

TWN

Third World Network

Email: twnet@po.iaring.my

Websites: www.twinside.org.sg, www.biosafety-info.net
Address: 131 Jalan Macalister, 10400 Penang, MALAYSIA
Tel: 60-4-2266728/2266159 Fax: 60-4-2264505

Briefings for MOP 4

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Assessing the socio-economic, cultural and ethical impacts of GMOs

How should Parties take into account socio-economic considerations in their decision-making? While the issue is on the agenda for MOP 4, the emphasis so far is on continued sharing of research methods and results. What is really lacking is clear guidance on how to implement Article 26.

There are however, potentially powerful tools that can help guide decisions on research, development, movement and introduction of GMOs. One such tool is the socio-economic impact assessment (SEIA), which can be used to integrate socio-economic considerations into biosafety policy and practice.

*This briefing summarizes the following publication - **Potential Socio-Economic, Cultural and Ethical Impacts of GMOs: Prospects for Socio-Economic Impact Assessment**, by Elenita C. Dano, TWN Biotechnology & Biosafety Series 8, 2007.*

Introduction

Socio-economic, cultural and ethical considerations related to the use and release of genetically modified organisms (GMOs) are important aspects but have received less attention than the risks to the environment, health and biodiversity. Their importance has been recognized by the international community as socio-economic considerations have officially been taken on board the Cartagena Protocol on Biosafety.

Article 26 of the Protocol on Socio-economic Considerations says that: “1. *The Parties, in reaching a decision on import under this Protocol or under its domestic measures implementing the Protocol, may take into account, consistent with their international obligations, socio-economic considerations arising from the impact of living modified organisms on the conservation and sustainable use of biological diversity to indigenous and local communities; 2. The Parties are encouraged to cooperate on research and*

information exchange on any socio-economic impacts of living modified organisms, especially on indigenous and local communities.”

While the Protocol has recognized that there are socio-economic considerations arising from GMOs, and that these may be taken into account in biosafety decision-making process, research on socio-economic considerations is not a requirement for decision-making.

In order to give meaning to the provision of the Biosafety Protocol on socio-economic considerations, tools have to be developed and applied to guide decisions on research, development, movement and introduction of GMOs.

One such potentially powerful tool is the socio-economic impact assessment (SEIA), which is adapted from the existing mature tools adopted in environmental impact assessment.

SEIA can help in assessing the potential

consequences on the various aspects of the society in which a particular technology is being introduced. It is a participatory assessment tool which maps local knowledge in a particular societal context where a new technology will be introduced, to help decision-makers weigh the potential benefits and risks of GMOs to different socio-economic spheres. It entails the involvement of different actors/stakeholders and a plurality of aspects in the assessment.

What to assess?

Society is a complex organism that has evolved in specific contexts where economic, political, social cultural and ethical spheres constantly interrelate with each other in an intricate manner. Below are some components of socio-economic considerations that have been identified that attempt to capture this complexity and which GMOs may have potential impacts on.

1. Economic considerations

Control over tools and relations to production

In the context of GM crops, the control over seeds and the accompanying inputs that complete the technology needs to be the core consideration in socio-economic assessment bearing in mind the lessons learnt from technologies such as the Green Revolution which reinforced income inequality and wealth distribution in rural areas. Key questions that need to be addressed are: Will the dissemination of GM seeds provide opportunities for poor farmers to have some control over the tools of production, or will it further entrench control of particular segments of the community over farm inputs, processing and marketing?

Income security

The impact of GMOs on farmers' net income is another important consideration. Economic cost-benefit analyses which take account the specific farming practices and conditions of farmers who have adopted the technology would be useful. Basic questions about the costs of GM seeds and other required inputs and their share in the total cost of production should be posed, along with potential net income (or losses) that farmers can expect from using the seeds. Hidden costs such as environmental and health effects should also be considered.

Income and wealth distribution

Companies that develop GMO products usually charge higher prices for their products such as GM seeds, with the intention to recoup their investments on research and development. Such pricing would tend to favor the richer farmers who can better afford the higher cost of seeds. Granting that the company's claims are true with regard to the benefits of the GM seeds i.e. insect-resistant or herbicide tolerant, those who will benefit from this promise are those richer farmers who can afford the seeds and who already have relatively high income to start with. Such a situation would expectedly aggravate the problem of income inequality and wealth distribution, especially in the rural areas.

Rural labour

Rural labour is a major economic concern especially in developing countries where widespread rural unemployment is a perennial problem. For instance, the introduction of herbicide-resistant GM crops that eliminates the need for weeding or tilling of the soil during land preparation will potentially have grave long-term impacts on rural labour, as less labour requirement means less employment opportunity for poor agricultural workers.

