

# **Environmental Policy and Technology Project**

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

## **UKRAINE Feasibility Report Donetsk Technical Information Center on Industrial Waste Management**

**April 1996  
Delivery Order #09, Task U1**

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

## 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 is 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 News agency
- K&M Engineering
- Ogden Environmental and Energy Services Company
- Price Waterhouse
- World Wildlife Fund (US)

For additional information regarding the EPT Project, contact the following:

United States of America

Environmental Policy & Technology Project

Head Office

1819 H Street, N W , Suite 700

Washington, DC 20006 USA

Telephone (202) 835-1450

Facsimile (202) 835-1463

Contact Dr James Westfield

Ukraine

Environmental Policy & Technology Project

Ukraine, Belarus & Moldova Regional Office

20 Esplanadna Street, 10th Floor

252023 Kyiv, Ukraine

Telephone +380 (44) 220-1367, 220-1469

Facsimile +380 (44) 220-0242

Contact Mr Ties van Kempen

Environmental Policy & Technology Project

Donetsk Project Office & Technical Information Center

131a Artoma Street

340015 Donetsk, Ukraine

Telephone +380 (622) 35-6527, 99-2372

Facsimile +380 (622) 35-6527

Contact Dr Nicholas P Cheremisinoff

## NOTE ON TRANSLITERATION

Ukrainian personal, institutional, and place names used in this document have been transliterated into the English language from the Ukrainian (not Russian) language, according to the modified U S Library of Congress standard for Ukrainian-to-English transliteration that has been adopted by many Western organizations and publications, including the *Encyclopedia of Ukraine*, 5 volumes (University of Toronto Press, 1984-1993)

# TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
Abbreviations, Acronyms & Glossary . . . . .	iv
Summary . . . . .	1
<b>1.0 Introduction . . . . .</b>	<b>2</b>
1.1 Overview . . . . .	2
1.2 Background to Technical Information Center . . . . .	2
<b>2.0 Feasibility Evaluation for an Industrial Waste Technical Information Center . . . . .</b>	<b>4</b>
2.1 Location and Physical Requirements . . . . .	4
2.2. Anticipated Functions and Services . . . . .	5
2.3 Personnel Needed . . . . .	6
2.4 Equipment Needed . . . . .	7
2.5 Budget . . . . .	8
2.6 Sustainability . . . . .	8
<b>3.0 Conclusions . . . . .</b>	<b>10</b>
<b>Appendix A: Anticipated Expenditures . . . . .</b>	<b>11</b>

## ABBREVIATIONS, ACRONYMS & GLOSSARY

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)
DO	Delivery Order
EP3	(the USAID-funded project) Environmental Pollution Prevention Project
EPT	Environmental Policy & Technology (Project); a USAID-funded program to provide environmental assistance to New Independent Republics of the former Soviet Union
HSFS	Hazardous substance fact sheet
MEPNS	(Ukraine) Ministry of Environmental Protection & Nuclear Safety
MEPNS-DO	(Ukraine) Ministry of Environmental Protection & Nuclear Safety, Donetsk Oblast
NIS	New Independent States (of the former Soviet Union)
NGO	Non-government organization
oblast	A government territorial-administrative unit in the former Soviet Union that is still in use following Ukraine's independence; a U.S. analogue would be something between a state and a county
TIC	Technical Information Center
USAID	U.S. Agency for International Development
USEPA	U.S. Environmental Protection Agency

## SUMMARY

CH2M HILL International Services, Inc. contracted with the U.S. Agency for International Development (USAID) to prepare a "Feasibility Report for a Technical Information Center" The Technical Information Center, to be located in the city of Donetsk, is to be a resource center regarding the management of industrial wastes. Its major focus is to be Donetsk oblast, which is the most heavily industrialized region of Ukraine. The center must evolve into an independent operation that will be managed by expert residents in Donetsk.

This report outlines what CH2M HILL considers to be achievable objectives in establishing the center, along with proposed approaches to developing it as an independently operating enterprise within a twelve to fifteen month period. Issues considered in evaluating the feasibility of establishing the center included:

- location and physical requirements
- anticipated functions and services
- personnel needed
- equipment needed
- budget
- sustainability.

