



## Perspectives

# Biotechnology: An Ethical and Moral Imperative\*

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The Sixth Asian Biotechnology and Development Conference organised by the Research and Information System (RIS) for Developing Countries and other partners including the Department of Biotechnology and Department of Science and Technology of the Government of India, was very timely for three reasons: 1) there is tremendous progress that has been made in the field of biotechnology in recent years; 2) the current environment of uncertainties on the deployment of this technology; and 3) the pressing need to produce more but nutritious food. Moreover, due to the far-sightedness of the organisers of the conference, the timing was just right when the whole world was sitting in Hyderabad, trying to address the issues of biodiversity and harmonise the global use of this futuristic technology.

Several crises confront agriculture today. These include warming temperatures, drought, floods, increasing land degradation and desertification, loss of biodiversity, rising food prices, zooming energy demand and population explosion, that are creating extreme challenges. Their confluence, if unabated, will lead to a “Perfect Storm”!

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\*This article is based on the valedictory address delivered by the author at the Sixth Biotechnology and Development Conference, held in Hyderabad on October 7, 2012.

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ICRISAT is a global research for development institution dedicated to help and serve the smallholder farmers and the poor in the dryland tropics of Asia and Africa. We work on and improve the productivity of five crops namely, pigeonpea, chickpea, groundnut, sorghum and pearl millet. We also have a socio-economics programme, and a programme on resilient dryland systems. We use the power of science using modern tools to improve our crops for the poor.

Plant genetic resources are essential components to meet future global food and nutritional security needs. These hold potential to increase world food production on existing agricultural lands. We need to increase food production at the level of 70-100 per cent in the developing world to support the dietary requirements of 9.1 billion people by 2050.

The most promising technological strategy at this time is to integrate the best of conventional crop improvement technologies and the best of biotechnology applications. Biotechnology in general, and transgenic technology in particular, offer powerful tools for crop productivity enhancement, not only in terms of quantity, but also in nutritional quality. This, not only can save lives but also help farmers adapt to climate change, in the process generating social, economic and environmental benefits for resource-poor farmers.

Plant biotechnology has the potential to move agriculture from a resource-based to a science-based industry. ISAAA in its report for 2011 highlighted that 16.4 million farmers from 29 developing countries are already planting genetically modified crops in 160 million hectares. More than 90 per cent of these farmers are smallholder farmers.

ICRISAT is using biotechnology/transgenic technology on a needs basis, especially for constraints that cannot be easily addressed due to the lack of available germplasm resources for specific traits. We believe that the sustained growth of agricultural biotechnology needs, among other things, science-based regulatory decisions. Since scientific advances are opening new avenues for biotechnology applications, risk assessment and biosafety research should be essential inputs in our decision making process.

We would proceed with this revolutionary science with caution, giving utmost importance to introducing biosafety measures from the initial stages

of research and following precautionary approach during the entire product development. In this regard, RIS along with its partners has built a strong global capability and position over the years. Five previous conferences covered several key issues confronting agricultural development including food security, economic contributions of biotechnology, trade and IPR related issues, the implementation of biosafety protocols, and most importantly, the role of public-private partnerships.

At the heart of all this is how to bring the benefits of biotechnology to small farmers and economies, that is very close to ICRISAT's strategic framework of Inclusive Market Oriented Development (IMOD).

There are new and exciting developments in biotechnology that are helping the developing world meet the demands for a safe, sustainable, and nutritious food supply. What we should focus on is to harness ways in which we can do a better job of using this science, a better understanding of the benefits that it brings. While biotechnology is a valuable tool in eliminating global hunger, poverty and malnutrition, and it is a strategic weapon in winning the next green revolution, let us harness it with due regard to consumer and environmental safety.

We would strongly suggest that on top of the recent advances of biotechnology which have been remarkable, RIS should consider a systematic and sustained effort in communicating and marketing the biotechnology work of public institutions including the work that ICRISAT is doing with the private sector. We will not succeed in developing and deploying GMOs if the public at large is not part of the process as they must understand that this is not just a technical imperative to feed the poor and the hungry but has become an ethical and moral imperative.