Recommendations for Advancing Multi-disciplinary Research in the Field of Environment and Health, and Research into Use Activities

Jennifer Holdaway, SSRC, June 2008

In the course of mapping the state of the field, the SSRC China Environment and Health Initiative has solicited input from a wide range of experts regarding how knowledge of environment-related health risks could be advanced; and how existing knowledge could be better used to provide an evidence base for policy and other responses by government and civil society. This report summarizes those suggestions. The emphasis is on social science research, and there is therefore no discussion of specific needs for environmental and medical science research, *per se*, but we do discuss the role of natural and medical science knowledge in informing policy and the responses of other actors.

Building a better evidence base for policy

- *Basic Research on Health Impacts.* More accurate data on environmental health impacts is needed in order to identify priorities for intervention. At the moment, pollution data are rarely easily linked to health data and it is information about pollution, rather than about health impacts that is reported. Without accurate assessments of health impacts and their social and economic cost, there is a risk that new standards will be set either unrealistically high or too low. Collecting data that provides a better picture of the real impact of environmental change on health is thus a necessary first step. Within this, experts raised several particular concerns detailed below.

- *Identifying vulnerable population*s. It is clear in a general sense that environmental change is increasing the burden of disease and in turn contributing to poverty; also that the poor are generally more vulnerable to environmental health risks. But a much better map of the distribution of risk is needed to inform policy. A lot of basic research is needed to determine the extent and nature of environmental health problems in specific places and about its impact on specific populations. This might be done partly by matching existing data on environmental conditions, health status and social indicators, but most likely it will also entail new data collection. It may be possible to add questions to existing health and social surveys, supplemented by more in depth research in selected sites that are representative of particular types of problems.

- *Aggregating data at levels appropriate for policy and other responses.* A lot of data currently available is either at high levels of aggregation or consists of individual case studies. While these units of analysis may be helpful for establishing the relationship between exposure to certain environmental conditions and disease, they do not provide a useful basis for policy making. New data needs to be collected, or existing data analyzed at levels that correspond to appropriate geographical and administrative units or demographic groups that are relevant for policy and interventions.

- *Chronic exposure*. To date there has been much more emphasis on acute than chronic exposure. This is true, for example, with pesticide poisoning and other non-point

pollution-related diseases, and also for illnesses related to long term exposure to ambient air pollution.

- *Linking data collection to policy priorities.* Of course the relationship between information and priority-setting is inherently somewhat circular. Better data is needed in order to determine priorities, but decisions have to be made about what data should routinely be collected and this requires some a priori sense of priorities in addressing environment-related risks to health. These might be developed in light of priority regions and populations targeted in national, regional and local development and poverty alleviation policy.

- *Taking a long term approach.* With environment and health suddenly on the national agenda, and the fear of a crisis looming, research is being driven by short-term policy concerns. This puts researchers in a reactive mode in which they have no time to consider longer term issues. While researchers within government departments need to focus on how to make more effective use of existing research to inform policy, there is also a need for a research institution that could take a more long term and independent approach without the need to respond to immediate policy concerns.

- *Current and emerging risks*. Currently the focus is on known risks but we need to consider also risks that are emerging and need to be anticipated. What can environmental and health scientists tell us about these risks and what kind of system does China need to develop to monitor and manage emerging risks in the context of rapid change?

- *Collaboration between the Natural and Social Sciences.* Natural science and medical research alone will not provide solutions to China's environmental health problems. This requires analysis of the economic, political, and social factors that contribute to the generation of environment-related health problems, and identifying policy levers or other interventions that can help to manage and reduce risk. This requires closer collaboration between the natural and social sciences.

- *Linking Environment and Health in Social Science Research.* There is a sizeable body of social science research on environmental problems and environmental governance in China. But while many of the topics covered, such as air and water pollution, and food safety, are directly related to health, the connection is often implied rather than explicit, and analysis of government and societal responses has focused primarily on environmental agencies and NGOs. There tends to be an assumption that better implementation of existing environmental legislation will automatically lead to better health outcomes, when in fact this is often not an explicit goal. When health is considered in the context of environmental policy analysis, it is largely in the context of efforts to estimate the economic cost of pollution or popular willingness to pay for reduced sickness and mortality. Meanwhile, social science research on health in China has tended to focus on health system and financing reform, on responses to infectious diseases such as SARS and HIV/AIDS, or on the problems faced by particular populations, including women and rural-urban migrants. There is very little research that

explicitly focuses on understanding the causes of and responses to environmentally-driven health risks.

