

Appendix H: Materials for Teachers

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Class Discussion Notes

Nearly all people share an almost instinctive perception that hazardous substances are bad for humans, animals, plants, and the environment, and that too much exposure to them should be avoided. Serious debates arise when policy-makers move from these generalities to the specifics of defining what particular things, elements, or chemical compounds should be defined as hazardous, and determining how much exposure is too much.

The case summary deals with international efforts to develop some degree of common regulation regarding four distinct types of hazardous substance: pesticides, persistent organic pollutants, other hazardous substances, and hazardous wastes. Class discussion can begin by focusing on the types and asking:

1. Why were pesticides, persistent organic pollutants, other hazardous substances, and hazardous wastes singled out for so much international attention?

This discussion should let students consider what made these different from other materials and chemicals that raise no objections, such as ordinary wood, clothes, perfume, or beer.

Since discussion of hazardous substances often inspires calls for banning them altogether, it is worth asking:

2. If you could impose a total ban on the making and using of one, but only one, hazardous substance, what would it be?

This should trigger different responses, which can lead to a discussion revealing why students regard one nasty substance as worse than others. This then leads into the next question:

3. Why do people in different countries have different priorities regarding regulation of hazardous substances?

This should lead to identification of several explanatory factors. One is variation in climate: there is greater interest in keeping DDT in tropical countries where malaria mosquitos can be active and breeding year-round; workers in hot climates might not wear their protective gear. Another is variation in economic activity: heavy pesticide use affects rural populations more than urban ones; workers in some jobs are more exposed to hazards than workers in others. Another is awareness of hazard: though Rachel Carson pointed out general pesticide hazards in 1962, concern about pesticide use in developing countries rose in the late 1970s and early 1980s; Arctic peoples became concerned after outsiders' studies showed the heavy concentrations of PCBs in their bodies. The Arctic example is particularly interesting because the toxicologists who did the first studies of Arctic communities chose to serve as baselines for comparison with others; they assumed distance from industrial activity meant Arctic populations would have low exposures.

Since developing international agreements requires a fair amount of consensus among governments and peoples about what is hazardous, a consideration of differences also raises the question of how agreement emerges. This can be explored by asking:

4. How do governments agree on what substances will be classified as hazardous?

This will get students thinking about the dynamics discussed in the case summary: the role of transnational advocacy groups in spreading the word about hazards, the role of scientists in assessing the degree of hazard and in identifying ways that hazards can be reduced, and the impact of different stakeholders – industry groups, consumers, workers, people living near pesticide applications, chemical plants, or waste recycling, reprocessing, or disposal sites. It is important to highlight the different levels of access to scientific information enjoyed by different governments. The situation is not as uneven as it was twenty or thirty years ago, but larger or wealthier countries have more people able to handle scientific information well than smaller or poorer ones.

If there is time, you may want to explore the impact of decision-making rules. Most treaty created international expert groups are supposed to operate by consensus, recommending inclusion of a material, element, or chemical compound on the list of hazardous ones only if all members agree. Such a rule does create the possibility of one expert holding up a decision. As noted in the case summary, advocacy groups often attribute this to non-scientific motivations. Yet, governments prefer the consensus rule. This leads to a fifth question:

5. Since consensus means one member can stop a decision, why do governments use that rule?

Some will say “because corporate (or industry) interests want it that way.” Encourage them to get beyond that response to consider the costs and efforts involved in enforcing any restrictions adopted. Exercise 1 provides a good assignment if you want to have this discussion.

Exercise 1: Identifying Illicit Imports

Individuals and companies engaged in illegal waste trade will try to hide their activities, and this poses real challenges for customs officials. Even when the activities are detected, the hazardous nature of the waste intercepted needs to be determined in a manner providing evidence of hazard that will be accepted in court.

Here is an excerpt from a ruling by the Supreme Court of India in the case of Research Foundation for Science Technology and Natural Resources Policy vs. Union of India & Anr. (2005 *All India Reports* 1162), which involved importation of waste oil. After reading the excerpt, explain:

- 1) How the suspect shipments were identified
- 2) How Indian law enforcement authorities secured sufficient evidence for the court.

