LETTERS

edited by Jennifer Sills

Putting the Ocean Under Review

IN 2002, AT THE WORLD SUMMIT ON SUSTAINABLE DEVELOPMENT, heads of state who gathered in Johannesburg decided to put the ocean under permanent review (*1*). The UN's shorthand name for the project—"Regular Process"—emphasizes the importance of conducting this assessment regularly, with an initial plan of an ocean review every 5 years.

This decision was made because the sector-by-sector management of human activities in the ocean has proven insufficient. Land degradation is an accepted technical term in management, and many actions are taken to mitigate its effects, yet ocean degradation, until now, has been invisible (*2*).

In December 2010, the UN General Assembly committed to carrying out the first cycle of the assessment from 2010 to 2014. This high-level political engagement is encouraging. Unfortunately, civil society, nongovernmental organizations, and the expert community seem to lack engagement in the process. Not many natural or social scientists know about the "UN Regular Process," and fewer still associate this name with the first Integrated Global Assessment of the Ocean. Science-based policy-making is far from being a universal practice, and the availability of data and information in different regions is highly variable. This first assessment will be far from perfect, despite being global; there will, of course, be functional and geographical gaps. Nevertheless, there is a lot to be learned as the process moves forward.

A science-based assessment cannot be purely politically driven. I urge the marine scientific community to become acquainted and engaged with this ongoing process, reaching out through scientific societies and academies to the national representatives overseeing it in the UN General Assembly. The group of 25 experts designated by the UN to help with the technical scientific tasks estimates that between 1500 to 2000 experts will be needed to properly conduct the assessment and the subsequent peer review (*3*). The relevance, saliency, and credibility of the assessment ultimately depend on the involvement of many scientists and experts all over the world.

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Low-Dose Radiation Knowledge Worth the Cost

THE PAST TWO U.S. SCIENCE FUNDING NEWS articles have highlighted budget cuts proposed for the Department of Energy's Office of Science ("Attack on climate studies would shutter entire DOE biology program" and "A strong defense of science—and a stiff upper lip," News & Analysis, J. Mervis, 18 March, pp. 1378 and 1379). Notably, the proposal would also substantially reduce funding of the Low-Dose Research Program that is dedicated to understanding the relationship between biological responses and health consequences of low-dose radiation. Ironically, the news since these announcements has been punctuated by radiation leaks from failures at Japan's nuclear power plants, congressional hearings on radiation from airport screening, discussion of radiation risks from CT scans in children, and reports of high radiation doses mistakenly administered in otherwise benign radiological diagnostics. The public is reasonably concerned that radiation exposures pose a health risk, but remains confused about the degree and nature of this risk.

Given the important questions remaining about radiation exposure, hazards, and protection, it would be false economy to cut the current yearly allocation of $18 million from the Office of Biological and Environmental Research budget of $588 million. The program is a crucial component of the federal radiation research portfolio. Whereas high-dose effects are well studied, new systems biology and genetic approaches are just beginning to provide insight into the low-dose range.

Letters to the Editor

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As recent events have shown, lack of knowledge is far more expensive than this relatively modest dollar investment. Reducing resources to understand the effects of radiation exposure to humans will inevitably fuel unwarranted public stress and worry. Sustained funding of this successful effort has paid, and will continue to pay, a substantial societal benefit that expands knowledge of low-dose radiation effects and informs public policy.

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Note

1. The views expressed are those of the signatories and not necessarily of their institutions.

The Risks and Benefits of Re-Consent

IN THE POLICY FORUM "RESEARCH PRACTICE and participant preferences: The growing gulf" (21 January, p. 287), S. B. Trinidad *et al*. claim that the preferences of individuals are not respected when existing research data and samples are used for new purposes without obtaining consent. This allegedly threatens genomic research and prompts a need to "consider how the consent process could foster respectful engagement, rather than merely mitigate risk."

We support respectful engagement, but question whether it should be achieved by obtaining informed consent. Individuals may support repurposing of data without further consent if they understand the obstacles presented by the process: resource consumption (*1*), risk of bias (*2*), and disincentives for initializing new projects (*3*). We argue that respectful engagement should be pursued through public education and debate on issues such as the necessity of research, the risks involved, and the safeguards that society has put in place to protect both individuals and groups of people against harm.

Participants do not only have interests as research subjects, but also as citizens who stand to benefit from constructive research. Given the potential benefits, observational research that imposes only diminutive risks can justifiably be performed without consent.

Trinidad *et al.* are right to claim that research practice should be reframed to align with participant interests, but their view of these interests is too limited. By focusing on the participants' narrowly defined interests as research subjects, the proposed policy increases the gulf between research practice and the participants' desire to have access to optimal healthcare.

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4. The research underlying this Letter was made possible by grants from The Swedish Research Council through BBMRI.se. The funders had no influence on the conceptualization or writing of the Letter.

Response

WE AGREE WITH FORSBERG AND COLLEAGUES that re-consent for new uses of research samples is not always necessary (or even possible) and that respectful engagement goes well beyond consent procedures. As we noted in our Policy Forum and previous work (*1*, *2*), one of the most important findings of studies on participants' views is that many have a positive ongoing interest in the research process. Developing better ways to inform participants about research, and to elicit their input and support, will benefit scientists and participants alike.

We disagree with Forsberg *et al*.'s assertion that consent is unnecessary for research deemed by experts to be low risk and beneficial to society. Although we agree that research studies meeting these criteria may sometimes be done ethically without consent, there is a need for meaningful public input as to what constitutes "low risk" and how societal benefit is determined. When research involves large-scale genomic analysis, collection of health records, and submission of data to a federal repository—as was the case in the re-consent example we discussed (*1*, *2*)—many would argue that such research does not qualify as low risk. We also question the implication that all citizens have a vested interest in research as it is currently practiced. Vast and well-documented health disparities exist around the world, with a disproportionate burden borne by communities that are increasingly of interest to genetic researchers. Yet relatively few research studies address the needs and concerns of these communities (*3*). More generally, health research often neglects important practical questions important to achieving better population health (*4*).

Innovative ways to engage participants and communities may lead to a productive examination of research agendas. In this context, re-consent—although not always necessary—has the potential to serve as a small but important way to promote participant awareness and engagement.

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CORRECTIONS AND CLARIFICATIONS

News & Analysis: "More negative data for link between mouse virus and human disease," by J. Cohen (11 March, p. 1253). The figure caption should have been labeled "Viral puzzle." The caption has been corrected in the HTML version online.

Reports: "Layer-by-layer removal of graphene for device patterning" by A. Dimiev *et al*. (4 March, p. 1168). The final reference was missing. It should have stated: This work was funded by the AFOSR (FA9550-09-1-0581), the AFRL through University Technology Corporation (09-S568-064-01-C1), the Office of Naval Research Graphene MURI Program (00006766), and M-I SWACO, LLC.

Reports: "Complete fourth metatarsal and arches in the foot of *Australopithecus afarensis*" by C. V. Ward *et al*. (11 February, p. 750). In Fig. 4B, the *y* axis should have been labeled "MT4 base ML/DP," not "MT4 base DP/ML."

Reports: "Small RNA duplexes function as mobile silencing signals between plant cells" by P. Dunoyer *et al*. (14 May 2010, p. 912). The image in Fig. 3B (center panel) was previously published as Fig. 1e in P. Dunoyer *et al*., *Nat. Genet*. **39**, 848 (2007).

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