As the world debates the Copenhagen treaty this December, the bigger picture on biofuels is getting overlooked

Next generation biofuels: the big picture

The EU and the US are the two largest consumers of petroleum fuels, yet they remain paralysed by indecision on the proper definitions for sustainable biofuels regulations, land use criteria, mandates, and import/export regulations.

On the subject of biofuels Brussels and Washington remain mired in red tape, regulations, and confounded by the perplexing uncertainties of defining sustainability from several perspectives.

It is important to remember why some nations started biofuels regulations in the first place: national security, and perhaps even more importantly – international security.

The three largest emerging markets of the BRIC countries – China, India and Brazil continue to move forward on biofuels policies, mandates and programmes while Washington and Brussels sidestep, punt, and delay mandates for unclear sustainability rationale (and agricultural protectionist reasons). This has lead to a slowdown and suspension of US biofuels-mandated markets.

Emerging energy dependence

The need for energy independence will become more profound over the next 20 years. The US Department of Energy estimates global demand for energy will increase by 50% by the year 2030. Most of this energy growth will come from the emerging markets of China, India, the Middle East, Africa, and the Americas.

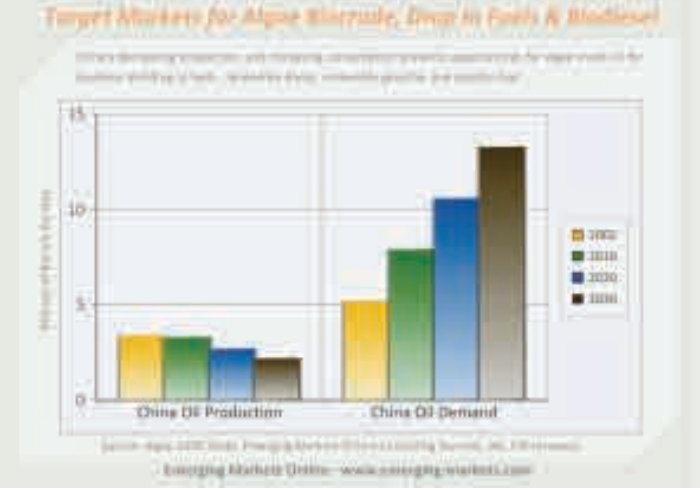
The largest fuel markets in the world – the US, the EU, China and India are all addicted to imported foreign oil. Over the next 20 years, this petrol import dependency will continue to accelerate, and amplify the need for energy security, economic security, national security, and environmental security. Each aspect of national security is inextricably tied to the other. Biofuels have a significant role to play in bridging the gap between declining oil production in the US, China, India and Europe, and increasing oil demands from each nation.

Emerging markets for food

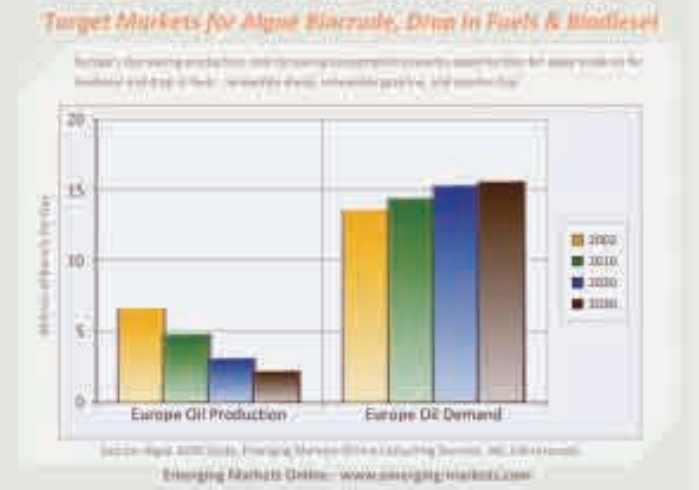
In China, India, Africa, the Middle East and Americas there is an increasing demand from rising middle classes for more beef, chicken, fish and protein in their diets. This represents a huge opportunity for biomass feedstocks for animal feed, and oils for biodiesel, renewable diesel and green fuels.

According to the UN, agricultural output will need

China oil production and demand forecast to 2030



Europe oil production and demand forecast to 2030



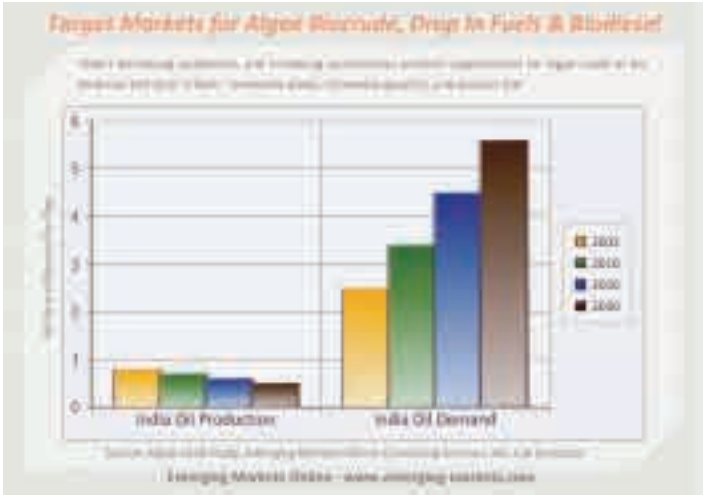
to double by 2050 to feed more than 9 billion people.

The increasing needs from emerging markets for sustainable fuels to grow more crops will create greater demands for the commercialisation of next generation, non-food biofuels feedstocks that grow on marginal lands such as jatropha, camelina, sorghum, switchgrass, and miscanthus.

A sea of change?

Long term solutions will emerge from the increased use of wastewater and salt-water tolerant species such as halophytes Salicornia bigelovii (sea asparagus), duckweed, and algae that contain on average 30% oil content that can be used to produce biofuels, and 35% protein content that can be used to produce animal/livestock feed.

India oil production and demand forecast to 2030



These feedstocks can be grown in arid and desert lands using seawater, brackish water, and wastewater; and provide answers to four key challenges: increasing demands for fuel, feed, food and freshwater. These plants will not require fresh water, and can provide fuel and animal feed for growing populations.

Several key organisations are promoting salt-tolerant and saltwater plants for feed and fuel, including the Seawater Foundation, the International Air Transport Association, the National Algae Association, the Algal Biomass Organization, BIO, the Algae Growdiesel Consortium in India, the American Biofuels Council, and Sustainable Aviation Fuel Users Group consortium.

In the long run these next generation feedstocks and organisations will play a key supporting role in bridging the gap between today's resources, and the future emerging market demands for feed and fuel. ●

For more information:
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