 The report of the Commissioner of Customs sets out a brief history of the case, history of various Conventions and Laws formulated thereupon from time to time, correlating the same to the various test findings.

The brief history, inter alia, states that:

In the month of August-September 2000, the Central Intelligence Unit, New Custom House, Mumbai developed intelligence that large volumes of Furnace Oil were to be imported as containerized cargo, at the Jawaharlal Nehru Port at undervalued prices. Accordingly the Central Intelligence Unit maintained a discreet watch at such consignments of Furnace Oil imported at JN Port. Emphasis was laid on Furnace oil stuffed in containers, as the same was quite unusual. Furnace Oil is basically imported in bulk on account of its large volumetric requirements by the industry and its relatively low value makes its import as containerized cargo economically unviable unless the value is suppressed, or some other mis-declaration was restored to, to offset the increased cost of packing and transportation in containers. True to the intelligence gathered, a large number of consignments of Furnace oil, packed in containers arrived at JN port in Aug-Sept and the same were detained for further investigation. In all these cases the declared prices were in the range of US\$90 to \$125 per MT as against the erstwhile international price of US\$150, when imported in bulk.

During the course of the investigation, samples were sent to the departmental laboratory for conducting tests. The standard reference parameters available pertained to those of Fuel Oil under BIS 1593-1982. Under these standards certain characteristics like Acidity, Ash content, Flash point, Kinematic viscosity, Sulphur content and Water content for Fuel oils have been prescribed by the Bureau of Indian Standards and depending on the specifications the fuel oils get divided into four grades. It is pertinent to note that these standards do not define waste oil or hazardous wastes.

Initial testing of samples, by the Custom House Laboratory, drawn from some of the consignments indicated that the goods were not Furnace oil. The Laboratory, however,

could not categorically state whether the samples were used/waste oil, as they did not have the standards/specifications of used/waste oil. Inquiries made with I.O.C. and H.P.C.L also revealed that though they could test and report whether the oil was conforming to the standards of Fuel/Furnace oil but they were not in a position to state whether the same were used/waste oil. As categorical test reports were not forthcoming it was decided to get the samples tested and an opinion obtained from the Central Revenue Control Laboratory (CRCL), New Delhi. Fourteen samples, pertaining to Vidya Chemical Corporation, PCS Petrochem, Shiv Priya Overseas, Royal Implex, Eleven Star Escon and Valley International, were accordingly forwarded to CRCL for testing and their opinion on 24.08.2000. The test results forwarded by the CRCL in all the 14 samples indicated that none of the samples tallied with the specifications of Furnace Oil and all were off-specification material i.e. waste oil. Thereafter the CIU seized all the consignments involving 158 containers. One consignment comprising of 25 containers was conditionally released on execution of Bank Guarantee for the differential Duty. Thus a total of 133 containers were left.

On 5.10.2001 the MPCB forwarded a final report from the IIP to the Custom House wherein it was stated that the halogen content tests were done at the Shriram Institute of Industrial Research (SIIR), New Delhi and the PCB content tests were done at the National Institute of Oceanography, Goa. The report concluded that all the 20 samples sent to the IIP were found to be hazardous.

How to Use the Case Materials

The IDEESE International Trade in Hazardous Chemicals and Wastes case includes seven appendices so that instructors may use the case for a variety of purposes. The following list describes the more popular approaches for using the case and recommends the best appendices for each approach.

Approaches to Teaching Ethics with this Case:

1.) International Accountability

International-level mechanisms that hold researchers, research institutes, firms, or others accountable to society are often misunderstood or ignored in current science and engineering curricula. This case can be used to discuss international mechanisms of accountability operating through transnational issue campaigns, intergovernmental organizations and treaty-based multilateral policy coordination efforts on particular policy issues. Discussion of treaty-based policy coordination could concentrate on understanding the workings of one of the conventions, or compare any two or all three.

