Thailand Bio-industry: What's next?

One of the current global megatrends is that people become more concerned about stressed resources, climate change, and several other circumstances that affect our living world. Conventional sources like coal, oil and natural gas called fossil fuels are depleting. Many countries are experiencing fast degradation of these sources and are currently suffering from the side effects of drilling these energy reserves. Renewable energy then is increasing its popularity. Therefore, bio-industry including environmental friendly/ bio-based products, has found its place and role to play in the market.

Global bio-industry overview

Generally, bio-industry can be divided into 4 categories, which are bio-energy, bio-chemical, bio-pharmaceuticals, and bio-plastics. The global market is estimated to be around 400 billion USD in 2013[1], which is mostly concentrated in developed regions, North America and Europe continents. The growth of the industry has increased substantially at almost 10% from 2010 to 2013 and is expected to grow at around 13% from 2013 to 2018. Some people believe that bio-based products will continue to grow and will eventually substitute some conventional products from petroleum based. Some doubts whether it will last long as its cost and prices are mostly a lot higher than the conventional sources, which affect both supply and demand of the industry.

Apart from higher cost and higher price, quality of material also poses an interesting challenge for bio-based products to overcome. Some bio-based products are verified to not provide the same quality as conventional source ones. For example, bio plastics; Poly-Lactic Acid or PLA that global beverage company like Coca Cola used during its first phase of adapting towards green trend. The material is 100% made from plants; however, it cannot keep the product shelf life as long as the traditional packaging from petroleum plastic, which Coca Cola eventually needs to convert all of its plastic packaging to 30% bio-based content plastic, which is Bio-PET.

Even cost, price, and performance of bio-based products could be obstacles for companies interested in using them. Still, those companies could gain positive perception from customers by being environmental-friendly and used as a CSR tool. Also, they will ultimately force bio-based product manufacturers to squeeze their cost and price and finally become more competitive with the conventional ones, as those companies are not willing to pay the premium[2] of bio-based products.

Bio-based product market landscape

Key principle to survive in any market/ industry, it is necessary for the companies to make profits and understand demand of customers in the market. This rule also applies to bio-based products, which the demand appetite is varied through different regions. The following is examples of each region's preferences on consuming bio-based products.

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[1] Edward Gobina, (2014) Biorefinery products: Global markets. *BCC Research*

[2] The companies gain lower profit margin since they have higher cost from purchasing bio-based products but sell their finished product at the same price

Small countries around the world, such as Taiwan, have a concern regarding limited landfill. Since landfill is required for retaining the garbage; the more garbage produces, the more landfill will be taken. Thus, the government has developed the policy about bio-based products, which are degradable, as a waste management tool to tradeoff between the cost of landfill required and premium price of bio-based products purchased. This is also one of the tools to create demand and minimize the difficulty in implementing high-priced of bio-based products.

European countries are known to be an environmental concern region. They are usually aware of carbon content released to the earth atmosphere. Their governments also support and provide a wide range of favorable initiatives, including policies, a research and development, and the industrial promotion. For example, France requires that by 2010 all garbage bags must be compostable, while Germany has exempted the tax for the compostable packaging. Some of their private sectors voluntarily use bio-based products to make the world better living place.

Asian countries, on the other hand, mostly consider the cost and price of products as their first priority. As most countries in the region are developing or under developed countries, meaning that they are not willing to pay for high-priced products, green products that do not give them luxury perception. Consequently, to drive bio-based products to be demanded in the market, the countries need to announce a strong policy towards the products such as enforced regulations towards the use of them in certain industry.

Spot light on Thailand bio-industry

Thailand is an agricultural country with abundant supply of biomass materials and agricultural products including sugarcane, rice, cassava, palm, and etc. These products are rich in composition of feedstock for the production of most bio-based products such as starch (carbohydrates), sugar (glucose), and fibers (cellulose). Hence, Thailand is clearly at a leading spot to develop bio-industry compared to other countries in South East Asia region.

However, Thailand has not been able to create the complete value chain of the bio-industry and bio-based products have not been widely distributed including used in the local market. Thailand is not currently equipped with researchers and experts in bio-industry ranging from the upstream, midstream to downstream businesses. Both Thai government and private sectors have made a lot of efforts to support the industry to grow and continuously do. Several cooperation between government and private sectors have conducted including joint research. Still, there is no strong demand in the market due to high cost and price of bio-based products.

What could be the next step for Thailand bio-industry?

To begin creating new industry in a country, only private sector alone cannot make it happen. Hence, with the support from government, for instance, a national roadmap in order to propel this initiative would be crucial for the survival of any new industry. The roadmap should induce a favorable environment for investment both for local players and foreign investors, establishment of supporting policy, market development leading to more demand of bio-based products. It is also necessary for Thailand to maintain its competitiveness and achieve the heart of creating technological advances industry by

1. Providing sufficient supply of feedstock at competitive cost and price. Thailand should deliver both quality and quantity of raw materials for investors in the industry without having to interfere with the food supply.
2. Preparing continuous supportive policy from the government at necessary stages. For example, Taiwan has enforced all chain restaurants to use bio-plastic as their packaging. This does not only reduce the waste, but also enhances the capability of plastic and compound converter in the country to be more skilled. While South Korea has set an annual bio-based products penetration target as well as increased it year by year. Thus, the government is a vital mechanism to stimulate and drive the market at the beginning and maintain with the consistent policies.
3. Establishing the demand of bio-based products at local business levels
4. Aiming to gain know-how transfer and adopt the technologies from the experts to local researchers. This could be done through joint venture and partnership. The goal is to enhance country's resources and eventually create own technologies

Lastly, it is necessary that the business has to survive by its own capability to make it sustainable in the long run.

About Author: Ms. Pichaya Thongthua is a senior analyst at Sasin Management Consulting. Since joining Sasin, her experiences has been concentrated in oil and gas (downstream) industry expertise in petrochemical derived products and utilities sector. She also has knowledge in feasibility study, market sizing, business due diligence, business entering strategy and business model**.**