Markets

Prices of agricultural commodities are highly sensitive to and dictated by supply and demand and GMOs may affect market behaviour. Developing countries whose economies are highly dependent on the production and export of specific agricultural products are particularly vulnerable. For instance, spikes in the production of or expansion of areas devoted for the production of *Bt* cotton in the US or India could affect the potential market for cotton produced in poor West African nations where millions of farmers depend on cotton cultivation for their livelihoods.

Trade

With regard to trade, a major issue for developing countries to consider if they decide to venture into commercial production of GM crops is their ability to compete in the international market. In order to compete with the commodities of bigger and wealthier countries in the export market, developing countries must meet high international standards such as sanitary and phytosanitary standards, which many find difficult to comply with, thus

jeopardizing export prospects.

GMO contamination and organic cultivation

The various contamination cases that have been brought to light suggest that the problem is very real. Pollen from GM crops has been found to have travelled long distances by wind or through insects, making co-existence a challenging task. GMO contamination of conventional crops, and of wild and weedy relatives, poses serious threats to biodiversity and the genetic base for long-term food security.

Also at risk are the economic prospects that countries and farmers hope to gain from organic crops. Considered as the fastest growing sector in agriculture, organic agricultural products are increasingly important to the economy of many developing countries. Should contamination of organic crops occur, farmers would lose the organic status for their crops and the premium prices they command.

Food security

For developing countries where agriculture is a primary activity to ensure family subsistence and provide food supply to the domestic market, a key concern that needs to be addressed is the impact of GMOs on long-term food security. The majority of the GMOs commercialised worldwide are mostly intended for animal feed and not usually considered food crops. If these GM crops are cultivated in the developing world, household food security faces the threat of conversion of land areas traditionally planted with food crops to the production of commodity crops for industrial use and export. A sound socio-economic impact assessment therefore should look into the impacts of the adoption of GM crops for industrial use on overall food security of communities.

Food aid

While ensuring long-term food security remains a great challenge for countries, many poor countries are confronted by emergency situations that inhibit farmers from producing their own food, particularly in areas affected by wars, natural calamities, drought and famine. In such circumstances, countries may need to depend on international assistance for the survival of their people. If the emergency assistance comes in the form of food aid containing GMOs, countries will be confronted with

the decision whether they should accept or reject such aid.

Intellectual Property Rights (IPRs)

GMOs and GM products that are commercially available, even those that are still being developed, are protected by IPRs owned by the companies and institutions that developed them. There is concern that the proprietary stake of companies over these products will result in concentration of the technology in corporate hands and therefore control over production. IPRs may also hamper the free flow of information, knowledge and genetic materials that are the basis for research and development efforts in public universities. As such, corporate control over the technology could severely limit the potential of public institutions to pursue research that serves the interest of the poor, whose needs are often ignored.

2. Social considerations

Impacts on farmers' rights to save seeds

GMOs could impact on the traditional practice of farmers in saving, reusing, sharing, exchanging and selling farm-saved seeds. This is especially relevant in developing countries where such practices are common among farmers. The traditional seed-saving practices of farmers are widely regarded as the foundation of the immense genetic diversity in agriculture today. Thus, developments that may limit this practice, such as stringent application of the IPR system on seeds, are potential threats to the long-term food security of rural communities and countries.

Impacts on women

The impact of new technologies on women and gender roles should also be assessed. History has shown that the introduction of modern agricultural technologies have further led to the marginalization of women in rural areas and their roles made more invisible by the innovations which are designed mainly for men.

Consumer concerns

While GM technology may produce cheaper products for consumers through higher and more efficient production, consumer acceptance of GM products in the market, however, does not only hinge on price. Other factors such as cultural and

ethical values, and perceptions on health and environmental safety of the product also play significant roles and need to also be assessed.

Institutionalizing the SEIA

Regulators should be mindful that most of the socio-economic consequences of GMOs are likely to be irreversible and uncontrollable once the products have been released into society.

As such, SEIA needs to be integrated into the biosafety decision-making policy and processes, such as the national biosafety framework, biosafety regulation or biosafety law of the country. SEIA should not be limited to an assessment after decisions on GMOs have already been taken, but should be integrated in different stages of the biosafety process – from the contained experiment, to the limited field trials up to the time prior to the commercial release of GMOs.

To be effective in guiding decision-making concerning GMOs, SEIA needs to adopt a bottom-up approach involving all actors who may be affected by GMOs. However, active participation can only be expected from an informed public, which underlines the need for public awareness, transparency and public access to information. Awareness-raising efforts should also extend to broadening the public's perspective on alternative technologies and options.

SEIA clearly involves a multi-disciplinary assessment. Moreover, context-specific socio-economic assessment tools need to be developed with inputs from the different actors. In general, the processes involved in the SEIA and how they are actually implemented in reality would determine the credibility of the exercise as a basis for decision-making on GMOs.