

## **Agricultural Trade and Environment: On Parallel Tracks or a Collision Course?**

Mad Nasir Shamsudin<sup>1</sup>

The impacts of trade liberalization and globalization such as the ASEAN Free Trade Area (AFTA) at the regional level and the World Trade Organization (WTO) at the global level on the agricultural sector are well known. These involve continued decline in farm subsidies, less trade barriers both tariff and non-tariff, which result in increase movements of output (goods and services) and inputs especially capital, flattening of commodity prices and market driven agricultural economy. More trade seems inevitable as the world economy grows.

Trade activities however have direct impact on natural resources and the environment, although there is no conclusive evidence that trade by itself necessarily harms the environment. Rather, trade often magnifies the environmental effects of economic activities. For instance, agricultural practices can cause negative and externality. Farmers do not bear all the costs associated with agricultural production, such as soil erosion, water depletion, surface and groundwater pollution, deforestation, loss of wildlife habitat, and chemical misuse and contamination. However, environmental regulations can cause market access for certain agricultural produces. Thus just as the implementation of agricultural and trade policy creates a complicated set of environmental distortions, environmental regulations in turns generates an equally complicated set of trade distortions. The question here is whether agricultural trade and environment are on parallel tracks or a collision course.

The concern for the environmental effects has caused the proliferating of environmental regulations. According to the WTO Environmental Database (EDB), which contains information on governmental environment-related measures, the share of environment-related notifications under the WTO Agreement on Technical Barriers to Trade has increased from 10 percent in the early 1990s to 16 percent in recent years. Environmental (and health-related) requirements are also becoming more stringent and complex. For example, standards and regulations concerning maximum residue levels (MRLs) for pesticides and other chemicals are an issue of concern to developing countries. An increasing number of hazardous substances are banned, for example, in the food industry. New legislation is also emerging concerning traceability. For example, European Union (EU) legislation on the Common Organization of the Markets in Fishery and Aquaculture Products, effective as of 1 January 2002, requires exporters of fish and fishery products to label consignments (or accompany them by a document) identifying the species name, production method and catch area. Such requirements may be difficult for developing countries to meet, as these countries face major difficulties in implementing sophisticated traceability systems. To be able to meet various product-content-related standards and regulations, changes in processes and production methods are required. Often, policies in the form of regulations (such as standards, bans, and

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<sup>1</sup> *The author is Professor of Agricultural and Resource Economics and Dean, Faculty of Agriculture, Universiti Putra Malaysia.*

restrictions on input use) and incentive-based mechanisms (such as taxes, subsidies, and marketable permits) are implemented as corrective measures. While these policies may meet their environmental goals, they also affect production, trade, investment, technological change, and consumption. Such effects may be particularly important to agricultural producers and food processors.

Environmental policies influence the composition of agricultural production and trade. As the cost structure of a regulated industry or activity rises relative to that of other less-regulated industries or activities, productive resources will shift toward the less-regulated sectors. Resources may be encouraged to move out of agriculture should environmental controls in agriculture become more restrictive than in other industries. These output composition effects also influence the relative mix of agricultural output and trade. For example, production and export of less fertilizer-intensive crops might be encouraged should a fertilizer tax be implemented. The composition effect may also influence the relationship between primary production and processing of agricultural products. Pesticide restrictions could reduce production of fruits and vegetables. A country may then import more primary products for processing or may import the processed products and shift resources out of agribusiness.

Environmental requirements may also have potential effects on market access. These requirements include regulations (which are mandatory) and standards (which are voluntary and can be implemented by the private sector or NGOs); labelling requirements (either mandatory or voluntary, such as eco-labelling); packaging regulations; and certain sanitary and phytosanitary (SPS) measures. Many of these require proof of compliance – for example, through conformity assessment, including certification. Standards and regulations are also being implemented to achieve the objectives of multilateral environmental agreements such as the Montreal Protocol and the Basel Convention. In some countries, increasing emphasis is being placed on integrated product policies and producer responsibility, based on instruments such as take-back obligations, non-regulatory measures (including information-based instruments and self-regulation) and life-cycle analysis. Such policies have emerged in particular in Europe, but their use in non-European countries is also growing. The impact on developing country exports might be positive in those cases where developing country producers have a comparative advantage in environmentally-friendly produce. The impact could also be negative: developing country exports might be inhibited by environmental requirements if developing country producers have limited information, resources or capacity to comply with environmental requirements in export markets. If they are unable to comply with the environmental requirements, developing countries are also less likely to be able to take advantage of any environmental, health or social benefits at the domestic level.

