Sacred Purity and Environmental Pollution

Discussion Questions

1. The scientific method ought to be free of the influence of culture: observation, development of hypotheses, design of experiments and testing of each hypothesis should be an objective exercise. The practice of science is colored by convention, language and cultural values that make the ideal impossible to achieve. Is it possible for eastern and western scientists to reach very different conclusions about the quality of the river when faced with the same data?

> **Possible response**: It is possible for different western scientists to reach different conclusions about the quality of the water when faced with the same data. There are few absolutes in the study of water quality making the careful framing of the questions asked critical. Contamination is relative to the uses of the water and the severity of the effect relative to other risks in the community. Coliform bacteria are not harmful in waters not used for drinking or bathing; periodic exposures to heavy metals have a low probability of causing harm. An assessment of water quality thus depends on the considered application of a model based on the principles of risk assessment.
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> The first step of the risk assessment is hazard identification, which leads to the development of the experimental design for data collection. As discussed in Classroom Activity WQ1, it is impossible to test for all pollutants at all times introducing bias into the results obtained. Past research on the levels of pollution of Ganga assembled for this project show considerable reliance on a small number of pollutants measured irregularly.
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> As discussed in “The Mysterious Factor X”, different conditions in different systems may make the interpretation of results more difficult. Particularly high levels of bacteriophage activity may lessen the importance of periodic high levels of bacteria to human health.

2. Any water quality sampling strategy gathers data on a small subset of the total number of pollutants reaching the river. The costs of analysis and sample collection are important factors in the development of a practicable design. How might a sampling strategy developed for a river in North America or Western Europe bias results and lead to potentially inappropriate conclusions about the health of the river?

> **Possible response:** As discussed above, western rivers are tested for pollutants most commonly associated with regional industries and land uses within the watershed.

3. How can the divine nature of a River affect the way that people treat the waters? The Indian tradition appears to be quite different from that of other cultures. Why do cultures actively work to protect water quality? The links below include sites that discuss other

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perspectives on water that may assist in this discussion.

> **Possible response:** If a river's waters are sacred, the mundane issues of pollution may be of less importance to those relying on the resource. The divine nature of the Ganga allows many to look beyond the superficial quality of the water as measured in the west to the true nature of the goddess. Certainly she could purify herself were this important, but purity may not be in any way affected by the occurrence of human detritus.

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