Appendix H: Materials for Instructors

M.J. Peterson

Version 1; September 2010

Appendix Contents:

- 1.) Teaching Notes
- 2.) Exercise 1: Identifying Dam Project Stakeholders
- 3.) Exercise 2: A proposed forum for public discussion of proposed dams
- 4.) How to Use the Case Study

This case was created by the International Dimensions of Ethics Education in Science and Engineering (IDEESE) Project at the University of Massachusetts Amherst with support from the National Science Foundation under grant number 0734887. Any opinions, findings, conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation. More information about the IDEESE and copies of its modules can be found at http://www.umass.edu/sts/ethics.

This case should be cited as: M.J. Peterson. 2010. "Narmada Dams Controversy." International Dimensions of Ethics Education in Science and Engineering. Available www.umass.edu/sts/ethics.



Teaching 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 that 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: Who is a Stakeholder in a Dam Project?

Instructions: Put an X in the directly or not directly affected boxes as appropriate. Rank the relative stake of each stakeholder in the "relative stake" column as high, medium, or low.

Person, group, organization	Affected?		Relative
-	directly	not directly	stake
dam owner			
dam builders			
dam operators			
local fishermen			
residents in areas to be flooded by waters held back by the dam			
residents of areas that will be immediately adjacent to waters retained behind the dam			
residents of areas near the river immediately below the dam			
residents of areas 50 miles upriver of the dam			
residents of areas of the water basin draining into the river			
residents of areas receiving water through irrigation canals filled from the dam reservoir			
government of a city 150 mi/240 km away			
national government			
government of a neighboring country			
electric company			
farmers in area			
local small businesses			
factories 150 mi/240 km from the dam			
railroads, trucking companies, and bus lines serving cities along the river			

Exercise 2: A Proposed Forum for Stakeholder Discussions

In a wide-ranging discussion of the Narmada Dams Controversy as it stood in 1990, before the World Bank had ended involvement in the project, Dattaprasad Dabholkar argued that the country would be able to decide what to do if the various claims about environmental impact of the dams and treatment of oustees were debated in public discussion before professional bodies, with the members of the professional body using their expertise to comment on and ask questions about the claims, and help move everyone towards a shared sense of the factual matters involved that would be fully reported in Indian media:1

We have to accept the fact that the modern world has to depend on specialized experts. It is quite possible that they also might commit serious mistakes through overconfidence or through over-site or because they have to save-guard their own self-interest or vested interests of some groups who might be pressurising them. While investigating a controversy like the Narmada Project controversy, one gets the feeling, over and over again, that we must be able to devise some method to settle it to the satisfaction of at least impartial people. While I was on the hot trail of this quest one point was repeatedly being made by many. It was that it should be possible to publicly debate these issues before the representatives of the professional bodies competent in the concerned field of controversy. The government and the anti-damn people may present their scientific counter-arguments. It is quite possible that such a discussion may not lead to an agreed consensus. But in any case, the real issues will be seen in clearer perspective.

One important advantage will be that unnecessary heat will not get worked up in the controversy. When the participants know that they have to argue at their case before knowledge of experts, they will have to be less emotional and more scientific. Neither of the two sides is very careful about this at present. We have already seen that the Forest Department can throw out an off-hand figure of the value of forest as Rupees 12.7 million per hectare. We have also noticed that a great engineer like Khosla can commit mistakes about the pace of siltation through over-confidence. This only means that the activists and others must humbly accept that we are likely to commit much greater blunders while forming our opinions. Baba Amte is a respected name. However, as seen earlier he has also committed a very gross mistake while considering the accumulation of silt in the dam.

We should therefore welcome the organization of such a forum. One positive result of the agitation of the activists is that the government officials and technicians are eager, or at least inclined, to have such a dialogue. ...

