Insights into Indian Soybean Oil Industry

FOR A LARGE ASIAN CLIENT

August 2014

Background to the Presentation: Brief to Sparrow Advisory
CLIENT is contemplating setting up a crushing unit in India with a single crusher capacity of 2,000 TPD and the primary aim of the venture is to use the SBM of a grade suitable for manufacture of animal feed. The crude oil produced will be sold locally to the refiners in India.

**Sparrow Advisory’s Initial Opinion**

The initial feedback of Sparrow Advisory is that a single crusher of 2,000 TPD capacities is not a feasible option. Sparrow Advisory team presents below some facts about the Soybean industry in India and findings based on interviews with industry professionals. Some basic statistics on the industry and the list of key players in the industry is also provided. Finally a few suggestions are provided to CLIENT for future course of action.

Sparrow Advisory has deep in-sights into the Soy market in India and would be happy to be appointed CLIENTs trusted advisors on their India market entry strategy and advise CLIENT on

a) M&A transactions, or

b) Greenfield plant set on its own, or

c) Greenfield plant set up in a JV with an existing local player

We present below some facts on the Indian Soy Oil market which will create a useful background to our final suggestion at the end of the note.

**Indian Vegetable Oil Industry**

Import of vegetable oils during oil year 2012-13 (Nov.'12 to Oct.'13), including edible oil and non-edible oils, reached a record level of 10.68 Million tons compared to 10.19 Million tons for the same period of last year; up by 4.77%. Import of edible oil has nearly doubled in six years due to stagnant oilseed production and rising demand. Local consumption of edible oils further increased due to increase in per capita consumption (3%) and population growth (1.76%)

The Indian vegetable oil economy is the world’s fourth largest after the US, China and Brazil, harvesting about 25 million tons of oilseeds against the world. Since 1995, Indian share in world production of oilseeds has been around 10 percent. Although, India is a major producer of oilseeds, per capita oil consumption in India is only 10.6 kg/annum which is low compared to 12.5 kg/annum in China, 20.8 kg/annum in Japan, 21.3 kg/annum in Brazil and 48.0 kg/annum in USA.

Vegetable oil consumption has increased following a rise in household incomes and consumer demand. India imports half of its edible oil requirement, making it the world’s third-largest importer of edible oil. Currently, India accounts for 11.2 per cent of vegetable oil import and 9.3 per cent of edible oil consumption.

India has a wide range of oilseeds crops grown in its different agro climatic zones. Groundnut, mustard/rapeseed, sesame, safflower, linseed, nigerseed and castorseed are the major traditionally cultivated oilseeds apart from soybean and sunflower. Groundnut, soybean and mustard together contribute about 85 percent of the country’s oilseeds production. Coconut is most important amongst the plantation crops.
Soybean has become preferred the vegetable oil for the large middle class population. The market size of the Indian edible oil industry stands at INR 750 Billion (USD 12.5 Billion). Brands like Fortune, Dhara and Sunflower play in the INR 30 Billion (USD 5 Billion) branded edible oil market.

India is unique in the Soybean space as India is a major producer of Soybean seeds, major importer of crude oil and major exporter of SBM. The complete Soybean cycle in India is depicted in the Annexure 1.

Lately some of the Soybean Crushing companies have gone into value added products like Lecithin, Soy Flour, Super Hy-Protein SBM, Soy Gritts, Soy emulsifiers and antioxidants and Full Fat Soy.

**Soybean Seeds**

Annual production of Soybean seeds in India is close to Ten Million Tons (10,000,000 Tons), which is about 4% of world production. India’s share of harvested acres was 8.9% of the global harvested hectares.

In India, Soybean sowing and harvesting occurs in the states of Andhra Pradesh, Rajasthan, Madhya Pradesh and Maharashtra. These key states are located in the central part of the country. The location of these states is marked in the map of India in the Annexure 2.

