

Letters to the Editor

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Three Gorges Project: Chance and Challenge

THE THREE GORGES DAM (TGD) ACROSS THE Yangtze River is the world's largest hydroelectric dam (1). Construction of the TGD will form many different sizes of islands, providing a golden opportunity for exploring the ways in which island ecosystems are regulated (1).

However, the construction will also pose great challenges to the ecosystem of the Three Gorges Reservoir Area (TGRA). It will affect the livelihood of at least 20 million people above the dam and another 300 million downstream (2), and it will fragment large, continuous habitats into smaller patches through dam-related activities such as construction of new cities, counties, townships, and roads (see figure). These activities will alter the diversity and composition of biota (3, 4), change ecological processes like nutrient and water cycling (5), and ultimately pose a great threat to the ecological safety of both the TGRA and the vast regions of middle and lower reaches of the Yangtze River (6). Furthermore, information on the expected impacts of ecosystem fragmentation in the TGRA is lacking; it is thus urgent

to carry out empirical studies about this fragmentation. The following measures are proposed for the TGRA, but may also have important implications for many other parts of the world.

1) On-the-spot monitoring stations that evaluate the impact of ecosystem fragmentation are urgently needed. The TGRA will alter natural hierarchies of system organization, and little is known about this process. Although 22 on-the-spot stations have been established for research and monitoring purposes in the TGRA, only a few offer programs to study ecosystem fragmentation.

2) A landscape-based approach is required to plan, implement, and evaluate the phases of the TGD project development. This approach would take into account interactions and interdependencies of physical, chemical, and biological, as well as social and economic aspects of the TGRA. Adopting a landscape-based approach means identifying these interrelationships, predicting the impact of any proposed action, and evaluating the consequences before making any decisions (7).

3) It is crucial to set aside more areas of land in the TGRA as protected parks and natural reserves. These reserves will provide natural colonists for the regeneration of degraded ecosystems. It is also necessary to connect isolated patches with corridors to other areas in the TGRA to help increase the exchange of individuals between habitat patches, promote genetic exchange, and reduce population fluctuations (8). By the end of 2003, the natural reserves covered

about 6.9% of the TGRA's area, and the natural reserves in China covered about 15% of the national area during the same period (9). The ecosystem of TGRA is so diverse that one of the three richest flora centers in China is located in it (5). So the current natural reserve coverage is too small to ensure survival of some species and to sustain ecosystem functions. To protect its biodiversity, natural reserves should cover at least 15% of the TGRA's area.

Interdisciplinary research across national boundaries is needed to answer complex questions regarding habitat fragmentation in the TGRA.

GUOZHEN SHEN AND ZONGQIANG XIE*

Laboratory of Quantitative Vegetation Ecology, Institute of Botany, Chinese Academy of Sciences, Beijing 100093, People's Republic of China.

*To whom correspondence should be addressed. E-mail: xie@ns.ibcas.ac.cn

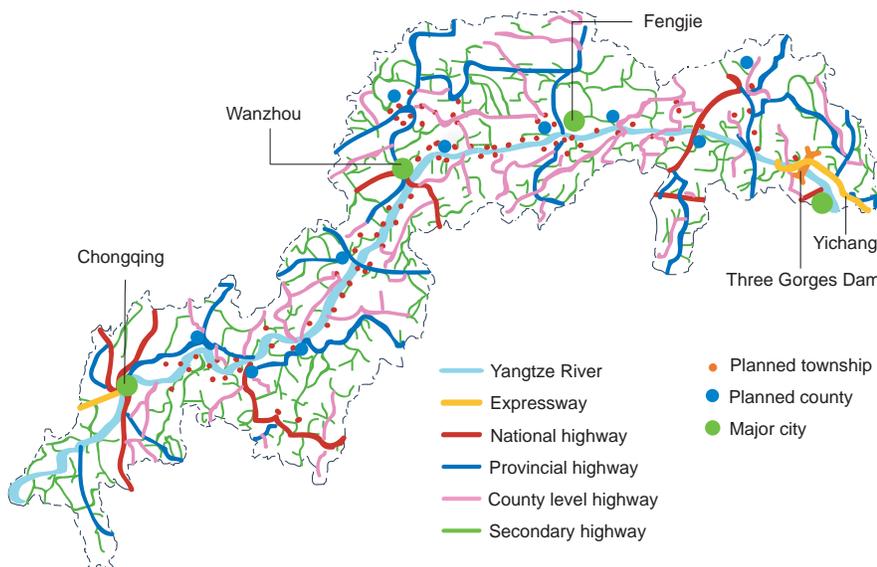
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10. We thank H. Qian, M. Fournier, J. M. Hartman, and W. Chen for valuable comments. We also acknowledge support from grant of Three Gorges Project Construction Committee of China (SX2001-003) and Knowledge Innovation Project of CAS (KSCX2-SW-109).

The Ethics of Public Health Surveillance

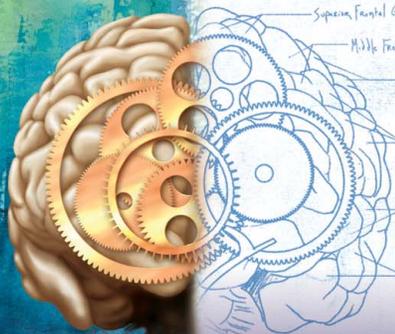
IN THEIR POLICY FORUM "ETHICS AND THE conduct of public health surveillance" (30 Jan., p. 631), A. L. Fairchild and R. Bayer imply that there is a lack of ethical oversight of public health surveillance. Their implication comes from the notion that because public health surveillance is not human subject research (a view they challenge), it is not subject to institutional review board (IRB) review under the Common Rule. To remedy this perceived ethical vacuum, they call for national reform to include "some form of explicit, systematic review" for surveillance practices through ethical bodies outside of public health.