The activists should look at the positive side of such suggestions. It is no doubt important that the projects are correctly devised, but it is also equally important that these get speedily executed. Our government machinery, as it is, is already slow and adopts dilatory tactics. Sardar Sarovar project was first mentioned by Sardar Villabhabhai Patel in 1947. The foundation stone was laid by Jawaharlal Nehru on April 5, 1961. The Narmada Project Commission was appointed in 1969. The Commission submitted its report 10 years later in 1979. The Government of India sanctioned this project in 1987. The planning commission gave its clearances in October 1988 and now some of us are working up agitation to stop this work and are running about telling the World Bank and

¹Dattaprasad Dabholkar. 1993. Oh Mother Narmada ..., (New Delhi: Wiley Eastern Ltd), pp. 93-94

the American senators to stop aid to this project. The real need of this country is to conceive development projects, have these thoroughly examined and get these executed. All this must be expeditiously done. If we need pressure groups and professional forms it is to compel and not to stall the execution of projects. How long are the Indian masses going to wait?

What professional associations would provide good forums for having a discussion about the Narmada Project's environmental and social impacts? Explain in 2 or 3 sentences why you believe each would provide a useful forum likely to be credible to the "impartial" citizens who have not developed strong views on the project.

Narmada Dam Controversy: How to use the case materials

The IDEESE Narmada Dams Controversy 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.

Five Approaches to Teaching Ethics with the Narmada Dams Controversy Case:

1.) International Accountability

International-level mechanisms that can be invoked to hold national decision-makers and their expert advisers accountable to society are often misunderstood or ignored in current science and engineering curricula. This case can be used to discuss the ways in which local stakeholders who feel unfairly excluded from the policy-making process within their own country can link up with transnational advocacy groups to secure a greater role in discussions at home.

Recommended Appendices:

Appendix 1: Chronology Appendix 6: Readings

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 understand the process by which newer, more nuanced, views regarding the net benefits of large dam projects were diffused transnationally through water policy researchers, the World Commission on Dams, and the follow-up Dams and Development Project.

Recommended Appendices:

Appendix 1: Chronology

Appendix 3: Indian Water Policies

Appendix 7: Current Practice regarding Large Dams

3.) Responsible Participation

Scientists and engineers participate in international regulatory processes in a variety of ways. This case may be used to better define participation, particularly *responsible* participation, by delineating several categories of participation: epistemic communities, professional associations, scientists as citizen-advocates, scientists as employees of private organizations, and scientists as government officials. It can also be used to examine the various channels of influence open to each type of participation.

Recommended Appendices:

Appendix 1: Chronology

Appendix 2: Indian Tribunal Decisions Appendix 4: The Major Narmada Dams

4.) 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 1: Chronology

Appendix 6: Reading on Stakeholders Exercise 1: Defining Stakeholders

5.) 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, particularly through pressure on the multilateral development banks and the governments of states most influential in MDB decision-making.

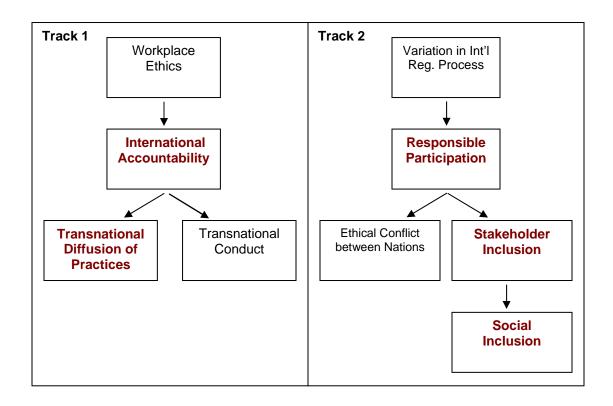
Recommended Appendices:

Appendix 1: Chronology

Appendix 2: Indian Tribunal Decisions

Using Elements of this Case with More than One Module

If you are interested in using this case for a series of class sessions and using more than one of the approaches above, the following diagram indicates where in the sequences of responsible professional conduct (Track 1) and responsible participation in society (Track 2) discussing the Narmada Dams Controversy would be most useful:



<End>