Statistics for the last two and the current crop year in India are presented in the Table 1 below

<table>
<thead>
<tr>
<th>Crop Year</th>
<th>Unit</th>
<th>2010-11</th>
<th>2012-13E</th>
<th>2013-14P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area Harvested</td>
<td>1000 HA</td>
<td>10270</td>
<td>10800</td>
<td>12200</td>
</tr>
<tr>
<td>Yield</td>
<td>Mn. Tons/ HA</td>
<td>1.07</td>
<td>1.06</td>
<td>0.97</td>
</tr>
<tr>
<td>Production</td>
<td>1000 MT</td>
<td>10,989</td>
<td>11,448</td>
<td>11,834</td>
</tr>
<tr>
<td>Imports</td>
<td>1000 MT</td>
<td>1,174</td>
<td>1086</td>
<td>1230</td>
</tr>
<tr>
<td>Total Supply</td>
<td>1000 MT</td>
<td>12,163</td>
<td>12,534</td>
<td>13,064</td>
</tr>
<tr>
<td>Exports</td>
<td>1000 MT</td>
<td>39</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Crushing</td>
<td>1000 MT</td>
<td>11150</td>
<td>11,350</td>
<td>11,250</td>
</tr>
<tr>
<td>Other Domestic Use</td>
<td>1000 MT</td>
<td>974</td>
<td>1,109</td>
<td>1,739</td>
</tr>
</tbody>
</table>

Source: USDA, Primary Research, [www.indexmundi.com](http://www.indexmundi.com)

In India, crop yields are lower because soybeans are susceptible to drought. Most farmers are small-scale subsistence operators who do not use proper irrigation. Government regulations prohibit Foreign Direct Investment (FDI) into agriculture and the limited domestic corporate interest is more focused into high value added produce like Fruits and Vegetables.

It is pertinent to note that all the Soybean Seeds produced are non GMO variety. This is an advantage as Indian Soybean Meal finds interest from South East Asian and Japanese buyers who use the Soybean Meal produced using Non-GMO Seeds for Soy Sauce and other derivative products for human consumption.

In India all the crushing units are located in the central region of the country while the refineries are either located in the vicinity of the crushing plants or are located near the ports. In the second case the business model is to use imported crude oil for refining.

**Soybean Crude Oil**

Strictly Private and Confidential
India is the world’s second leading importer of soybean oil. Primary purchasers are refiners and food processors with their own refineries. These buyers purchase crude oil, refine it at their own facilities and then bottle and package the oil for retail sale. Indian demand for oil has risen substantially over the past couple of years due to the country’s rapidly growing economy which has raised disposable incomes. While India does have its own crushing plants, these plants do not produce enough soybean oil to meet increased demand. It is interesting to note that the Indian government protects its crushing industry during the harvest, increasing the import duty on soybean oil and decreasing the import duty on palm oil to keep prices and margins high for domestic crushers.

India purchases about 70% of its soybean oil imports from Argentina, with Brazil supplying the balance.

Oil processing sector in India is fragmented, small in scale and suffers from low capacity utilization resulting in higher cost of production. Low capacity utilization is on account of irregular supply of raw material due to weather conditions and inconsistent crop yield. The end product cost is higher on account of high transportation costs and lack of bulk storage facilities.

The Statistics for the last two and the current crop year in India are presented in the Table 3 below:

<table>
<thead>
<tr>
<th>Crop Year</th>
<th>Unit</th>
<th>2011-12</th>
<th>2012-13E</th>
<th>2013-14P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning Stocks</td>
<td>1000 MT</td>
<td>240</td>
<td>360</td>
<td>230</td>
</tr>
<tr>
<td>Production</td>
<td>1000 MT</td>
<td>1710</td>
<td>1730</td>
<td>1700</td>
</tr>
<tr>
<td>Imports</td>
<td>1000 MT</td>
<td>1170</td>
<td>1090</td>
<td>1230</td>
</tr>
<tr>
<td>Total Supply</td>
<td>1000 MT</td>
<td>3120</td>
<td>3180</td>
<td>3160</td>
</tr>
<tr>
<td>Exports</td>
<td>1000 MT</td>
<td>10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Domestic Use</td>
<td>1000 MT</td>
<td>2750</td>
<td>2950</td>
<td>3000</td>
</tr>
<tr>
<td>Ending Stocks</td>
<td>1000 MT</td>
<td>360</td>
<td>230</td>
<td>160</td>
</tr>
</tbody>
</table>