Public health surveillance consists of two major categories: (i) disease reporting to a public health authority as required by law and without patient consent, and (ii) disease registries and records maintained with patient consent. The need for routine, ongoing, and



Planned construction in TGRA.

IT TAKES BOTH SIDES OF THE BRAIN.



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accurate collection of personally identifiable health information without patient consent for public health surveillance purposes is indisputable. Public health surveillance enables rapid responses to emerging infections and bioterrorism or other public health threats.

Furthermore, the authority of governmental public health agencies to collect such data is found in the laws of every state and has been affirmed by the U.S. Supreme Court (1). Disease reporting requirements are determined through democratic law-making processes at each level of government. Unlike human subject research, reporting requirements are subject to public review, legislative oversight, and judicial review when challenged in court.

Although there will always be tension in the balance between personal autonomy and protection of the common good, Fairchild and Bayer fail to substantiate the need for major reform. They misperceive the nature of existing ethical oversight for public health practices such as surveillance. Public health agencies have long adhered to ethical principles in conducting surveillance activities. Epidemiologists and others involved in public health surveillance understand the sensitivity of the data they collect; they respect the confidentiality of the data, and they use the data for the public health purposes intended, in accordance with relevant statutes and regulations. The current system of legal and ethical oversight in the United States for public health practices is robust and open, although very different than that of research via the Common Rule (2).

It is also important to correct an inaccurate summary of the Alaska case study cited by the authors. The State of Alaska did not develop an early diagnostic test for trichinosis, nor did it first identify an animal species or new subspecies. The point of the example was that routine public health practice can unexpectedly lead to new information from secondary use of public health data.

JOHN P. MIDDAGH,¹ JAMES G. HODGE,²
MATTHEW L. CARTTER³

¹State Epidemiologist, Alaska Division of Public Health, 3601 C Street, Suite 540, Post Office Box 240249, Anchorage, AK 99524-0249, USA. ²Johns Hopkins Bloomberg School of Public Health, Hampton House, Room 527A, 624 North Broadway, Baltimore, MD 21205-1996, USA. ³President, Council of State and Territorial Epidemiologists, Epidemiology Program Coordinator, Connecticut Department of Public Health, 410 Capitol Avenue, MS# 11EPI, Post Office Box 340308, Hartford, CT 06134-0308, USA.

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Response

WHILE WE APPRECIATE THE CONCERNS OF those intimately involved in public health surveillance, we think that Middaugh *et al.* misstate the current set of dilemmas facing surveillance personnel, misrepresent the adequacy of the current legal protections, and misconstrue the nature of our recommendations.

There is no question that at both the federal and state levels, there is an ongoing, almost Alice-in-Wonderland-like effort to distinguish between research and practice. It is clear that no definition has adequately clarified this distinction; hence, some activities defined as research at the federal level are defined as practice at the state level. Indeed, even within states, the same activity can, in one instance, be defined as research requiring IRB review and, in another instance, as practice requiring no explicit review (1). If the current system of protections is adequate, how can we explain such diverse determinations? Resolving the issue by focusing on “intent” simply does not suffice.

We do not seek to undermine the central importance of public health surveillance as a bulwark against disease and as an essen-

tial tool in directing interventions to protect the public. Nor do we seek to challenge the constitutional foundations of state surveillance activities. But the existence of law must be distinguished from what ethics might necessitate. It is one of the functions of ethical discussion and review to provide a standard against which to judge current practice and legal requirements. This is all the more the case when important issues of privacy and the collective good are at stake. As Gostin, Hodge (one of the Letter authors), and Valdisseri (a CDC official) note, “Current law and policy often fail to reconcile individual privacy interests with collective public health interests in identifiable health data... Laws often fail to narrowly define who may have access to such data and require persons to demonstrate why they need access.” They conclude that, “extant state laws concerning public health information privacy are inconsistent, fragmented, and inadequate” (2).

We do not call for ethical review outside of public health. What we underscored was the importance of “explicit, systematic” review. There is a long history of resistance on the part of state officials to the creation of federal standards, which are viewed as

an intrusion upon state prerogatives. Nevertheless, we believe that there is a need for broadly acknowledged ethical norms to protect against the vagaries of state activities, whatever the law might permit. It might be useful to think of such review within public health agencies as serving the same function as the environmental impact statements that many agencies are currently required to issue.

Finally, as to the claim that we inaccurately conveyed information about trichinosis surveillance in Alaska, it was the state epidemiologist himself who explained that “Periodic review of [surveillance] information lead to the observation that an excellent early diagnostic finding was an elevated eosinophil blood count. A subsequent investigation documented that a food source was an animal species not previously known to harbor trichinella, eventually leading to the identification of a new subspecies of the organism” (1).

It is precisely because individuals are compelled to participate in all surveillance efforts in the name of the common good that some form of ethical review is imperative. Such review need not be precipitated by a crisis, nor need it create one.

AMY L. FAIRCHILD AND RONALD BAYER

The Ethics of Public Health Surveillance

John P. Middaugh, James G. Hodge and Matthew L. Cartter

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