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Science Advice 'Essential' to Meet Development Goals

SciDev.Net (London)

NEWS

January 10, 2005

Posted to the web January 10, 2005

By David Dickson

National governments and international organisations must both pay greater attention to advice from the scientific community if they are to achieve the United Nations Millennium Development Goals (MDGs), according to a report being presented to UN secretary-general Kofi Annan later this week.

Developing countries are also being urged to explore ways of securing closer collaboration between the public and private sectors in applying science to development goals, and ensuring that universities and research institutions play an active role in achieving social and economic development.

The recommendations are contained in the report of the 27-member Task Force on Science, Technology and Innovation of the UN Millennium Project. It is one of ten such reports commissioned by Annan to advise on implementing the MDGs, a set of quantified development targets to be achieved by 2015.

"In a knowledge-based economy, leaders and governments increasingly need science advisors to make effective use of emerging technologies," says Calestous Juma, professor of the practice of international development at Harvard University, a coordinator of the task force and the lead author of the report.

"In a world marked by rapid technological change and the enormous emerging opportunities presented by biotechnologies and nanotechnologies, science advisors will soon be a necessary part of every presidential and executive office, including the Office of the UN secretary-general."

The report, *Innovation: Applying Knowledge in Development*, points out that science, technology and innovation have helped to largely eliminate poverty and hunger, and driven remarkable economic growth in much of South-East Asia and the Asian Pacific. But it says that their potential to help solve poverty and hunger in other developing regions - most notably Africa - is under-appreciated.

"The three great waves of technology - information and communication technology, genomics and biotechnology, and nanotechnology - must increasingly be mastered by the developing world for social and economic gain," says Lee Yee-Cheong, fellow coordinator of the report, and president of the World Federation of Engineering Organisations. "If knowledge is power, technology is key to development."

According to Juma, the report does seek to tell countries how to promote science and technology directly, but offers a variety of lessons learned by countries that have already done so successfully. The purpose is "to illustrate how developing and developed countries have used science, technology, and innovation to achieve their development goals," he says.

The report argues that, science, technology, and innovation must be placed at the heart of the development process, and become the core of industrial, agricultural, and services policies, while explicit links need to be created between market and non-market institutions.

As an example of what can be achieved, the report points to Malaysia's transformation from a supplier of raw materials to a diversified economy that exports electronic products and technology services, arguing that this was the result of the government's decision to put science and technology at the centre of the country's development strategy.

A key role in this process, it points out, has been performed by the Academy of Sciences Malaysia, created in the 1980s. The academy works closely with the Science Advisor's Office in providing advice to the Office of the Prime Minister on methods of achieving national development objectives.

Speaking at a press conference in London last week, Juma said it was "inconceivable" that the MDGs can be achieved as planned by 2015, or even that significant gains can be made in meeting health and environmental concerns, without a focused policy for science, technology and innovation.

"We argue that science and technology are so central to the implementation of the Millennium Development Goals that they should be considered as the driving force behind the achievement of the goals."

He also said that many of the conclusions of the report, which took three years to draft, have been reinforced by the lessons of the tsunami which devastated coastline communities around the Indian Ocean on 26 December, causing more than 150,000 deaths.

"Previous investment in existing technologies, particularly in an early warning system, could have reduced the scale of the disaster," said Juma, echoing similar statements by Lord May, the president of the United Kingdom's Royal Society.

"The sum required to establish an early warning system now looks pitifully small compared to the cost of the disaster in terms of the tens of thousands of lives lost and the billions of dollars of damage caused."

Furthermore, discussion about the need for early warning systems should be seen in the larger context of the role of science and technology in development. Topics that needed to be addressed include both the state of the scientific and technological infrastructure prior to the tsunami, and the role of science and technology in subsequent reconstruction efforts.

"We hope that the events taking place at the moment will at least signal the importance of linking the short-term with long-term development responses," Juma said.

Keeping leaders engaged with this process meant that they needed to be continuously informed and updated on the latest developments in science and technology. "That means that they need mechanisms for receiving science advice, which should be considered just as important as economic advice."

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