

# Strategies to Enhance Environmental Security in Transition Countries

Edited by

**Ruth N. Hull**

Cantox Environmental Inc.  
Mississauga, Canada


**Constantin-Horia Barbu**

"Lucian Blaga" University of Sibiu  
Sibiu, Romania

and

**Nadezhda Goncharova**

International Sakharov Environmental University  
Minsk, Belarus

 Springer

Published in cooperation with NATO Public Diplomacy Division

## 30. ENVIRONMENTAL SECURITY IN TRANSITION COUNTRIES: KNOWLEDGE GAPS, HURDLES, AND EFFECTIVE STRATEGIES TO ADDRESS THEM

SUSAN ALLEN-GIL\*

*Environmental Studies Program, Ithaca College, Ithaca,  
NY 14850, USA*

OLENA BORYSOVA

*Kharkiv National Academy of Municipal Economy, Dept.  
of Environmental Engineering and Management, 12 Revolutzii  
str Kharkiv 61002 Ukraine*

**Abstract:** Achieving environmental security, which addresses the negative impact of human activities on the environment, direct and indirect effects of environmental scarcity and degradation, and the insecurity individuals and groups experience due to environmental change, is a critically important issue for transition countries confronting postindustrial pollution and/or resource scarcity. For some countries, knowledge gaps in how to apply scientific information to public policy present a formidable obstacle. In other cases, the rapid rate of political and economic change hinders the ability of jurisdictions to tackle complex environmental problems on large spatial or temporal scales. Also, the lack of a strong economy and funding limits the progress in remediating postindustrial contaminated sites. Effective strategies to overcome these knowledge gaps and implementation hurdles include using risk assessment to identify priority issues and/or sites, and to use entry into the European Union (EU) as a lever to implement and enforce legislation that will ensure environmental security.

**Keywords:** challenges; strategies; education; policy; management

\*To whom correspondence should be addressed. Susan Allen-Gil, Environmental Studies Program, Ithaca College, Ithaca, NY 14850 USA

## 1. Introduction

As regionalization through the expansion of the European Union (EU) and globalization through international trade and tourism expand, environmental concerns tend to become increasingly complex and cover large spatial and temporal scales. Since the preindustrial times, environmental concerns have grown from localized pollution issues (such as cholera in drinking water and industrial urban smog) to global concerns regarding ozone depletion, climate change, and loss of biodiversity. The sheer number of environmental problems, the ways in which they interact with each other, and the potential for global ecological collapse makes environmental security a priority for all nations. The goal of environmental security is to protect people from the immediate and long-term ravages of nature, human-induced threats to nature, and deterioration of the natural environment (Barbu et al., 2007, this volume). It encompasses concerns about the negative impact of human activities on the environment, direct and indirect effects of environmental scarcity and degradation, and the insecurity individuals and groups experience due to environmental change such as water scarcity, air pollution, and global warming (Barbu et al., 2007, this volume). The importance of environmental security is evident in the joint development among the United Nations (UN), North Atlantic Treaty Organization (NATO), and other regional consortiums of the Environment and Security Initiative (EnvSec), which focuses on assessment of environmental and security risks, and capacity building, and institutional development to strengthen environmental cooperation as well as integration of environmental and security concerns and priorities in international and national policy making (Ozunu et al., 2007, this volume).

Issues of environmental security are particularly acute in transition countries where there is a legacy of severe industrial pollution almost unparalleled anywhere in world, a very rapid rate of cultural and economic change, and often insufficient financial resources and managerial expertise to adequately address them. For example, the Copsa Mica region of Romania is heavily polluted from previous lead smelting and carbon-processing operations. The spatial scale of contamination is so large that soil cleanup is economically prohibitive. The loss of other economic opportunities in the area has raised local unemployment to 60%, resulting in community support for reopening the smelter under new management (Gurza, 2006, Sibiu Romania personal communication). This is just one example of the processes and challenges taking place from Eastern Germany to the Ural Mountains.

The participants of the Advanced Research Workshop were divided into two Working Groups (see Appendix A). The first group summarized the challenges facing transition countries, as well as some strategies to address these challenges. The second group proposed a path forward to apply these strategies and methods in a case study.

## 2. Knowledge Gaps and Hurdles

Achieving environmental security in transition countries is exceedingly challenging at present, in part because of the knowledge gaps and hurdles to effective practices and strategies.