Topics Requiring Social Science Research

- *Institutions and actors.* Little is known about the way in which institutional arrangements and interactions shape the handling of environmental health risks and how institutional weakeness are related to risk vulnerability of various sorts. For example, what is the impact of recentralization on the ability to coordinate the management of environment-related health risks at the local level? How do budgetary arrangements affect incentives and the capacity to respond? Some important actors have not received much attention. For example the Environmental Protection Committee of the NPC has been very active on air and water pollution and has successfully promoted stronger legislation. But little is known about its role. Equally, little is known about the work of SEPA and MOH on environmental and health. What is the background of staff working on these issues, and to what extent is there cross-hiring of staff with expertise in environment and health? What is their understanding of the problems? Where are there examples of leadership and innovation that might provide useful insights into how connections between the two sectors could be strengthened? Similar questions are relevant at the regional and local levels, where very little is known about institutional arrangements or government capacity.

- *The role of information*. How is information about environmental health risks being collected, where it is stored, and when and to whom is it released? How could information be made more readily available and useful? What are the barriers to more transparency and who are the main actors who could play a role in improving access to information? What is the impact of the new freedom of information laws on access to data relevant to environment and health? What difference does information really make? For example, what is the impact of certain types of information on public awareness or on personnel in relevant agencies?

- *Risk assessment and priority setting*. How are risks assessed and prioritized and what how is information fed into the system? How do perceived risks relate to actuarial risks? How does the setting of standards relate to both types of risk? How is risk assessed and managed in the context of law enforcement?

- *Regional development issues*. What kind of relationships are developing between the regions of China and particularly between rich and poor areas in terms of the handling of the environmental risks to health? Is a two-tier system emerging with a cleaner, more regulated core and a polluted, less regulated periphery? Or do wealthy urban areas have incentives to encourage safe food production in poor areas and to safeguard the reputation of manufacturers. Also to retain industry and preserve jobs?

- *Public Attitudes and Behavior*. How do communities, households, and individuals perceive and respond to environment-related health risks? What access do they have to information and how do they make use of it? How do families and individuals value and

make choices between considerations of health and increasing income, and what considerations shape their patterns of consumption? How does their understanding of these issues and capacity to respond to environment-related health threats vary according to demographic and other characteristics? What resources and experience are available in local communities that could be built upon in developing a capacity for monitoring and acting upon environmental health risks?

Approaches to Research

- *Combining and "cross-fertilizing" existing data sources.* A systematic evaluation is needed of existing data sources and their potential to provide information about the impact of environmental change on health, about the implications for development and equity, and about public awareness and responses. Given that quite a number of datasets now contain some relevant information, how might we combine them, and how might surveys be supplemented in future iterations with questions that would provide a better picture of the distribution and impact of environmental health risks?

- *Sectoral case studies* might look comparatively at how different regions approach regulation of the same industry, for example, chemical fertilizer plants. Are there different models of government response, NGO activity, etc.? How do actor networks operate in different contexts and what can be learned from what is being done? What are the interfaces between these various actors? Where are there possibilities for partnerships and alliances for change? Analysis of industries that cause health risks both as the result of both external pollution and internal occupational health and safety problems might be fruitful in order to examine the connection between occupational and community health.

- *Analysis of key incidents* such as the Songhua River incident or the Gansu mercury and child poisoning case. What was the reaction to some of these emergencies and what can be learned from them? How do responses to big and small/chronic problems differ? How do case studies feed into the system and inform planning for emergency response?

- *Local case studies.* In-depth multidisciplinary case studies of places experiencing different types of development-related environmental health problems or that reflect different types of resource use; local governance structure; cultural practices etc. would be useful. Ideally locations would be chosen where some longitudinal environmental and health data are available.

- *Knowledge production, circulation and use.* Social network analysis is needed to understand decision making processes and innovation in policy, in particular the role of information in shaping local responses where institutional capacity is weak. Analysis is also needed of the process of decision making from issue generation and framing and its relation to the knowledge base and various interest groups, issue entrepreneurs and other stake holders through the structuring of participation in decision making processes and the challenges to implementation.

- *Comparison with other issue areas*. How have other issues come to occupy a central place in policy making and how are priorities set? How do people get enrolled in actor networks that emphasize particular issues and move them from marginal to more central status? Internal migration (as a complex cross-sectoral problem) and labor standards might be useful issues to consider. For example, can we learn anything from the corporate governance movement that is relevant to environment and health problems? Do worker responses to occupational health risks provide insights for handling environmental health risks outside the work place, or does the physical concentration of employees and clear accountability make the two situations too different?

- *Analysis of chains of production, supply and consumption* and the identification of potential levers and agents of change at various points in the process.

Building research capacity

- Expanding the number and range of courses focusing on the connection between environment and health within public health and environmental management/policy programs in order to increase the number of health and environemntal policy professionals trained to practice, teach and conduct research in this field.

