Letters

Unesco Director-General

Over the course of the last decades, Unesco, founded in 1945 in a spirit of great enthusiasm, has been beset by a multiplicity of profound crises. A widespread perception has grown up that the organization is overextended, inadequately managed, and unacceptably politicized. At the beginning of 1985 the United States withdrew from Unesco and was followed, a year later, by the United Kingdom and Singapore.

The Unesco crisis reached its climax during the 11-year tenure of the current, highly controversial director-general, A. M. M'Bow. M'Bow's term is about to expire, and he has said that he will not seek reelection. This offers the hope that, under a new director-general, Unesco will undertake sufficient reforms to increase its effectiveness and create circumstances under which the United States, Great Britain, and Singapore will rejoin the organization. (A hopeful precedent was the U.S. withdrawal from the International Labor Organization, followed by reentry a few years later.)

One of the candidates for the directorship is Abdus Salam, Nobel Laureate in Physics and, for over 25 years, director of the International Center for Theoretical Physics in Trieste. We believe that Salam has qualifications that make him an excellent candidate for this position: he is a person of outstanding intelligence and judgment and a highly respected member of both the developed world (professor at the Imperial College, London) and the less-developed world (citizen of Pakistan and president of the Third World Academy of Sciences); he has a strong commitment to science for its own sake and to scientific development in the less-developed countries—the latter being the chief mission of the Trieste Center; he has a proven record in developing an outstanding, novel institution, including the necessary funding; and he has excellent relationships with the U.S. and U.S.S.R. scientific communities. Although Salam's main interest is surely in science, he is a person of great breadth whom we would expect to give effective direction not only in science but also in the other areas of Unesco.

We believe that if Salam were to become director-general there is an excellent chance that Unesco's operation would be much improved. We also believe that if Unesco could be revitalized, there would be widespread support among the relevant professional communities in the United States for full participation in Unesco by this country. The reason for this is that a number of crucial global problems can be successfully addressed only with the help of a multilateral intergovernmental organization. For example, field research in the earth and ecological sciences requires that many different nations grant permission for scientists of other countries to conduct research in their national territories. These territories now include the recently established Exclusive Economic Zones, which extend for 200 geographical miles into the ocean from every coastal and island state, and cover about 40 percent of the entire area of the oceans. Under these circumstances one could hope that the United States would soon again play its role as a world leader in the areas that fall within Unesco's mandate.

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Sexual Behavior and Randomized Responses

When I proposed using randomized responses to encourage honest reports of sexual behaviors that may spread AIDS, I was not aware that the idea had been proposed previously. Thanks to Gina Kolata's article "How to ask about sex and get honest answers" (News & Comment, 24 Apr., p. 382), I learned from Robyn M. Dawes that Fiddler and Kleinknecht (*1*) and Dawes and Moore (*2*) used randomized responses to investigate sexual behaviors of college students. The form of randomized response used by Dawes and Moore (*2*) is identical to the one I suggested. Recently Fiering and Hooper (*3*) analyzed a bivariate form of randomized responses and explicitly suggested its use to study risk factors for AIDS. [Randomized responses were used as long ago as 1965 (*4*) to find the frequency of illegitimate births and have since been used (*5*) to study other sensitive aspects of reproductive behavior.]

If properly understood by the persons questioned, the various methods of randomized response (*6*) should help produce more reliable estimates of the parameters of mathematical models for the spread of AIDS and other sexually transmitted diseases.

A less obvious role for these methods was suggested by Eisenman (*7*), also in response to Kolata's article. Blood banks and the Food and Drug Administration establish criteria for potential blood donors to disqualify themselves temporarily or permanently; for example, any individual who has ever had hepatitis, engaged in prostitution, or had a male homosexual encounter since 1977 should never give blood; travel in an area where malaria is common disqualifies a donor for 6 months. Eisenman points out that research is needed to refine the behavioral risk factors—such as number of past sexual partners—by which potential blood donors are asked to screen themselves. Randomized responses and related techniques could make that research less prone to distortion and evasion and could improve the compliance of potential donors in the act of offering to give blood.

Randomized response methods deserve to be more widely known and used. As they are used, they need to be refined by research on the methods themselves.

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Famine: Some Additional Aspects

In their article "Famine: Causes, prevention, and relief" (30 Jan., p. 539), John W. Mellor and Sarah Gavian attribute famines to the "decline in food production in successive years brought about by poor weather, war, or both." With the exception of two sentences relating desertification in Africa to increased population and livestock pressure (p. 544), the authors ignore the important role natural resources and their use and abuse play in agricultural productivity, particularly in Africa. Over the last 5 years, a consensus has emerged among national and international government and nongovernment organizations, in and out of Africa, that environmental degradation and poor resource management have contributed to the negative growth in per capita food pro-

duction and starvation in sub-Saharan Africa.