The evaluation indicated that an industrial waste management technical information center can feasibly be established in Donetsk. USAID has set-aside sufficient funds under the Environmental Policy & Technology Project to allow the center to be established and operate for one year. Sustainability of the facility appears assured due to the involvement by Donetsk State Technical University, which stands to benefit by eventual acquisition and management of the TIC, together with its reference materials and equipment.

## Section 1

# INTRODUCTION

## 1.1 OVERVIEW

As part of a United States government bilateral assistance program, the U.S. Agency for International Development (USAID) is supporting environmental management in Ukraine. 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 Ukraine under Delivery Order (DO) No. 9. Task U-1 (Donetsk Industrial Waste Management) includes a requirement (Subtask 2.1)<sup>1</sup> for CH2M HILL to prepare and present a "Feasibility Report for a Technical Information Center". The Technical Information Center (TIC), to be located in the city of Donetsk, is to be a resource center regarding the management of industrial wastes. Its major focus is to be Donetsk oblast, which is the most heavily industrialized region of Ukraine.

This document is in response to USAID's requirement.

## 1.2 BACKGROUND TO TECHNICAL INFORMATION CENTER

Much of Ukraine's heavy industry uses technology that is outdated, and resource-intensive. Modern pollution control technology, and concepts of waste minimization and pollution prevention, are rarely used by such industries.

The role of the TIC is to provide a resource to the local community in order to help educate and keep them informed of the technologies, alternatives, and opportunities available for improving their environmental state of affairs. Specific beneficiaries of the TIC will include industry representatives, regulatory agencies (including the Ministry of Environmental Protection & Nuclear Safety -- Donetsk Oblast [MEPNS-DO] office, and the Ministry of Health's Sanitary Epidemiological Service), academic and research institutions, and environmental non-governmental organizations (NGOs). The TIC is to serve as a clearinghouse for information

---

<sup>1</sup> Subtask 2.8 of Delivery Order 9 Task U1 states: *Activity 2.8 Technical Information Center -- The contractor shall identify the opportunities for the development and start-up of a technical information resource center (preferably located at an academic institution which can serve the public, enterprise and government sectors) which can serve as a clearing house for transfer of technological information to the Oblast enterprises, the public and to the Ministry of the Environment and Nuclear Safety. The contractor shall provide technical assistance to the institution which demonstrates the best opportunity for immediate impact and sustainability of such a center. If determined necessary, the contractor shall provide telecommunications and computer support equipment which will allow the center to access other existing informational resources and/or to distribute materials. For this delivery order, the contractor shall prepare a feasibility report containing the information stated above with recommendations on how to assure the sustainability of the center.*

on environmental issues, with particular focus on industrial waste and emissions and discharges to the environment. Information to be made available is to include:

- engineering- and technology-oriented publications focussing on standard and innovative solutions to existing environmental issues
- details on the toxicity of hazardous materials and wastes, which could aid the development of both new environmental standards as well as personal exposure codes
- emergency response information that could assist both local industry and public officials in addressing a hazardous materials incident.

Additionally, through hard- and soft-ware networking opportunities to be implemented at the Center, users are to be able to identify, and in some cases access, technical information from outside the Oblast and even the country to address environmental issues and to identify cost-effective approaches to managing hazardous industrial wastes. Finally, the TIC is to offer the potential to influence the next generation of leaders since it is to be closely connected with an academic institution. Access by faculty and students to references and services of the Center may influence their curriculum and potentially identify topics of research and interaction with industry and its environmental problems.

## Section 2

# FEASIBILITY EVALUATION FOR AN INDUSTRIAL WASTE TECHNICAL INFORMATION CENTER

The chapter presents an assessment of approaches to developing and sustaining a Technical Information Center on industrial waste management in the City of Donetsk, Ukraine. The TIC must evolve into an independent operation that will be managed and operated by residents of Donetsk oblast. Issues to be evaluated in establishing an industrial waste technical information center in Donetsk include the following, which are assessed in more detail below:

- location and physical requirements
- anticipated functions and services
- personnel needed
- equipment needed
- budget
- sustainability.