National environmental policies may exert long run effects on international investment flows and firm location. Just as labor-intensive industries may concentrate where labor is abundant (everything else equal), polluting industries may concentrate in countries with less stringent environmental policies (everything else equal). One concern is that developing countries, in particular, may use their lower environmental standards to attract foreign investment and stimulate economic growth. Another is that countries that are moving toward stricter environmental regulations will encourage industrial and capital

flight toward countries offering “pollution havens.” However, little evidence supports the pollution-haven hypothesis, particularly concerning the importance of differing environmental standards for foreign direct investment in the food and agriculture sectors.

Although environmental regulations often raise production costs and reduce competitiveness in the short term, long term effects are less certain as agricultural producers adjust and innovate. The regulations altered input values and imposed costs on producers, inducing a change in input use and the subsequent choice of alternative technologies. Thus, changes in relative factor prices stimulate innovative activities. Research institutions will innovate to remedy the constraint imposed by the policy-induced factor scarcity. Hence environmental regulation can act as a signaling mechanism that stimulates research into environment-conserving technologies. The adopting country’s competitive advantage in world markets for agricultural crops may also be enhanced, although the new crop varieties may quickly transfer to other countries as well. Such technological change can allow a country to improve environmental quality without constricting crop production. At the same time, the technological improvements that drive growth result in savings on inputs, including energy and environmental amenities. This effect decreases the pollution intensity of growth. Further, higher living standards increase the affordability and desirability of reduced pollution and indirectly lead to better environmental protection.

So, is the world trade and environment on parallel tracks or a collision course? Freer trade generally increases the rate of economic growth, which can harm the environment if polluting activity increases with growth, but can improve the environment if resources are reallocated to less polluting activity, or if growth leads to the adoption of environmentally friendly technology. Economic growth is also recognized as a crucial factor in increasing the demand for environmental quality. Available evidence on the environmental impact of trade policy reform and integration in output and factors markets does not support the pessimistic conjecture of a wholesale specialization in dirty activities.

What has been the developing countries' experience with various policies and institutions? Market-based instruments have proven effective in tackling environmental problems. A reduction of subsidies on pollution-intensive activities or raising taxes on polluting activities (via discharge, input, or output taxes) decreases pollution and increases tax revenues. Furthermore, the cost of environmental protection is moderate and does not compromise competitiveness. Findings pertaining to the developing world are consistent with the extensive literature investigating the impact of environmental regulation on competitiveness in the United States. For example, Malaysia is an interesting case of specialization in environment-intensive activities accompanied by environmental protection. In Malaysia, the palm oil industry has been facing substantial environmental regulations that were implemented rapidly. The palm oil industry faced a loss of profit, but has adapted well to the new regulations and taxes. Compliance is high and exports have not decreased, despite the limited opportunities to pass on to consumers the cost increase of crude and refined palm oil in world markets. These markets are very competitive, and many substitutes exist for these goods. Research conducted by MPOB

and universities has helped to develop commercial by-products, which reduced the cost of compliance by generating revenues from the by-products instead of treating or dumping them and paying penalties.

Given that free trade and environmental protection should be undertaken jointly, which environmental policies are feasible and desirable? Environmental protection as part of the economic development process can be characterized by a continuum of institutional quality that guides and sustains economic activity. There is a supply and demand side to the quality of institutions protecting the environment, and both are influenced by the trade orientation of an economy. On the demand side, economic growth implies higher income and increasing demand for environmental protection and standards. At much higher levels of income, environmental problems that are more remote in space and time eventually become prominent; this typically occurs after graduation from the developing economy stage. On the supply side, governments in developing economies have scarce amounts of resources and human capital to allocate to the provision of competing institutional functions, including environmental protection. These governments are accumulating policy and institutional experience. Institutional knowledge can be transferred across industries and borders. Hence, the free movement of institutional knowledge reinforces the sustainability of economic development. Environmental side-agreements to trade agreements could facilitate such knowledge transfer. Cleaner technology innovation and adoption in industrial countries have been driven by environmental regulation. Combined with foreign direct investment (FDI) and the use of technology-laden imported inputs, this cleaner technology can be transferred to developing economies.

Thus whether agricultural trade contributes to environmental degradation depends to a great extent on two factors: the strength of national environmental regulations, and the degree to which international trade regimes reinforce or undermine them. If a country's ability to regulate pollution and exploitation of natural resources is already weak, international trade can amplify existing problems. Whether trade rules strengthen or weaken environmental regulation depends on how trade and environmental policies mesh. The effect of freer trade on environmental quality also depends on what happens to the level of economic activity and associated pollution, the intersectoral changes in economic activity, and changes in production methods. Well-designed and enforced environmental policies are more likely to ensure that trade liberalization will bring economic growth and gains in environmental quality. Economic growth and higher incomes engendered by free trade may also lead to a greater social preference for the resources available to achieve environmental improvement, as depicted by the environmental Kuznets curve.