Source: USDA, Primary Research, www.indexmundi.com

As can be seen above, there has been a marked change in edible oil consumption over the years on account of:

- Growing awareness for health.
- Rising affordability of branded products.
- Shift from vegetables oil to Palm oil and Soy Oil.
- Increasing share of organized retail in the recent times.

The market size of the Indian edible oil industry stands at INR 750 Billion (USD 12.5 Billion). Brands active in the INR 30 Billion (USD 5 Billion) branded edible oil market include:

- Adani Wilmar's Fortune,
- Agrotech’s Sundrop Nutri Lite,
- Cargill's Nature Fresh and Dhara refined oil
- ITCs Sunflower

**Soybean Meal**

Strictly Private and Confidential
India is one of the largest exporters of Soybean Meal. The countries of Southeast Asia are the preferred
locations for exporters from India. The importers from South East Asian countries have the option of buying
meal from India, China, Argentina, Brazil and the U.S. However their first options are generally India and China
because both of these countries produce non-GMO soybean meal and can sell it a lower price due to
advantageous transportation and production costs.

Lately Indian SBM has been selling into Iran and the primary reason for this is that Iran due to US sanctions is
unable to received payment for crude oil in USD and has to resort to barter with crude oil producers like India.
This has made Indian SBM suppliers the preferred choice for the Iranian buyers.

Japanese buyers are also a major importers of Indian SBM due to the seeds used being Non GMO. A large
numbers of Japanese buyers like Mitsui, Ajinomoto, Kanematsu, J-Oil, Kikkoman, Mitsubishi, Itochu and others
have opened offices in India and regularly trade Indian SBM.

In India, crushing of soybean for soy oil and meal starts from October and it peaks during the subsequent two-
three months.

The Statistics for the last two and the current crop year in India are presented in the Table 2 below

<table>
<thead>
<tr>
<th>Crop Year</th>
<th>Unit</th>
<th>2011-12</th>
<th>2012-13E</th>
<th>2013-14P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning Stocks</td>
<td>1000 MT</td>
<td>140</td>
<td>106</td>
<td>114</td>
</tr>
<tr>
<td>Production</td>
<td>1000 MT</td>
<td>7680</td>
<td>7760</td>
<td>7680</td>
</tr>
<tr>
<td>Imports</td>
<td>1000 MT</td>
<td>6</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Total Supply</td>
<td>1000 MT</td>
<td>7826</td>
<td>7874</td>
<td>7800</td>
</tr>
<tr>
<td>Exports</td>
<td>1000 MT</td>
<td>4390</td>
<td>4060</td>
<td>3550</td>
</tr>
<tr>
<td>Domestic Use</td>
<td>1000 MT</td>
<td>3330</td>
<td>3700</td>
<td>4070</td>
</tr>
<tr>
<td>Ending Stocks</td>
<td>1000 MT</td>
<td>106</td>
<td>114</td>
<td>180</td>
</tr>
</tbody>
</table>

Source: USDA, Primary Research, www.indexmundi.com

Indian SBM, which is primarily exported and used in manufacture of Animal feed, Soy sauce and other
derivatives, is becoming competitive in world markets in terms of both quality and price.

Lately with Chicken consumption growing in the country Indian poultry companies have been seen setting up
their own crushing units to control the supplies of the SBM for manufacture of chicken feed.

The largest crushing capacities in India would be with key companies like Ruchi Soya, ADM Agro, Gujarat
Ambuja Exports, Mahakali Food, Sonic Biochem, Radhekrishna Extraction, Rajaram SolveX and Betul Oil.