## 2.1 LOCATION AND PHYSICAL REQUIREMENTS

### 2.1.1 Issue Analysis

An industrial waste TIC preferably should be located in the center of a major industrial region and readily accessible by industrial, regulatory, administrative, and research personnel. It should be large enough to house a reference collection, as well as have space for meetings, training sessions, and small conferences. In addition, it should have access to a good communications network, and be secure.

### 2.1.2 Evaluation

A location for the TIC has been identified. It is a newly refurbished two-floor premises located in a building owned by the Donetsk State Technical University. The available space is approximately 1500 square feet, with sufficient room for several offices, small conferences and seminars, plus ample space for technical reference material, computer, copier, and several desks with chairs.

The city of Donetsk itself is approximately in the geographic center of Donetsk oblast. The TIC premises is some 15-20 minutes walk from the MEPNS-DO office, and some 5-10 minutes walk from the Donetsk Oblast administration building. The premises already has protective bars on some windows, and can be further secured with steel doors and employment of a guard service during evenings and non-work days.

Electrical wiring, heating, air conditioning, and telephone communications at the proposed TIC premises are normal by Ukraine standards but poor by Western conditions, and will have to be upgraded. Electronic mail capability and access to remote electronic databases also can be facilitated by an improved telecommunications system connected to a modern desktop computer.

## 2.2 ANTICIPATED FUNCTIONS AND SERVICES

### 2.2.1 Issue Analysis

The TIC must serve as an important technical resource for both the MEPNS-DO and local industry in two ways. First, it must contain or have access to up-to-date technical literature, including reference textbooks, that will assist regulatory personnel in acquiring skills and developing definitions and approaches to managing waste and pollution problems. Second, the facility must provide a focal point, and in some cases serve as a catalyst, for local government and industry interaction on key environmental issues through planned meetings, seminars, and workshops. In this manner, the TIC will enable local industry representatives, agency personnel, scientists, consultants, and NGOs, to interact within an academic environment as opposed to a rigid or authoritative lecture hall.

### 2.2.2 Evaluation

The specific services that are planned to be offered through the TIC are

- on-site access and use of printed references
- translation services and reproduction of reference documents and reports
- on-line literature searches on external databases for technical reference materials
- chemical information hazardous properties searches and reports
- forum location for seminars, workshops and meetings.

Approximately 1,500 technical reference materials, ranging from textbooks, to specialized reports, and pamphlets, will initially be identified for acquisition by the TIC. These are to be a mixture of both generic types of references, as well as industry-specific. The sources from which these references are to be acquired include the U.S. Environmental Protection Agency's (USEPA), American Steel Institute, Chemical Manufacturer's Association, World Bank, the Ukrainian and Soviet National Academy of Sciences, reference textbooks from international publishers including Marcel Dekker Publishers, Gulf Publishing Co., Ann Arbor Science Press, Butterworth Publishers, and Noyes Publications, Inc. References are to be catalogued and placed on display and made available for viewing and use at the TIC.

An important additional reference that will also initially be acquired for the TIC is a Windows™-based software program such as RISK ASSESSOR or CHEMTOX, which is a chemical information database management tool. This type of software, designed to operate on a personal computer with a CD ROM reader, contains various details on a large number (over 5,000) different chemical compounds. These details include toxicological data, chemical and physical properties, safe handling practices, chemical incompatibility facts, and emergency response information. Such software will provide a reference for on-line searches of chemicals, and also enable the introduction of the use of Hazardous Substance Fact Sheets (HSFS) by industry users. The HSFS is essentially a Material Safety Data Sheet that can be tailored towards the specific chemicals and hazardous/toxic wastes being used or produced at an enterprise.

Following initial stocking of reference materials, orders are to be placed for additional documents on an on-going basis. Where possible, donations from publishers will be sought, or publications purchased at rates set for academic institutions, which are lower than rates set by commercial book sellers for the general public

## **2.3 PERSONNEL NEEDED**

### **2.3.1 Issue Analysis**

In order to function, the TIC must have technical, translation, support, and security personnel, as follows.

- **U.S. technical experts** must be able to discuss specific issues with industry and regulatory agency representatives, in order to then offer advice and direct them to possible sources of information that best suits their needs
- **translators** will be needed to facilitate discussions and meetings between U.S. technical experts and Ukrainian TIC users, and well as translate portions of TIC reference material into Russian or Ukrainian languages
- **support personnel** will be needed for record-keeping, document acquisition and cataloging, and cleaning and maintenance
- **security personnel** will be needed to guard the TIC, as it will house petty cash, office and communication equipment (see Section 2.5 for a list of major equipment to be procured), and technical documents.