Poor weather and droughts have hit sub-Saharan Africa repeatedly over the last 2500 years without the massive and disastrous effects of recent years. The latest droughts (in the early 1970s and 1980s) have been exacerbated by overexploitation and mismanagement of a fragile resource base. Two-thirds of Africa's land area is arid, semiarid, or subhumid. The soils are generally thin, have low fertility, and are easily eroded and compacted. Ground-water reserves are limited, and droughts lower water tables temporarily. Even more serious is the removal of trees and other vegetative cover, which has suppressed the water table permanently in some places.

However, given these limitations, indigenous cultures long ago developed production systems that were well adapted to the limits imposed by these fragile and arid conditions. "Shifting cultivation" allows fields to rest and recover nutrients and moisture for lengthy periods after two or three seasons of crop production. Other traditional systems combine farming practices with livestock production, feeding livestock on crop residues and tree fodder, while the animals' natural fertilizers are used for fields and gardens. Unfortunately, these traditional production systems have been increasingly disrupted by rapid population growth; changing social, political, and economic policies; and inappropriate Western-style development schemes.

The indiscriminate transfer of technology from temperate zones to tropical soils has seriously accelerated soil erosion. Cash crops such as cotton, tobacco, and peanuts consume large amounts of nutrients, reduce soil fertility, and increase soil erosion. In addition, with large areas of "good" land utilized for cash crops, farmers are forced to cultivate increasingly marginal and vulnerable lands. At the same time, pastoralists are pushed off their traditional grazing land and end up overgrazing the limited and more fragile rangeland.

Closely tied to Africa's agricultural problems is the continent's acute energy shortage. Many African countries depend on fuelwood and other forms of biomass for more than 90% of their energy and construction needs. Devegetation of the land for fuelwood and charcoal production is degrading millions of hectares of Africa's watersheds, causing severe soil erosion, and disrupting the delicate water balance. Every year about 3.6 million hectares of forests are being lost in Africa (*1*), but these continent-wide rates underestimate the severe regional pressure on forest resources.

A fragile ecosystem exploited beyond its carrying capacity eventually breaks down. Whether in the U.S. dust bowl or in some parts of Africa, the results can be tragic. Figures for soil erosion as high as 450 tons per hectare per year are not unusual, and in Ethiopia's highlands 1 billion tons of valuable soil are stripped by erosion every year (*2*).

Future strategies for helping sub-Saharan Africa increase its agricultural productivity must include the development of new agricultural systems and technologies designed for Africa's soils and climate and appropriate to its cultural, educational, and financial conditions. Broad land-use problems cannot be resolved by investing in one sector alone. An integrated approach to agriculture, forestry, energy, and rural development is needed, combined with economic incentives and a strong educational program. Resource management must become a high priority among development planners if we are to reverse the current trend of resource degradation and human suffering in Africa.

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The article by Mellor and Gavian was excellent, but I wish to point out one omission. They dismiss overpopulation as a cause of famine very casually, saying, "family planning seems to accompany or follow the processes of agricultural growth and commercialization" (p. 543). This appears to be a statement of the long-discredited demographic transition theory. Even if that theory did apply to the underdeveloped world, we cannot wait several centuries for it to work.

High population that follows high birthrates reduces land available for agriculture as it increases the demand for food. Famine prevention such as the authors recommend does not solve the problem.

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The article "Famine: Causes, prevention, and relief" is an excellent discussion of the famines that are the result of "force majeure," that is, such causes as drought, civil unrest, and so forth. As pointed out in the article, such famines can usually be prevented or ameliorated if appropriate steps are taken in time.

Unfortunately not all famines can be prevented. This is especially so in the case of famines that are deliberately created by a government in order to exterminate a troublesome class or tribe. The famous famine in the Ukraine under Stalin is a classic example. The Ethiopian famine seems to be another case, at least from this distance. The famines in Afghanistan and Kampuchea may be other examples.

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Response: We agree with the seriousness of the problems raised by each of the three correspondents. How to solve these problems is less clear. We agree with the technological solution suggested by El-Ashry, but have three comments. We noted the "out of sight, out of mind" phenomena in our article—famine in the past has not been very visible in Africa, but it nevertheless has a much larger historical base than implied by El-Ashry and hence the problems are much less new and current. The technological solution involves increased intensification of production in better areas and allows reduction in the intensity in more fragile areas. This can occur most rapidly, if the full range of opportunities to intensify is availed of, including export crops and particularly including perennial crops that so much better preserve fragile soils. Thus, the rather general attack on cash crops and, by implication, commercialization and trade, as a way of reducing the assault on fragile environments is counterproductive. Note that African countries with good growth records in export crops have good growth records in food crops, and vice versa. The two are far more complementary to sustainable resource use and higher income generation than they are competitive.

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Macintosh Software

Trevor Robinson (Letters, 1 May, p. 508) states that, as far as he knows, no commercially produced bibliographic program exists for the Apple Macintosh. The Professional Bibliographic System has been available from us since August 1985 and is in use by thousands of researchers worldwide.

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