

# Chapter 5

## Competitiveness and Food Security

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# CHAPTER 5

## Competitiveness and Food Security

### Competitiveness

The increasing oil prices since the early 2000s have accelerated efforts for energy security through the utilisation of renewable energies. At the early stage before 2004, the general concern was to promote renewable energies. From 2003 to 2004, various renewable energies promotion initiatives were introduced, including the 10 percent target of ASEAN (2003), the Renewable Portfolio Standard (RPS) targets of Thailand, and the Renewable Energy Bill of the Philippines.

As crude oil prices continued to rise, the competitiveness of biofuels as alternatives to oil could improve. Policy measures emerged in 2005 with the “Call for Biofuel in Thailand” in 2005, jatropha cultivation order in Myanmar in 2006, presidential instruction for national biofuel team in Indonesia in 2006, and the *Biofuel Act of 2006* in the Philippines in 2006. These Asian responses to the rising crude oil prices were accumulated in the Second East Asia Summit in Cebu, Philippines in January 2007. The cost of energy security is at stake. The message was clear that they were searching for alternative competitive fuels. Especially for oil-importing countries such as India, China, Thailand, and the Philippines, the concern was not only energy security, but also the loss of foreign reserve through increased payment for energy importation.<sup>1</sup>

The crude oil price level at the Second East Asia Summit is the same as the current crude oil price level of around US\$100/bbl. According to a study of

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<sup>1</sup> Yamaguchi and Yanagi (2010).

the IEA,<sup>2</sup> this price level makes most of the conventional biofuels in Asia competitive to oil products. However, this study found that there are cases that the higher energy prices in the domestic market do not necessarily increase the supply of domestic biofuels. One case is the higher selling prices in international markets, which could be for food or energy. Another case is the higher prices in domestic food market. The result is shortages of domestic biofuels, notably in Indonesia and Malaysia, with no stringent implementation of biofuel mandates. If the case is the higher prices in the domestic food market, it should have contributed to the security of food.

In the international perspective, the prices of energy and food in developing Asian countries are generally low compared with those in developed countries. The increase of demand for feedstocks in the export market could benefit domestic farmers, but not domestic energy consumers. A stringent mandate of biofuels should be designed in consideration of the interactions and relative competitiveness of domestic and international energy and food markets.

## Food vs. Fuel

Most of biodiesel in Asia is from palm oil (Indonesia and Malaysia) and coconut oil (Philippines). Most of bioethanol is from sugarcane (India, Thailand, and the Philippines) and cassava (Thailand). These feedstocks are originally used for food, including those for humans and for livestock. The problem is that the increased price of biofuel will increase the supply of biofuel, decreasing the land available to supply these foods. The anticipated outcome is the shortage of foods and price increases of foods. A critic from a famous scientist “boom in bioethanol is a competition between the 800 million people in the world who own automobiles and the 3 billion people who live on less than \$2 a day”<sup>3</sup> is a serious challenge to the cause of poverty reduction through the promotion of biofuel.

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<sup>2</sup> IEA (2013b).

<sup>3</sup> Brown (2006).

Therefore, it is generally believed that the global food crisis of 2007/08 is partly due to the production of biofuels. The experience in Asia also highlighted serious concern for the rise of food prices and shortages in imports. Although later studies, including those by the World Bank, concluded that the contribution of biofuels' production to the rise of food prices had not been as large as originally thought,<sup>4</sup> the concern is put into a priority in this study.

In Asia, nonetheless, the emergence of biofuel as a product of agriculture has had a strong impact on agriculture for its potential for increased value added of the agricultural sector. This is because most of the Asian countries are agrarian and have strong agricultural base for export. Even if it increased the prices of food as agricultural products, it becomes an economic benefit of the agriculture sector.

In fact, one of the findings in this study is that conventional biofuels from edible agricultural products have become very important as alternatives to oil products and their promotion becomes a national priority in energy and agricultural policies in many countries in Asia including ASEAN countries that suffered from food price increases, such as Indonesia, the Philippines, and Malaysia.

The reality is that commercially available technologies are limited to those of conventional first-generation biofuels in Asia, therefore, without clear prospects of next-generation biofuels, the supply will continue to depend on conventional technologies. Conventional technologies use agricultural land for energy crops. In terms of "food vs. fuel" arguments, the two options<sup>5</sup> for feedstocks are (1) edible feedstocks like sugarcane, cassava, and palm oil<sup>6</sup>; or (2) non-edible alternatives like jatropha.

Although there are opinions in favour of non-edible alternatives, this study found the non-edible option to be not realistic at this time. Rather, the first option of edible feedstocks for biofuels is supported, as far as supply can

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<sup>4</sup> The World Bank (2010).

<sup>5</sup> The other option, which is outside the scope of this study, is that biofuels should not be used (see Pimentel et al. [2010]).

<sup>6</sup> The view here is that food and biofuels are not competing, but should be compensating each other (see Johnson and Virgin [2010]).

meet the demand until next-generation technologies become commercially available. There are two major advantages. One is food security. The expansion of food-compatible energy crops can be a safety net against food shortage. Second is the compatibility of the market. The market of feedstocks for both foods and energy expands beyond one “food only” market or “energy only”, therefore, farmers could be more secure compared with the “biofuel only” market, which can be more volatile than the market of food.