### **2.3.2 Evaluation**

The TIC will first be financed by the USAID-sponsored EPT Project, which can initially fund the following personnel:

- a part-time TIC director, who is the EPT Project's Donetsk Resident Project Manager and is very knowledgeable and experienced in the technical aspects of industrial processes, waste minimization, and pollution prevention
- a full-time secretary, who will also serve as chief translator and TIC co-manager
- several part-time support personnel
- a security service.

As the TIC continues, a permanent Director of this facility should be identified and trained. This individual preferably should have an advanced technical degree with knowledge of the mining and metallurgical industries, as well as environmental management experience. Preferably, this candidate should initially be assigned the position as Deputy Director, so that he or she could work closely with the EPT Project's Donetsk Resident Project Manager. This

would enable the candidate to become well-versed in the environmental technical issues being addressed in the overall project

As it is the intent to develop a relatively comprehensive technical reference facility that will have both services and materials which ultimately could become part of the university's resources, the university represents the best potential eventual operator of this facility because it can assist in the daily operations, and has its own technical resources and personnel that can be used to supplement the TIC.

## **2.4 EQUIPMENT NEEDED**

### **2.4.1 Issue Analysis**

Apart from technical references and personnel, the TIC will need equipment in order that its functions can be conducted

### **2.4.2 Evaluation**

The TIC director and office staff, together with users of the facility will need to have access to a computer to conduct on-line searches of the computer databases available on these subjects. For these activities, the following computer hardware and software will be needed

- 2 x Desktop computer: Pentium, 1GB HD, 16 MB RAM, 4 speed CD ROM drive
- 2 x Monitor: 15 inch color
- 1 x Printer Hewlett Packard laserjet 5 (or equivalent)
- 2 x Software: Windows, Microsoft Office, WordPerfect 6.1, database, fax/e-mail
- 1 x Peripherals: high speed modem

The TIC will also need office and audio-visual equipment, as follows:

- Photocopier: medium speed -- 30 copies per minute (Xerox model 5332 or equivalent)
- Telephone lines, switchboard, telephone handsets, and external and internal wiring
- Fax machine Xerox model 7024 (or equivalent)
- Television and video cassette recorder (multi-system machines, capable of U S , European, and Ukrainian television formats)
- Overhead projector
- Slide projector
- Screen
- 2 x desks and office chairs
- work/conference table and chairs
- 6 x bookshelves
- heaters and air-conditioners.

Acquisition of the above-listed equipment has been approved by USAID and procurement has commenced.

## **2.5 BUDGET**

### **2.5.1 Issue Analysis**

Authorities responsible for environmental management in Donetsk presently do not have sufficient resources available to adequately fund an industrial waste technical information center. Funding from another source will be necessary to establish the TIC.

### **2.5.2 Evaluation**

An assessment was made of the funding need to establish the TIC and operate it for a year. Initially the venture will be capital-intensive, as with any new grass roots operation. The principal capital outlays will be associated with procurement of office equipment and references. From discussions with the USAID-funded EP3 personnel in Washington, D C , who have developed similar Technical Clearing House programs, an estimated US\$90,000 will be needed to establish such a center. The distribution of expenditures for the EP3 examples was approximately US\$25,000 for information sources, US\$40,000 for equipment and office supplies, and the balance of the budget devoted to promotional materials, salaries, and miscellaneous office overhead.

In the EP3 Technical Clearing House establishments, two basic models were used to establish operations. Model I involved setting up operations as an independent entity that operates much like any small business. In Model II, which appears to be the more successful approach, the Clearing House operated with a local business partner that is already in the business of marketing information and technology. For the TIC in Donetsk, Model II is analogous because of the relationship with the Donetsk State Technical University. In this case, the university represents a local enterprise that is already in the business of marketing information and technology through its education programs and placement of graduates in local industrial enterprises.

The capital investment items required for the first year of operation are summarized in Appendix A, together with the estimated monthly expenditures.

