these activities have involved the use of environmental health risk assessment and risk management as a means of prioritizing investments in environmental management, as well as demonstrating environmentally preferable methods of agricultural production.

USAID is now prepared to fund the procurement of chemical analytical equipment to help improve Moldova's capacity to monitor environmental pollution. Information developed through the application of this equipment can then be used to conduct health risk assessments, as a tool to evaluate and prioritize environmental issues.

I would like to take this opportunity to describe to USAID's commitment, and seek your agreement regarding its implementation.

## ACTIVITIES OF COOPERATING PARTIES

The Ministry of Health, and the Department of Environmental Protection, of the Republic of Moldova, together with USAID, have agreed to cooperate on an environmental monitoring project under the following conditions:

- **Joint Moldovan-U.S. Committee:** This will be established to supervise implementation of the cooperation project, and is to comprise representatives from the Moldova Ministry of Health, Moldova Department of Environmental Protection, and USAID's Environmental Policy & Technology Project contractor, CH2M HILL International Services, Inc.
- **Moldovan Ministry of Health, and Department of Environmental Protection activities:**
  - ▶ Agree that the primary function of USAID-funded analytical chemical equipment will be to perform high-quality monitoring in Moldova of environmental pollution, including that by agricultural activities; that monitoring information will be used to help environmental and natural resource management agencies perform their duties; and that results of monitoring activities will be made available to the scientific community and general public;
  - ▶ Provide a secure location for an analytical laboratory in which USAID-funded equipment is to be installed, and ensure that the laboratory has adequate electricity, ventilation (including exhaust hood), heating, water supply, gas supply, and waste disposal;
  - ▶ Inform USAID when it has authorized funding and/or resources for that portion of the project for which it is responsible, including use of the property in which the equipment is to be located;
  - ▶ Unload and store in a weatherproof area all equipment and materials provided by USAID and its contractors prior to their installation;
  - ▶ Securely guard, during storage and operation, all the equipment and materials provided by USAID;
  - ▶ Install all equipment, including that provided by USAID, associated with the project;
  - ▶ Pay electricity usage charges for construction and operation of the laboratory and its equipment;
  - ▶ Properly dispose of samples and expired chemicals;

- ▶ Operate the equipment and laboratory in a manner that has due regard for the health and safety of the workers and surrounding community;
  - ▶ Follow all relevant Moldovan regulations (including fire and building codes) and obtain all necessary permits and approvals to establish the laboratory and operate its equipment;
  - ▶ If necessary, to assist with customs clearance of all imported equipment and materials, and obtain waivers on Moldovan taxes; and,
  - ▶ Allow visits to the laboratory by representatives of enterprises, agencies, and organizations that may be interested in viewing the facility.
- **U.S. Agency for International Development activities:**
    - ▶ Procure and deliver analytical chemical equipment, as listed in the attachment;
    - ▶ Provide translations of equipment operating manuals into either Russian or Romanian languages; and,
    - ▶ Provide training for equipment operators.

## **SCHEDULE OF ACTIVITIES**

Both sides declare their commitment to the successful accomplishment of the joint project in the shortest feasible term, and aim for the following schedule of project implementation:

- 1 January 1997      Formation of the joint Moldovan-U.S. committee to supervise the project
- 15 January 1997      Moldovan government allocates the necessary budget for its portion of the project, and provides USAID and its contractor with written notice of these actions
- 16 January 1997      Equipment procurement process commenced
- 30 June 1997      All equipment installed and training initiated.

Ms. Lea Swanson, Director of Environmental Development in my office, will be responsible for directing USAID's activities on the demonstration project. The company CH2M HILL International Services, Inc., under contract to USAID, will actually implement our part of the project.

I have prepared two copies of this letter. Should you agree with the activities as outlined herein, I request your signed acknowledgment below, and the return of one copy (Romanian- and English-language versions) to me.

I look forward to working with the Government of Moldova in successfully implementing the chemical analytical laboratory project.

Sincerely,

**Gregory F. HUGER**  
Mission Director

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On behalf of the Government of Moldova, we acknowledge the joint activities to be undertaken with USAID regarding the chemical analytical equipment as outlined above.

[name]  
Ministry of Health

Date: \_\_\_\_\_

[name]  
Department of Environmental Protection

Date: \_\_\_\_\_

Attachment: List of chemical analytical equipment to be provided by USAID

## Appendix C

### LIST OF RECOMMENDED CHEMICAL ANALYTICAL EQUIPMENT TO BE PROCURED FOR MOLDOVA

No	Equipment Item Description	No. of Units	Cost per Unit (estimate)	Total Cost (estimate)
1	Atomic Absorption Spectrophotometer (AAS), with flame sensor and accessories	3	14,000	42,000
2	AAS lamps and standard solutions for ten heavy metal analyses	3	2,400	7,200
3	Graphite Furnace	3	8,500	25,500
4	Field (mobile) Spectrophotometer, with accessories and 4 reagent sets	3	5,000	15,000
5	Water Purification/Deionization System	1	22,100	22,100
6	Dissolved Oxygen Meter 240 V, 50 Hz	3	1,300	3,900
7	Gas Chromatograph with operating system and accessories	1	46,000	46,000
8	Computer (586) w/ laser printer	9	2,900	26,100
9	BOD Cabinet 240 V 50 Hz	3	2,350	7,050
10	Centrifuge 240 V 50 Hz (w/accessories)	2	1,650	3,300
11	Denver Balance	3	1,700	5,100
12	AA-Series Balances	3	3,300	6,900
13	pH/ISE/ deg C meter/electrode 240 V 50 Hz	4	1,875	7,500
14	Electrode Ross Combination, BNC	4	200	800
15	Tissue homogenizer 240 V, 50 Hz, 0.6A	2	600	1,200
16	Pesticide Standard Solutions	2	2,500	5,000
17	Inorganic Potable Water Standards	3	350	1,050
18	STD Math Exam WTR/Waste (#18)	3	200	600
19	UV/Vis Spectrophotometer w/ cuvettes	1	21,000	21,000
20	Pump pressure vacuum 240 V, 50 Hz	1	300	300
21	Supplies and Consumables (for analyses) to last approximately 3 years	3	18,000	54,000
<b>TOTAL</b>				<b>301,600</b>