The largest knowledge gap is in how to approach complex environmental problems. Soviet bloc scientists have strong technical knowledge in hard sciences, but translating that knowledge into public policy is not easy. The education system under the former Communist bloc emphasized natural history and detailed investigations of specific biological, chemical, and physical processes with insufficient attention to the interactions among them. Additionally, tradition of interdisciplinary education and research that looks into relations between ecological and social processes is younger than in the Western countries. Problem-solving and managerial skills were also never high on the university education agenda. There have been two significant consequences: (1) there is a disconnect between the basic science and the ability to apply it to solve complex, large-scale problems (2) policy makers are typically ill-equipped to approach concerns from an interdisciplinary perspective. This will require a continued education of scientists and policy makers to bridge the basic and applied sciences, and a retooling of environmental curriculum in higher education in transition and countries of the former Communist bloc toward a more interdisciplinary and applied approach.

The biggest hurdles to environmental security are great inefficiency and ineffectiveness of responsible structures resulting from little cooperation among different levels of government, when managers and rules are in constant flux because of the rate of political and economic change.

Lack of a strong economy and funding is clearly one the greatest limitations to cleaning up postindustrial contaminated sites. Even with significant international assistance, cleanup efforts have been inadequate due to the enormity of previous pollution, especially in areas of the "Black Triangle" (Malina, 2007, this volume) and due to the very character of environmental problems that cannot be solved overnight and therefore pose a threat to future generations. Another problem in Romania and other transition countries is that international organizations are not very effective because they usually are not familiar with business and management policies within the country and lack coordination among themselves.

Lack of a strong economy also hinders moving toward environmental security because poverty and social unrest can result in continued environmental damage out of individual desperation. Without concurrent social and economic programs, environmental concerns cannot be expected to improve and environmental security will remain elusive. It is difficult (and probably unfair) and unreasonable

to expect people who spent more than 70% of their budget on food (statistics true for more than half of the population of transitional countries) to have environmental quality as their first priority. The consequence is that the level of awareness and recognition of environmental values in transition countries is relatively low, and this points to the crucial role of education once again.

### 3. Effective Strategies

While it is not possible to correct over 50 years of industrial pollution in a matter of a few years, there are some strategies to effectively remediate polluted sites, minimize future environmental concerns, and move toward greater environmental security.

Given the abundance and severity of polluted sites, it is important to adopt a general method to approaching environmental problems. One effective strategy to approach environmental concerns and identify local, regional, or international priorities is risk assessment. Risk assessment is a step-by-step process to compare the relative risks of taking various actions with respect to cleaning up contaminated areas (Swanson, 2007, this volume). Risk assessments can be conducted on various levels, from very broad-scale investigations comparing different sites to very detailed species-specific analyses within a particular site (Semenzin et al., 2007, this volume; Hull et al., 2007, this volume). This approach can be very powerful where finances to restore an area to pristine conditions are not available, and prioritization of actions for human health or ecological protection must be identified. The next step in an effective strategy is to rely on a combination of national and international expertise, if the appropriate academicians can be identified to provide specific cleanup advice at minimal cost. Educational institution and volunteer organizations can also assist in providing maximum cost efficiency.

While cleaning up polluted sites to prevent ongoing or additional contamination, it is also imperative that future activities are conducted in such a way that environmental concerns are minimized. To this end, one effective strategy is to use entry into the EU as the incentive and the EU mandates as the model for national environmental management and legislation. Before transition countries can apply to join the EU, they must demonstrate that they will be able to conduct business and ensure environmental protection at EU standards. This has prompted many countries, such as Romania and Bulgaria to adopt more stringent environmental legislation. In countries such as Russia or Moldova, where EU membership is not being pursued, enforcement of environmental legislation is typically insufficient.

Adopting best EU practices could be very efficient, especially when it comes to managerial and decision-making processes where changes could be introduced (given there is a political will) through awareness raising, training, and information dissemination. Such changes may not require huge technical resources but may have impacts far more significant for environmental security than any actual cleanup activities. One example of a proactive approach toward environmental problems is strategic environmental assessment (SEA) that aims to streamline and elevate environmental issues in the decision-making process. SEA is the formalized, systematic, and comprehensive process of evaluating the environmental impacts of a policy, plan, or program and its alternatives, including the preparation of a written report on the findings of that evaluation, and using the findings in publicly accountable decision making (Therivel et al., 1992). SEA has gained recently a reputation as an effective and efficient sustainability development tool, and its introduction in the planning and decision-making context of transition countries might prove very beneficial (Borysova, 2007, this volume).