## **2.6 SUSTAINABILITY**

### **2.6.1 Issue Analysis**

Financial support for the TIC is only available from USAID until the end of 1996. During the period of USAID support, the TIC must develop and implement means of sustaining itself thereafter.

### **2.6.2 Evaluation**

The best means of promoting sustainability of the TIC is to link it with a local partner that will significantly benefit from the center, and so will have an established interest in, and commitment to, its continuation. To achieve this, the TIC will become affiliated with the Donetsk

State Technical University. The TIC is to be established within premises owned by the university, so its rent and maintenance are already be incorporated into the university's operating expenses

The university is a well-respected local institution that has contacts with the local heavy industry sector, MEPNS-DO, and professional associations such as the Ukrainian National Academy of Sciences and the Ukrainian Institute of Steel Manufacturers. Through the university introductions and contacts, the TIC can gain recognition and exposure, thus drawing many of its potential users. It is therefore planned to offer small meetings, seminars and workshops at the TIC for representatives from these organizations. The university's Vice Rector, Dr. A. Navka, in October 1995 expressed enthusiasm to the TIC's proposed director in having a co-operative series of events, and has tentatively identified topics for round table forums that include

- environmental audit workshops
- software products for waste management
- economic incentives for waste minimization
- groundwater pollution problems associated with leaking containers and impoundments
- air pollution modeling and control methodology
- hazardous waste classification problems in the steel and mining industries.

The university can provide identification of industry participants and assist in arranging the logistics of small group functions and workshops, as well as provide speakers. Funding for these activities can be derived by paid participation, which again will be a fee scale only designed to cover the costs of operations. The university's incentive to actively participate in such programs is the eventual acquisition and management of the TIC, together with its reference materials and equipment.

To supplement salaries and basic overhead of the TIC, reproduction of documents and translation services can be charged a nominal fee. The TIC can be run as a non-profit enterprise, so that costs passed on to users are based solely on the cost for labor and materials.

Beyond the present proposal, the TIC if successful could represent a profit center for the university.

### Section 3 CONCLUSIONS

This evaluation has indicated the an industrial waste management technical information center can feasibly be established in Donetsk USAID has set-aside sufficient funds under DO #9 of the EPT Project to meet the TIC budget presented in Appendix A in order to allow the center to be established and operate for one year. Sustainability of the facility appears assured due to the involvement by Donetsk State Technical University, which stands to benefit by eventual acquisition and management of the TIC, together with its reference materials and equipment.

## Appendix A

### ANTICIPATED EXPENDITURES

The estimated cost of establishing and operating the Donetsk industrial waste management technical information center for one year are presented in the following tables.

**TABLE A1  
CAPITAL AND LINE-ITEM EXPENSES**

DESCRIPTION	ESTIMATED COST (US\$)
Office safe for documents and petty cash	1,500
Office furniture for TIC staff	4,000
Computers and peripherals for TIC director, secretary, and translators	15,000
Software for database management and information searches	1,000
Audio-visual equipment for workshops and seminars	5,000
Telephone switchboard and handsets	3,500
Photocopier, fax machine, and service contracts	12,000
Security alarm system	3,000
Bookshelves, filing cabinets, conference furniture	5,000
TIC reference documents	20,000
Chemical reference software plus licenses	3,000
Upgraded wiring, heating, and air-conditioning	5,000
Upgrade telecommunications lines	8,000
<b>TOTAL</b>	<b>86,000</b>

**TABLE A2  
ESTIMATED MONTHLY TIC OPERATING EXPENSES**

DESCRIPTION	ESTIMATED COST (US\$)
Director salary (prorated to 30 % of Donetsk Resident Manager's time, including cost multiplier)	4,000
Full-time secretary/translator (including cost multiplier)	1,600
Part-time translators/staff (including cost multiplier)	1,000
Utilities and telecommunications	1,500
TIC premises space lease	1,000
TIC office supplies	500
<b>Total</b>	<b>9,600</b>

**TABLE A3  
TOTAL TIC CAPITAL & OPERATING COSTS FOR ONE YEAR**

DESCRIPTION	ESTIMATED COST (US\$)
Capital and line-item costs (see Table A1)	86,000
Monthly operating cost (see Table A2) x 12	115,200
<b>TOTAL</b>	<b>201,200</b>