Recommended Appendices:

- Appendix A: Chronology
- Appendix C: Basel Convention
- Appendix D: Rotterdam Convention
- Appendix E: Stockholm Convention

2.) Transnational Diffusion of Ideas and Practices

Understanding the processes by which ideas and debates diffuse across countries is an important precursor to understanding several concepts and issues in international ethics. This case can be used to trace how what began as an uncoordinated and scattered set of national listings of pesticides and other hazardous chemicals has over time become a fuller and more standardized global list through the efforts to FAO and UNEP, the initial voluntary PIC regimes, and the process for listing pesticides and chemicals in the Annexes of the Rotterdam and Stockholm Conventions.

Recommended Appendices:

- Appendix B: General Information
- Appendix D: Rotterdam Convention
- Appendix E: Stockholm Convention

3.) Variation in International Regulatory Processes

Governments address variations in their national regulatory processes that are perceived to be causing problems or limiting the attainment of desired results through international policy coordination. This case may be used to examine variation in multilateral intergovernmental organizations, with a particular focus on two United Nations agencies (FAO and UNEP), on three multilateral treaties (Basel, Rotterdam, and Stockholm Conventions), on one case of strong difference between regional and global level approaches (African Union and Bamako Convention/UN agencies and Basel Convention), or on one case of a regional process influencing global ones (role of OECD on chemicals and wastes).

Recommended Appendices:

- Appendix A: Chronology
- Appendix B: General Information
- Appendices C-D: as relevant to the comparison to be pursued in class

4.) Responsible Participation

Scientists and engineers participate in international regulatory processes in a variety of ways. This case may be used to better define responsible by focusing on the roles of the scientifically-trained individuals active in the transnational campaigns against pesticides and hazardous chemicals (Oxfam in the 1980s, the UK-based Pesticides Trust, the Pesticides Action Network) and the experts participating in the international committees recommending chemicals for listing (the UNEP-FAO Joint Group of Experts committees, the Rotterdam and Stockholm Convention advisory bodies).

Recommended Appendices:

- Appendix A: Chronology
- Appendix D: Rotterdam Convention
- Appendix E: Stockholm Convention

5.) Ethical Conflict Between Nations

Developing effective international level regulatory responses is particularly difficult when national ethical preferences collide. This case can be used to develop sensitivity to these difficulties.

Recommended Appendices:

- Appendix A: Chronology
- Appendix B: General Information

6.) Stakeholder Inclusion

The social context of science and engineering includes many actors. This case can be used to define and identify stakeholders in various contexts and explain a model of social mobilization.

Recommended Appendices:

- Appendix A: Chronology
- Appendix G: Stakeholders and Social Concerns

7.) Social Equity

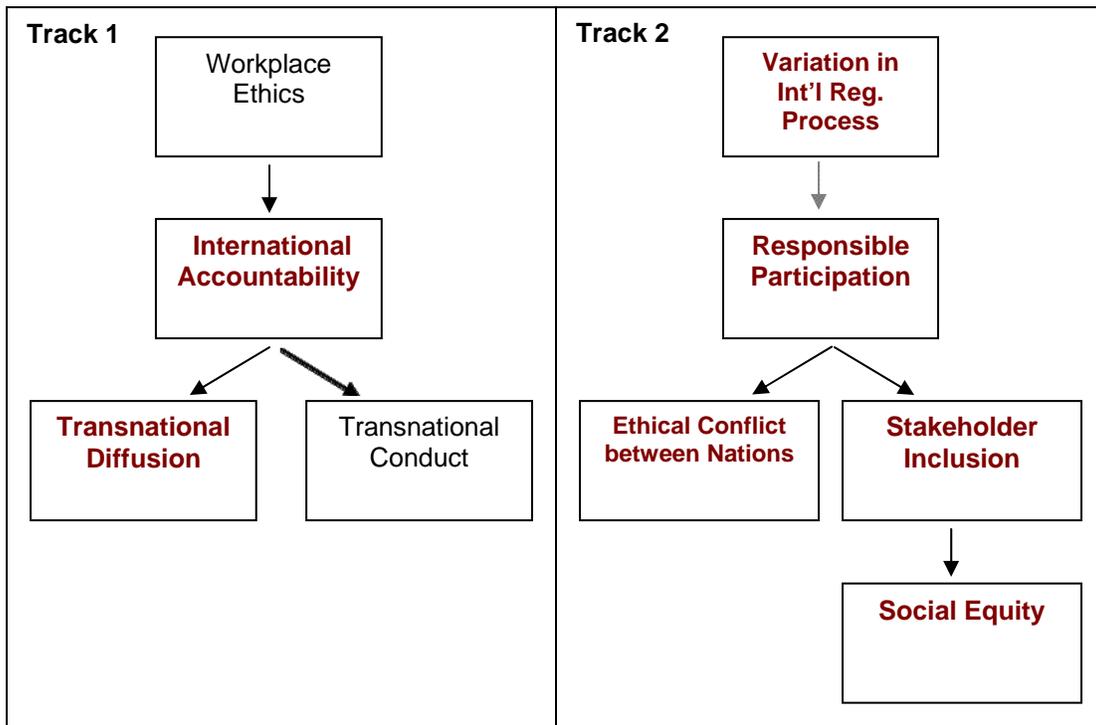
Transnational scientific and engineering activity has effects on social equity. This case can be used to examine international-level mechanisms for raising social equity concerns including global multilateral organizations, regional multilateral organizations, transnational policy advocacy, transnational social mobilizations, and elite interchange.