It is pertinent to note that unlike Thailand, where the crushing units with large capacities are located close to a
port as the seeds are imported, in India the crushing plants are located closer to the seed growing regions and
also the capacities are spread out geographically within the 400 Km. radius in the central part of the country.
See attached Annexure 2 for an initial idea of the where the Soybean seeds are produced.

The SBM is transported to the ports on the east coast (for sale to Japan, South East Asia and China) and to
ports on the west coast (for sale to USA, Iran, Other Middle East countries). The transportation is by rail if the
supplies are to the port or by trucks if to a nearby location.
The standard Crushing capacities seen in most crushing plants in India is 1,000 TPD. This capacity too is usually split across two crushers of 500 TPD capacity each with common utilities and processes like steam generator, hexane tank and extractor to the extent possible. This configuration gives the crusher flexibility to run 500 TPD capacity or 1,000 TPD capacity based on the market variables.

The key factors determining the operation of lower capacities are:

1. **Seasonality**: Since the Soybean is a seasonal crop (Kharif Crop in India) the crushing plants are run only for 4-5 months in a year at peak capacity.
2. **Price comparison with imported Crude Soy Oil**: If the price of imported crude Soy Oil for refining is lower than the cost of production (Cost of Crushing of seeds less sale price of SBM) then it does not make sense to operate the plant. However in such a case the Government of India (GOI) usually imposes higher import duty on Crude Soy Oil to protect the local industry.
3. **Price comparison with Palm Oil**: Since Palm Oil is a close substitute of Soy Oil as a vegetable oil the pricing of the Crude Palm Oil imported into India determines the demand of Soy refined Oil. Again it is seen that GOI imposes tariffs to protect the domestic industry.
4. **Poor logistics in terms of road infrastructure**: The village roads are usually unpaved roads and the produce is usually towed to the nearest grain market (in local dialect mandis) in tractors.
5. **Lack of large capacity transportation means like truck and rail connectivity ensures that it becomes non feasible to transport the produce to long distances and hence only feasible to sell to the nearest mandi or the crushing plant.** Such inadequate infrastructure poses challenges for moving crops to market and thus the crushing units prefer to have lower capacities in multiple locations to cater to a limited radial zone of soybean seed growers.
6. **Inadequate storage facilities for the seed**. Unlike the western world where large silos are present.
7. **High cost of Bank Finance**: The project finance and working capital funding in Indian Rupee would cost about 11%-12% for a new company. This would reduce where corporate guarantee is provided by the parent company.

**Conclusion and Sparrow Advisory’s suggestions**

The business model in India has to suit the local business practices. The constraints defined above restrict the size of crushing capacities CLIENT can set up. Multiple units across the central India region, is also the preferred business model by all domestic and international companies operating in India. It is also seen that Companies set up multiple units in the same complex for cost efficiencies (but with multiple crushers of 500TPD capacity or 1000TPD capacity).

Based on above it is advisable that CLIENT set up multiple units across central India and run the capacities based on demand.

The next question to be answered is to Make (set up a Greenfield Plant) or Buy (Acquire an existing operating unit).

The advantages of Buy is that this cuts the land acquisition time, construction time and time taken for getting the relevant approvals. The existing plant also comes with trained and experienced personnel that reduced the efforts of creating a team from scratch. The disadvantage would be the age of the plant and any outstanding legal matters which come as a baggage with an old company.
If the option chosen is to Make, CLIENT has option to consider doing this alone or in a Joint Venture with a local partner. The advantage of Joint Venture is that the local partner comes with local knowledge and also partially contributes to the capital expenditure for the new set up. This contribution from the local partner could come in the form of new capital or contribution in the form of an existing plant which could be transferred to the new JV Company.

**Next Steps**

Sparrow Advisory team will be happy to debate the various options with the CLIENT management. Sparrow Advisory will also be able to arrange a focused trip to India to meet potential targets, JV partners, Other Soy Crushers, Refiners, Poultry companies, Key suppliers like Desmet and the officials of industry associations.

