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EDITORIAL

The Scientific Underpinning of Policy

I recently came across an article written by a Norwegian scientist during the 1970s, when I was Norway's Minister of the Environment. In the article he argued that there was no such problem as acid rain and that "facts" and "science" did not belong in the arena of politics and policy. This assertion was counter to my own beliefs and made me react strongly. Politics that disregard science and knowledge will not stand the test of time. Indeed, there is no other basis for sound political decisions than the best available scientific evidence. This is especially true in the fields of resource management and environmental protection.

A large part of the Earth's biodiversity is localized in its tropical forests. There are compelling reasons to protect rainforests from deforestation and further human encroachment, something that developing and developed countries alike are increasingly realizing. Resource management and environmental protection are global issues that require global responses. The efforts that need to be made in our common cause must be negotiated on an equity basis. We in the industrialized countries must take our own negative effects on the global environment seriously. We must deal with our wastes and our emissions into the air, sea, and land. We must do this rather than raise a scolding finger toward other, poorer countries. If developing countries feel that industrialized countries are trying to divert attention from their problems by focusing on the problems of poorer countries, then we risk wrestling endlessly over these issues rather than solving our common problems.

In addition to scientific facts and equity, we must pursue intergenerational solidarity. This need is enshrined in the concept of sustainable development, which means that we must, for the benefit of coming generations, leave enough environmental space so that these generations will be able to address their needs and fulfill their aspirations. While we should not try to refrain from utilizing resources, we should do so only on a scale that leaves room for future generations. We must consider our planet to be on loan from our children, rather than being a gift from our ancestors.

The issues covered in the special section of this week's *Science* illustrate the complexity of national and international resource management in the light of new knowledge. Within the past couple of decades we have learned about the Earth's protective ozone layer and greenhouse effects. Today we speak with confidence about global warming and rising sea levels, and we know the causes and effects of acid rain. The challenges are great, but so are the opportunities. Never before have we had so much knowledge on which to base vital policy decisions. Never before have we had a greater capacity to act.

A fitting illustration is the management of fisheries and marine ecosystems. Recent history is replete with examples of how overfishing has led to a collapse of important fisheries. These problems have resulted from a combination of inadequate scientific information on stock abundance and recommended catches, insufficient government regulation of the conduct of fisheries and of allowable quotas, and international competition for access to resources, often acted out in open defiance of international law. The global long-term sustainable yield of commercial fishing is estimated to be some 100 million tons. But there are indications that it might be higher if overfishing is curbed to allow stocks to recover, if renegades are curtailed, and if scientifically sound practices of policing and inspection are supported. As the knowledge base widens and common interests become more clearly perceived, there is really no reason why we should not be able to optimize the long-term yield through sensible management systems.

In ocean management, as in most other areas of human endeavor, close cooperation between scientists and politicians is the only way to move forward. Science must underpin our policies. If we compromise on scientific facts and evidence, repairing nature will be enormously costly—if possible at all.

As caretakers of our common future, we have the responsibility to seek scientifically sound policies, nationally as well as internationally. If the long-term viability of humanity is to be ensured, we have no other choice.

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