

LETTERS

edited by Jennifer Sills

Fukushima Research Needs World's Support

SERIOUS CONFUSION SURROUNDS THE ACCIDENT AT FUKUSHIMA DAIICHI NUCLEAR POWER Plant with regard to the amount of permissible radiation exposure, particularly in children ("Fukushima revives the low-dose debate," D. Normile, *News Focus*, 20 May, p. 908; "Citizens find radiation far from Fukushima," D. Normile, *News & Analysis*, 17 June, p. 1368). The primary reason for this confusion is the lack of scientific evidence (1).

On 29 April, Osako Toshiso, Cabinet Advisor and a professor at University of Tokyo who specializes in radiation safety, offered a tearful resignation. He claimed that the 20-mSv limit on annual radiation exposure for elementary school playground use set by the government was too high, and recommended that it should be lowered to 1 mSv/year. The



government says that these standards are based on those of the International Commission on Radiological Protection (2). These may be suitable for adults, but there is insufficient evidence to argue that the same standards apply to children.

It is now necessary to initiate a large-scale cohort study of childhood thyroid cancer in the Fukushima region. This study would register all children in the affected region; periodically and accurately measure their internal and external radiation exposure; and follow the children for more than 10 years. This would mark the most important scientific study that Fukushima can now offer to the people of the world.

This study would augment the lessons learned from Chernobyl. Although some middle-term (~10 years) and middle-scale studies have been published on Chernobyl (3–6), most recovery projects lacked economic support (7), and the subtle health effects of low-level radiation exposure have yet to be determined. A long-term and large-scale follow-up study of the Fukushima accident can provide firm and reliable evidence for low-dose effects of radiation exposure on thyroid cancer in children.

Given the current confusion and disorder, it would be difficult for Japanese researchers and the Japanese government to execute such a study singlehandedly (8). However, they should not have to organize the effort alone. The risk of childhood exposure to radiation is a real one for people living in any region of the world. It is time to organize an international joint research team supported by countries worldwide to uncover lessons to be learned from Fukushima for the sake of future humanity.

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Science-Policy Interface: Scientific Input Limited

THE POLICY FORUM ABOUT THE PROPOSED Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) by C. Perrings *et al.* ("The biodiversity and ecosystem services science-policy interface," 4 March, p. 1139) refers to the role of the Platform in strengthening the science-policy interface in biodiversity and ecosystem services, but does not address the fact that science policy formation does not depend solely on scientific facts.

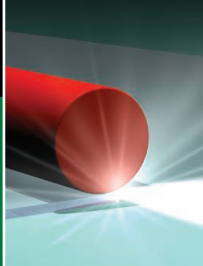
In practice, policy is formed through the intermingling of scientific knowledge, political judgment, and practical considerations (1, 2). Establishing an institution to identify information, perform assessments, identify tools, prioritize capacity-building (3), and evaluate policy options will not necessarily provide a "robust ... science/policy interface" (4) because the science-policy interface is turbulent (5), not linear (1, 2, 6), and scientific input plays only a small role. The scientific information that policy-makers need derives from policy and political processes, not from scientists' perceptions. The science-policy interface can be bridged only when scientists understand this policy process and work with policy-makers to reduce political and policy risk, rather than simply providing scientific facts.

IPBES has not met yet (the first plenary session is scheduled in October 2011). Undoubtedly, IPBES will contribute to global understanding of biodiversity and ecosystem services, but the effectiveness of the Platform in operating across the science-policy interface will depend on how well the



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scientists associated with IPBES understand the nature of policy.

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Science-Policy Interface: Beyond Assessments

IN THEIR POLICY FORUM "THE BIODIVERSITY and ecosystem services science-policy interface" (4 March, p. 1139), C. Perrings *et al.* frame the new Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) as a body responsible primarily for assessment. They consistently base their elaboration of the work of IPBES on the experiences of past assessments (such as the Millennium Assessment, the Global Biodiversity Outlook, and the Intergovernmental Panel on Climate Change) and interpret the Busan outcome [recom-

mendations made by a 2010 intergovernmental conference (1)] solely through the lens of how scientific knowledge is assessed. We believe that the blueprint suitability of previous assessments for the IPBES process is very limited. Strengthening the (mainly global-scale) scientific knowledge base behind assessments is important, but the goals of IPBES should be expanded.

First, we should move beyond conventional scientific knowledge assessments that legitimize, almost exclusively, only peer-reviewed material. Knowledge established across all scales (especially the knowledge of local and indigenous peoples) and validated in multiple ways must be eligible for inclusion in IPBES processes. Changes in biodiversity are first experienced locally and thus many forms of local expertise have particular relevance for biodiversity issues (2). Second, we should link IPBES assessment results to decision-making at multiple spatial scales (including tackling biodiversity loss at the grassroots level).

Both of these goals require all aspects of capacity-building, including empowerment of different kinds of actors, to be reflected in



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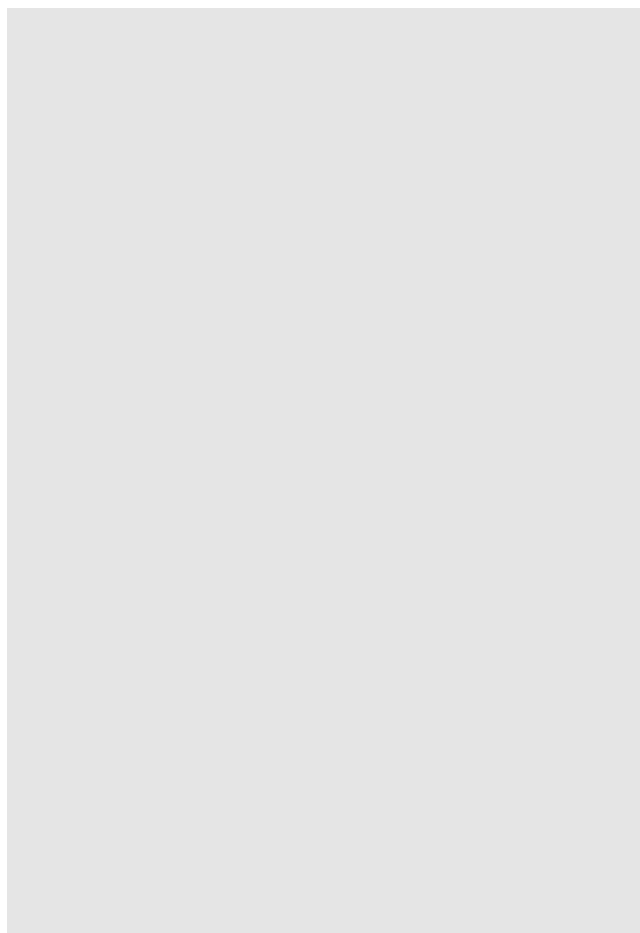
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the structural design of IPBES. To achieve this much broader set of objectives as laid out in the Busan outcome, including the explicit incorporation of local and indigenous knowledge, the IPBES structure should knit together existing multiscale networks (3) of scientific, policy, and stakeholder communities.

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CORRECTIONS AND CLARIFICATIONS

News Focus: "Are dolphins too smart for captivity?" by D. Grimm (29 April, p. 526). The story classified TerraMar Research as an advocacy organization. To clarify, TerraMar Research also conducts basic research.

News & Analysis: "Regulatory T cells get their chance to shine" by M. Leslie (27 May, p. 1020). The story incorrectly stated that the regulatory T cells infused into patients by Mauro Di Ianni and colleagues were third-party cells. They actually came from the donors of the blood-forming stem cells.

Letters to the Editor

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