Recommended Appendices:

- Appendix A: Chronology
- Appendix G: Stakeholders and Social Concerns

A sequence of discussions

In a series of class sessions organized to follow the tracks of responsible conduct of research and responsible participation in policy, this case could be used in the following places in each sequence:



Recommended Readings

For Students and Instructors

Elizabeth R. DeSombre. 2006. *Global Environmental Institutions* (London and New York: Routledge), Chapter 2 (an overview of UN bodies dealing with environmental issues) and 6 (summarizes developments on hazardous substances through late 2005).

Henrik Selin. 2010. *Global Governance of Hazardous Chemicals* (Cambridge, MA: MIT Press). A more detailed look at the international negotiations, covering developments through late 2009. The whole book will appeal to those deeply interested in the subject. Pages 102-107 provide a nice summary of the politics in the Rotterdam Chemical Review Committee; pages 123-129 discuss the process of identifying POPs to include in the LRTAP Convention protocol; pages 143-150 discuss the process of identifying POPs to be covered by the Stockholm Convention and linkage between regional and global POPs rules.

J. Jeraratnam. 1990. "Acute pesticide poisoning: A major global health problem." *World Health Statistics Quarterly* 43 (3): 139-144. An assessment of the situation in the late 1980s when the international negotiations were picking up momentum.

Bruce Rodan and others. 1999. "Screening for persistent organic pollutants: Techniques to provide a scientific basis for POPs criteria in international negotiations." *Environmental Science and Technology* 33(20): 3482-3488. An effort to provide science-based guidelines for determining which substances should be banned.

Harold M. Cota and David Wallenstein. 2005. "Hazardous Waste Management." In Richard C. Dorf, ed., *The Engineering Handbook*, 2nd edition. Boca Raton, FL: CRC Press. An overview of the field accessible to non-engineers.

For Instructors

Pia M. Kohler. 2006. "Science, PIC and POPs: Negotiating the membership of the Chemical Review Committees under the Stockholm and Rotterdam Conventions." *Review of European Community and International Environmental Law* 15(3): 293-303. Deals with the political contentions that shape the membership of international scientific advisory bodies, using hazardous substance regulation examples.

P. Sandin, M. Peterson, S.O. Hanssen, C. Rden, and A. Juthe. 2002. Five charges against the precautionary principle." *Journal of Risk Research* 5(4): 287-299. A defense of the precautionary principle against criticisms that it promotes overly rigid and anti-scientific approaches to analysis of environmental risks.

Ronald B. Mitchell. 2003. "International environmental agreements: A survey of their features, formation, and effects." *Annual Review of Environment and Resources* 28: 429-61.

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