Post the trip the CLIENT management can debate further and decide the final strategy. Sparrow Advisory will be happy to help CLIENT in the implementation of the strategy in terms of advisory for M&A or Partner Search for JV or for a green field plant set. We have access to a few live deals which can be considered by CLIENT.

Sparrow Advisory team has advised a large number of international companies in their entry strategy into India and would be honored to be appointed CLIENTs trusted advisor in this India venture.
Annexure 1 Complete Soybean cycle in India

Supply side of Soybean Seeds
- Domestic Production
- Import of Soybean Seeds

Non Soybean Oil and Soybean Meal Usages
- Direct consumption

Crushing of Soybean Seeds
- Production of Crude Oil
- Production of De Oiled Cakes

Production of Crude Oil
- ADD Import of Crude Oil

Refining of Crude Oil
- ADD Import of Refined Oil

Production of Soybean Meal

Exports

Production of Farm Feed
- ADD Value added Products
Annexure 3 Competitive landscape for CLIENT in terms of crushing capacity

The key crushers can be categorized as under:

<table>
<thead>
<tr>
<th>Large domestic producers like</th>
<th>Small sized but niche product producers like</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ruchi Soya</td>
<td>• Gokul Refoil</td>
</tr>
<tr>
<td>• Marico</td>
<td>• Kriti Nutrients</td>
</tr>
<tr>
<td>• Adani Wilmar</td>
<td>• Sitashree Products</td>
</tr>
<tr>
<td>• Dainik Bhaskar Group</td>
<td>• Dewas Soya</td>
</tr>
<tr>
<td>• Sonic Biochem</td>
<td>• Betul Oil</td>
</tr>
<tr>
<td>• Sanwaria Agro</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>International traders like</th>
<th>Domestic Feed manufacturers like</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Noble Group</td>
<td>• Suguna Hatcheries</td>
</tr>
<tr>
<td>• Bungee</td>
<td>• Venkateswara Hatcheries</td>
</tr>
<tr>
<td>• Cargill</td>
<td>• Godrej Tyson</td>
</tr>
<tr>
<td>• Louis Dreyfeus</td>
<td>• Srinivasa Hatcheries</td>
</tr>
<tr>
<td>• Mitsui</td>
<td></td>
</tr>
<tr>
<td>• ADM</td>
<td></td>
</tr>
</tbody>
</table>
Annexure 4 Recent JV announced in the Indian edible oil space

3F Industries Ltd, an Andhra-Pradesh-based vegetable oil manufacturer, has formed a joint venture with Japanese firm Fuji Oil Co for manufacturing and sales of oil and fat processed foods in India, the company said in a release.

The JV would be named as 3F Fuji Foods Pvt Ltd and will be based at Burgul near Hyderabad. It would be capitalised with investment of Rs 40 crore with the Japanese partner holding 55 per cent stake and remaining 45 per cent will be held by 3F Industries. The JV will leverage Fuji Oil’s product development and production engineering strengths together with 3F’s sales capability to penetrate the Indian market. 3F Industries (earlier known as Foods Fats & Fertilisers Ltd) manufactures and sells vegetable oil products through its extensive sales network across the country. Fuji Oil is a leading producer of oils, fats, food ingredients and processed foods, with marketing footprint across the globe.

This is the third such venture where Indian agri firms have formed partnerships with Japanese firms for edible oil business. Mumbai-based Jayant Agro Organics Ltd formed a JV with Mitsui Chemicals and Itoh Oil Chemicals to form a tripartite venture focusing on manufacturing castor oil-based polyols.

In another deal, Indore-headquartered Ruchi Soya, one of India’s largest edible oil companies, said last year it is forming a joint venture with J-Oil Mills, Inc. and Toyota Tsusho Corporation wherein it will spin off its soya processing business, being run at its plant located at Shujalpur in Madhya Pradesh, to the JV.

Apart from the above Adani Group has a long standing JV with the Wilmar Group.
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