Application and entry to the EU usually results in accelerated national and international economic activity. Although it is unlikely that investors will be in the position to provide enough funding to remediate formerly polluted sites, some of the profits from foreign investment should be used to develop standards for environmental policies and provide local, community-based environmental programs. Funding for environmental security must rely partially on the private sector, as national and international funding has been insufficient to date. In some countries, however, private business can, and does, play a vital role in addressing environmental concerns.

### 4. Conclusions

The knowledge and approaches described in this chapter, and discussed at the Advance Research Workshop can and should be tested. We propose doing so using a case study approach. A good case study would:

- Focus on a site with a broad range of issues (e.g., several contaminated media) or multiple stressors (e.g., radiation and metals)
- Address transboundary issues
- Be conducted in a transparent manner, and involve stakeholders (including government and universities)
- Allow for practical implementation or practical results
- Develop methods suitable for transition countries
- Stimulate networking among scientists of transition countries

- Disseminate the results widely (media, or government, or wider scientific community), with effective communication methods according to the audience (e.g., webpage, public meetings)
- Leave a legacy (e.g., knowledge and equipment)

Remediating heavily contaminated sites and minimizing future environmental impact are important, but will not in and of themselves provide true environmental security. This security can only be provided when the mind-sets of the people and the politicians include ecological and environmental health as a priority. This will require an aggressive education campaign in which environmental literacy is embedded in public education, environmental concerns are brought to the attention of the public and government, and managerial and decision-making skills are reinforced. It will also be critical that public citizens are included as active stakeholders in environmental policy at the local, regional, and national levels.

## References

- Barbu, C.-H., Sand, C., Oprean, L., 2007, Introduction to environmental security, in: *Strategies to Enhance Environmental Security in Transition Countries*, Hull, R., Barbu, C.-H., Goncharova, N. (eds.), NATO Security through Science Series C, Environmental Security, Springer, Dordrecht.
- Borysova, O., 2007, Potential of strategic environmental assessment as an instrument for sustainable development of the countries in transition, in: *Strategies to Enhance Environmental Security in Transition Countries*, Hull, R., Barbu, C.-H., Goncharova, N. (eds.), NATO Security through Science Series C, Environmental Security, Springer, Dordrecht.
- Hull, R.N., Barbu, C.-H., Hilts, S.R., 2007, Which human and terrestrial ecological receptors are most at risk from smelter emissions? In: *Strategies to Enhance Environmental Security in Transition Countries*, Hull, R., Barbu, C.-H., Goncharova, N. (eds.), NATO Security through Science Series C, Environmental Security, Springer, Dordrecht.
- Malina, G., 2007, Integrated management strategies for environmental risk reduction at post-industrial areas, in: *Strategies to Enhance Environmental Security in Transition Countries*, Hull, R., Barbu, C.-H., Goncharova, N. (eds.), NATO Security through Science Series C, Environmental Security, Springer, Dordrecht.
- Ozunu, A., Cadar, D., Petrescu, D.C., 2007, Environmental security – priority issues and challenges in Romania and European transition countries, in: *Strategies to Enhance Environmental Security in Transition Countries*, Hull, R., Barbu, C.-H., Goncharova, N. (eds.), NATO Security through Science Series C, Environmental Security, Springer, Dordrecht.
- Semenzin, E., Critto, A., Marcomini, A., Rutgers, M., 2007, DSS-ERAMANIA: a decision support system for site-specific ecological risk assessment of contaminated sites, in: Hull, R., Barbu, C.-H., Goncharova, N. (eds.), *Strategies to Enhance Environmental Security in Transition Countries*, NATO Security through Science Series C, Environmental Security, Springer, Dordrecht.

- Swanson, S., 2007, A Process for focusing clean-up actions at contaminated sites: lessons learned from remote northern sites in Canada, in: *Strategies to Enhance Environmental Security in Transition Countries*, Hull, R., Barbu, C.-H., Goncharova, N. (eds.), NATO Security through Science Series C, Environmental Security, Springer, Dordrecht.
- Therivel, R., Wilson, E., Thompson, S., Heaney, D., Pritchard, D., 1992, *Strategic Environmental Assessment*, Earthscan, London.