- Building concentrations on environment and health within development studies programs and public policy and social science programs in order to create a cohort of young professionals trained to integrate these issues into their future work as researchers or in the government, private or voluntary sectors.

- Increasing the potential for cross-disciplinary collaboration by designing courses that explicitly use a multidisciplinary approach.

- Organizing panels on the theme of environment and health at conferences on development related themes to bring awareness of these issues to a broader audience.

- Translating textbooks or other teaching materials for use in university curricula.

Bridging the gap between research and policy and practice

Although there is a continuing need for more research on many issues, a lot can be done immediately to start feeding useful information into policy making systems and official institutions whose decisions affect large numbers of people.

- *Better Communication of Existing Research Findings.* If research is to have a greater impact, ways must found to synthesize findings and communicate them more effectively to a variety of audiences. This is true for both natural and social sciences. Since researchers are not always proficient at communicating with non-academic audiences and have little incentive to do so, intermediaries are needed who can present information in a form appropriate to policy, NGO, or other audiences. This kind of dissemination activity

needs to be explicitly built into future research programs and funds provided. A program to synthesize and "translate" existing research on environment and health would be extremely helpful.

- *Establishing an Information Bank.* A more ambitious approach would be to recruit a team of scientists to work with writers and editors to build an information bank of scientific knowledge on key environmental health issues. This might offer a reliable source of information on issues such as food safety; the dangers associated with exposure to particular types of pollution, etc., presented in language appropriate for lay readers. The reliability of the information and institutional independence would of course be essential for ensuring credibility.

- *Exploiting Existing Channels for Public Information,* In terms of improving public awareness, the EPA's environmental education system and the health education system were discussed as possible vehicles for disseminating information about environmental health risks. The EPA system provides information for schools but currently without a focus on environmental health. Health education centers are quite conservative, focusing on maternal and child health, with material produced at the central without much customization to local needs. Providing good information on environmental health risks would require developing materials relevant to particular localities and training staff to use them at the local level. This would be challenging, but also highly effective. It might build on the other activities above.

- *Opportunities within the Health Sector.* Environment-related health risks are currently a low priority within the health care system, but reforms present the opportunity to improve data collection, public health education and service provision. Reform of the rural healthcare system will likely involve the contracting of formerly private village doctors by the state and including certain environmental health indicators in their reporting requirements would enable better analysis of environmental impacts and inform service provision. In terms of both data collection and responses, the CDC system also offers a possible vehicle that could be mobilized to work on environment and health issues, building on the successful response to SARS. The Healthy Chinese 2020 initiative, which aims to bring China's health indicators up to those of a middle income country by 2020, also offers an opportunity to integrate an environmental health perspective.

- *Other Policy Initiatives.* Other policy initiatives within particular sectors might offer opportunites to incorporate a focus on environmental health. For example, in the rural development sphere, the New Socialist Countryside Program, and the establishment of New Farmers Cooperatives.

- *Informational Workshops for Policy Makers and Officials.* Workshops would offer an opportunity for researchers to present current knowledge on major environmental health risks and their implications for development, but also to better understand how officials think about issues of environment and health, what their sources of information are, and what opportunities and constraints they face in addressing these issues. Institutions such as the Party School could be influential in organizing such workshops on a large scale.

- *International Exchanges.* These would be an effective way of introducing officials and NGO leaders to good practices in Europe or the US.

- *Focused Information Campaigns around Key Laws*. It might be helpful to focus attention on a number of core laws whose implementation would lead to significant improvement in environmental health. The rationale for the laws, the potential benefits for public health to be gained from enforcing them, and obvious steps to be taken by local government and communities could be published as small information booklets. Experience of successful information campagins in other issue areas, such as HIV/AIDs could provide useful examples.

- *Legal Education.* Many judges seem unaware of the standards of evidence laid down in the law and to make decisions idiosyncratically and in violation of the rights of the plaintiff. Legal education programs that would clarify the appropriate standards for evidence and proper procedure regarding claims for compensation for health damages would be helpful.

- *Community Level Public Awareness Raising.* Communities need information about environmental health risks that is accurate, clear and presented in a way that is meaningful in the context of their lives. Materials focused on some common risks could be developed using participatory methods to ensure responsiveness to local cultural values and needs. In some cases materials developed in other contexts might be effectively adapted. Public information should focus on building greater awareness of the connection between environmental factors and health and on helping people both to protect themeslves and to make informed decisions in their roles as producers, consumers and citizens.

- *Developing an Environment and Health Score Card* of the healthiest places to live in China, including food quality, environmental quality, availability of public transportation, reported stress levels.