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INTERNATIONAL TRADE IN GMOs AND GM PRODUCTS: NATIONAL AND MULTILATERAL LEGAL FRAMEWORKS

by

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ABSTRACT

The debate about biotechnology applied to agriculture is one of the most vocal and passionate debates that have been taking place in recent years. This is probably the consequence of the diverging appreciation that people and Governments have of the actual or potential risks and benefits that the products of agricultural biotechnology – genetically modified organisms (GMOs) and products thereof – can bring.

For some, they would help addressing some of the most serious problems that people, especially poor people in developing countries, face, such as starvation and malnutrition. For others, they could create serious and unpredictable health and environmental problems and also have negative economic repercussions, in particular in developing countries.

The proliferation of domestic biosafety schemes and the related authorization, labelling, traceability and documentation obligations are likely to further complicate international trade in genetically modified agricultural products and indirectly affect trade in conventional agricultural products.

For developing countries, agro-biotechnology is a particularly challenging phenomenon. They could be the main beneficiaries of it – if indeed agro-biotechnology keeps its promises – but they could also be the main losers if agro-biotechnology negatively affects biodiversity or if patented biotechnology disrupts traditional practices among farmers and makes access to seeds more difficult.

Countries are free to decide how to deal with agro-biotechnology and biosafety at the national level, but domestic legislation has to be WTO-consistent to the extent that it affects international trade. At the same time, this is a field where multilateral rules have been agreed upon in a separate legal instrument, the Cartagena Protocol on Biosafety. The interaction between this specific instrument and the WTO rules adds challenges to an already complex scenario.

While developed countries have established their national frameworks to deal with agro-biotechnology and biosafety focusing primarily on domestic priorities and strategies, most developing countries are doing so under less flexible circumstances. They increasingly seem to be expected to set up their national regulatory schemes based on the requests and expectations of their main trade partners. For developing countries, reconciling their trade interests with their responsibility for improving the quantity and quality of agricultural and food products made available to the population and with their commitment to environmental preservation is proving to be a difficult task.

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I. INTRODUCTION

Biotechnology is a revolutionary technology.[1] It offers humanity the power to change the characteristics of living organisms by transferring the genetic information from one organism, across species boundaries, into another organism. These solutions continue the tradition of selection and improvement of cultivated crops and livestock developed over the centuries. However, biotechnology identifies desirable traits more quickly and accurately than conventional plant and livestock breeding and allows gene transfers impossible with traditional breeding. The use of biotechnology in sectors such as agriculture and medicine has produced a growing number of genetically modified organisms (GMOs) and products derived from them. A GMO can be defined as "an organism, with the exception of human beings, in which the genetic material has been altered in a way that does not occur naturally by mating and/or natural recombination".[2]

Bio-technological improvements present significant opportunities for agriculture and farmers. At present, the perceived benefits of genetically modified crops are better weed and insect control, higher productivity and more flexible crop management. These "first generation" GM crops are mainly benefiting the producers who can obtain higher yields and/or lower costs. The broader and long-term benefits, however, would be more sustainable agriculture and better food security that would benefit everybody, and especially the developing countries. For instance, breeding for drought tolerance could greatly benefit tropical crops, which are often grown in harsh environments and in poor soils. Increasing the amount of food produced per hectare could be a way to feed the world's growing population, without diverting land from other purposes such as forestry, animal grazing or conservation. Scientists have created a strain of genetically altered rice – the so-called golden rice – to combat vitamin A deficiency, the world's leading cause of blindness and a malaise that affects as many as 250 million children. Economic development experts describe the vitamin A rice as a breakthrough in efforts to improve the health of millions of poor people, most of them in Asia.[3] There are a number of examples of food products that are being developed to act as edible vaccines and have raised hopes of solving many of the problems associated with the delivery of safe, effective vaccines in developing countries.[4] A shift is, therefore, occurring from the current generation of "agronomic" traits to the next generation of "quality" traits, from which consumers, more than producers, would to able to benefit.

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[1] The Convention on Biological Diversity defines biotechnology as "any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use". The biotechnology industry provides products for human health care, industrial processing, environmental bioremediation, and food and agriculture.

[2] This definition is provided in Directive 2001/18/EC of 12 March 2001 on the deliberate release into the environment of genetically modified organisms and repealing Council Directive 90/220/EEC, OJ L 106, 17.04.2001, Article 2(2).

