



*Salam: 10 times more scientists*

his culture and society, then he does not look down on the needs of the society as 'insignificant' and indigenous research as 'inferior'; nor does he apologise away his research efforts to solve local problems or place too heavy a reliance on outside help and consultants and advisors. Furthermore, a scientist with confidence in himself builds up confidence in his colleagues and does not feel threatened by younger scientists. Nor does he articulate the desire to block the paths to full realisation of those who have potentially more to contribute to science development.

As far as I am concerned, science development in the developing countries begins and ends with the confidence the Third World scientists have in themselves, their society and the science that they practise.

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## Local scientific committees

### are too small

Abdus Salam

I HOPE the conference can focus on and initiate action on the following important area. Any declared intention of applying science and technology to development is — and will remain — meaningless until the developing countries build and deploy indigenous scientifically and technologically trained communities. At present, however, such communities simply do not exist, or their sizes are tenths or hundredths of what is needed. Their direction and deployment must be the concern of scientists and technologists themselves, and not of the economists and bureaucrats of national and international planning commissions.

It must be realised that whatever priorities the countries set themselves (food production, mineral exploitation, transport, health, manufacture or even

defence), a meaningful application of science and technology needs commitment; is not cheap in money, men or time; and it brooks of no magic formulae.

Turning to the reciprocal role of developed countries, we note that the theme of world development has been woefully neglected by the scientific and technological communities of the developed countries, who have made little organised effort to help in this task, nor have they collectively shown any great vision. The same applies to their state agencies.

In addition, the international funds at the disposal of bodies like ICSU — or even UNESCO — for the development of science and technology for global concerns are pitifully small. (The entire UNESCO budget — not to restrict it to what is spent on science and technology — is smaller than that of the Ford Foundation). These international funds need to be increased by at least an order of magnitude.

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## A large debt remains for past exploitation

Joseph Hanlon

THERE is a need for a 'new scientific order', like the new economic and information orders, which attempts to break the stranglehold of the developed over the developing nations. Scientists in developed nations must realise that the science gap has not come about by accident. During the past 200 years of scientific progress, most Third World nations were colonies which were not permitted to develop an independent scientific capability. Small wonder, then, that there is a gap now.

The challenge today, especially for UNCSTD, is that the developing nations are working hard to maintain and widen that gap. The brain drain continues, with the developed nations sucking the brightest scientists into their companies, health services, and universities. Patent laws are now being used to block Third World research into key areas such as alternative energy. Journals and scientific societies, controlled by developed world scientists, define 'good' science as that which is of interest to developed nations. Tied aid ensures that experts and equipment come from such a wide variety of countries that even the most talented local scientist cannot digest and control the results.

All of this ensures that in those scientific areas which are of most importance to the developing nations — health, energy, ecology and geology — the expertise and control will remain with the developed nations.

UNCSTD can help to end this exploitation. But it will require the realisation in the developing nations that they must stop bowing to the demands of journals and aid agencies in the industrialised world. And it will require that scientists and science policy makers of the developed world understand that a large debt remains to be paid for past exploitation, and that a way of repaying is to provide increased aid — not for what they think the Third World needs, but for what local scientists and policy makers feel is required.

*Dr Hanlon is a development journalist*

## Loosen the grip on proprietary rights in technology

Jose Goldemberg

THE most critical actions necessary to improve science and technology in the developing world are probably beyond the powers of UNCSTD, or of the United Nations.

Science, especially technology, does not flourish in the Third World — not because of incompetence amongst the people involved (although that exists too) — but because it is not really needed in the present model of development being followed in most of the Third World. Machines, technical expertise and a powerful marketing system coming from abroad inundate the developing countries, ministering to some of the needs of the people, creating others and above all generating a craving for the comforts of modern civilisation as defined by the industrial nations.

There is little that science can do to interfere with this situation, because most of the science needed exists already, and there are no fundamental new discoveries that could change the situation or the climate in which science could flourish in the Third World.

Technology, however, has to be adapted, in many cases to local conditions (of temperature, humidity, and so on) and to local fuels and materials. Native technologies have a role to play there, but in general technology is imported.

The most critical action to take in my view would be to loosen the grip on proprietary rights in technology. If these were made available and essentially free, local industries would have more room to move and more scientists and technologists would be needed to make choices and develop missing links. One thing that could accelerate this process would be to have international funding institutions which preferentially support projects that use as much native technology as possible.

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