[3] See "Generically altered rice: A tool against blindness", *International Herald Tribune*, 15-16 January 2000.

[4] MacKenzie, D.J. and M.A. McLean, "Agricultural Biotechnology: A Primer for Policymakers", in *Agriculture and the WTO – Creating a Trading System for Development*, The World Bank, 2004, pp.237-253, at 238.

While GM crops may offer great benefits to agriculture and farmers and, potentially, to consumers, in particular to poor people in developing countries, biotechnology does not come without risks and uncertainty. There are many fears linked to perceived threats of biotechnology to human, animal and plant life and health, to the conservation of biodiversity and to the environment at large. Although there is not yet any definite scientific evidence of harm to humans, animals or the environment, it is submitted by many that adverse effects may be revealed in the future by more extensive research. The fear is that GMOs may change the toxicity and allergenicity of food, thus fostering allergic reactions or altering antibiotic resistance. A major environmental concern relates to potential consequences of gene flow from GM to non-GM individuals of the same species and to the possibility of unpredictable crosses with other species. Some claim that crops modified to be tolerant to herbicides could foster the development of "super weeds". Another related concern is that GMOs could threaten the world's biological diversity and lead to excessive dependence on few crop varieties, thereby increasing the vulnerability of crops to diseases. Economic preoccupations have also been voiced. They relate to the fact that a large number of patents have been issued in the sector. If the results of plant research continue to be patented, there is a risk that they may become too expensive for poor farmers, especially in developing countries. Moreover, the private sector invests in areas where there are hopes of a financial return; as a consequence, private science may focus on crops and innovations that are of interest to rich markets and put less emphasis on those of interest to poor countries. It is also argued that biotechnology may change the nature, structure and ownership of food production systems by consolidating control in the hands of a few large firms. This could aggravate food security problems that are allegedly caused not so much by food shortages as by inequity, poverty and concentration of food production. Finally, modern biotechnology techniques may raise ethical and religious concerns.

Countries' positions on agro-biotechnology depend on many factors, such as their policy awareness, the level of risk they are willing to accept, their capacity to carry out risk assessments in the sector and implement adequate legislation, their perception of the benefits they could gain from biotechnology, their dependence on agricultural exports, their reliance on food aid, and the investments they have already made in the sector. However, there is a sharp contrast at present between the widespread international acceptance of biotechnology's benefits in pharmaceuticals and industrial products, and the rapidly growing concerns about its possible dangers in agricultural and food production.

Assessments of the risks and benefits related to agro-biotechnology vary substantially between countries and regions, and so do the regulatory approaches (rules on GM approval, marketing, import, labelling, documentation). When GM products are commercialized internationally, as has been the case since the second half of the 1990s, the diverging domestic requirements may hamper international trade in agro-biotechnology products and further complicate an already difficult regulatory trade system in the agricultural sector.

II. DOMESTIC LEGISLATION ON AGRO-BIOTECHNOLOGY IN SELECTED DEVELOPED AND DEVELOPING COUNTRIES

According to figures from the International Service for the Acquisition of Agri-biotech Applications (ISAAA), the global area of GM crop plantation has grown 47-fold since 1996, and the estimated global GM crop area in 2004 was 81 million hectares, cultivated by approximately 8.25 million farmers in 17 countries. Herbicide-tolerant soybean was the dominant transgenic crop, followed by Bt maize,[5] Bt cotton, and herbicide-tolerant canola. 14 countries grew 50,000 hectares or more of biotech crops; the eight leading biotech crop countries being the United States, representing 59 per cent of global transgenic crop area; Argentina, 20 per cent; Canada and Brazil, 6 per cent each; China, 5 per cent; Paraguay, 2 per cent; and India and South Africa, 1 per cent each. Plantings were also found in Uruguay, Australia, Romania, Mexico, Spain, the Philippines, Honduras, Colombia, and Germany. More than one-third of the global transgenic crop area in 2004 was grown in developing countries (see figure 1).

In 2004, 56 per cent of soybean, 28 per cent of cotton, 19 per cent of canola and 14 per cent of maize planted globally were transgenic. If the global areas (conventional and transgenic) of the four principal GM crops are aggregated, the total area is 284 million hectares of which 29 per cent was biotech in 2004.

Figure 1