Vol. XI No.1 January - March 2009

News Letter

OIL TECHNOLOGISTS' ASSOCIATION OF INDIA
WESTERN ZONE

Inside This Issue

The Verdict

The huge Indian democracy will shortly flex its muscles. The fate of many a self-styled Leader will be decided.

This news letter is for free circulation only to the members of OTAI-WZ

C/o. Department of Oils, Oleochemicals & Surfactants
Institute of Chemical Technology
(Formerly UDCT)
Nathalal Parekh Marg
Matunga (East), Mumbai-400 019
INDIA.

Tel.: 91-22-32972206/91-22-24146526
Fax: +91-22-24124017
Email: info@otai-westernzone.org
Website: www.otai-westernzone.org

OIL TECHNOLOSISTS' ASSOCIATION OF INDIA WESTERN ZONE

From the Editors's Desk

And so, here it comes, The juggernaut of democracy will roll. Many a leader will be stampeded. It is the some oldies and boldies. There is little sign of Young, youthful and honest coming to the forefront. Like our cricket Team. Youthful, exerberant, self-confident dedicated to the nation. May be we can vote them all to make a cabinet! Wishful thinking, eh? And, we, the OTAI , can take a lesson. More and more young scientist and technologists should man the key positions. Alas! We have not attracted them yet. Experience? Fresh thinking, sometimes, can bring in unexpected results. We could do an experiment , perhaps. Could be they would stumble occasionally; but they have the resilience to pick them self as up and strike a new path. Meanwhile, let us stop to see an Indian really, Indian team at the helm of our national affairs. May Indian democrocy lead the world to peace & prosperity.



NEW STRUCTURE OF CARBON

Vegetable Oil Industry and Carbon

What are Carbon Credits?

By
Kanwal Jit Singh[1]

INTRODUCTION

Today "carbon credits" is a familiar word, however the opportunities available are not well known and the process to take advantage of these opportunities is hazy. This is an effort to provide a clear picture for the benefit of the vegetable oil industry.

The world is experiencing rise in the average ambient temperature and changed weather conditions. IPCC' has conducted studies and concluded that the changes in the global weather conditions can be attributed to the anthropogenic2 emissions of Greenhouse gases. These studies have been the basis for the nations to come together and formulate an international treaty to restrict the emissions of Greenhouse gases by all the nations. This is documented in the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol.

KYOTO PROTOCOL & COMPLIANCE MARKETS

Kyoto Protocol is the treaty that defines the basis for the implementation of UNFCCC and has divided the world into 2 broad categories – Annex 13 countries and non –Annex 1 countries. Annex 1 countries as a group have been cast the responsibility of reducing their emissions of GHG by 5.2% over their 1990 emissions. They can meet their obligations of emission reductions by three ways. One is to reduce the emissions at home in within their own country (AAUs). Two they can invest in other developed country projects or buy emission reductions from other developed countries or projects implemented therein.
Three they can invest in non-Annex 1 countries' projects that lead to sustainable development 4 while reducing GHG emissions with reference to a baseline.

The Kyoto Protocol also has a provision for providing a framework for trading of the certificates representing the emission reductions. The two essential features of trading are – 1.the registry 2.the trading platform, just as we are aware of trading in shares and commodities. For shares, The registry is NSDL or CDSL operating through the bank and brokerages for opening demat accounts, and the BSE and NSE providing the trading platform. Today the registry function is operational and is registering projects and issuing CERs (for the balance of the article we will be ignoring other carbon credits and focus purely on CERs, since these are of interest to entities with projects in India – for entities with projects in other locations, please feel free to discuss with us). All CERs can meet the emission reduction targets under the Kyoto Protocol, however certain entities in the world – such as European Union have framed their sub guidelines for the emission reduction targets and how they can be met.

All such markets are referred to as COMPLANCE MARKETS or REGULATORY MARKETS – since all the emission reductions that meet these criteria can be used to meet the statutory obligations cast on the entity situate within its legal jurisdiction.

VOLUNTARY MARKETS

In the developed world there are entities that would like to undertake emissions reductions even though there may be no regulatory requirements. Their need is based either on philanthropy (even in India, almost all commercial entities have a philanthropic wing focused on their own identified are interested in the environment. Or it could be a business interest. Going green is globally

accepted image enhancement, and also provides better valuation to the equity thereby promoting shareholder value besides greater market access. The US Markets have a separate index – Dow Jones Sustainability Index.
Thus Carbon credits are the securitized from of GHG emission reductions from anthropogenic origin, which conform to a particular protocol.

GHG Emissions are emissions of gases that have been identified by IPCC as contributing to the greenhouse effect by their presence in the atmosphere. However, for the purposes of our discussion, there are two broad categories of these greenhouse gases-naturally occurring [carbon dioxide, methane and nitrous oxide] and industrial gases that are not covered by other treaties/ conventions [HFCs, PFCs,SF6] more are likely to be added to this category in the future. These are related to the gases covered by the Kyoto Protocol. There are other GHG that are not covered under the Kyoto Protocol, illustratively HCFCs and CFCs.

GENERAL ELIGIBILITY CONDITIONS FOR CARBON CREDITS

There are two broad categories of conditions that should be met by projects to be eligible for carbon credits, besides the fact that these should be related to anthropogenic emission reductions.

SUSTAINABILITY

One is the issue of sustainable development. The essence of the Global Warming and the UNFCCC is that industrial development in the developed world has been principally responsible for the increase in the GHG in the atmosphere. In order for the projects in non-Annex 1 countries to be eligible for registration under the Kyoto Protocol, it has to be sustainable. Sustainable Development has not been defined in the UNFCCC or in the Kyoto Protocol. It has been left to each country to define its own criterion for sustainable development.

India has laid down 4 criteria for any project to meet sustainable development criteria.
These are:

1. Environmental Wellbeing: That is the project should contribute to a better environment. Here the environment goes beyond the Greenhouse gas emissions.
2. Technological Wellbeing : That the project should be injecting new technology and / or promote relatively newer technologies
3. Social Wellbeing: That project should promote a better society through better employ ment opportunities, or living conditions of the populace.
4. Economic Wellbeing : That the project should add economic value to the India.

ADDITIONALITY

Second is the concept of additionality. There are 4 conditions that have to be met before a project can be considered as additional.
These are

1. Emissions Additionality : The project has to reduce the emissions of Greenhouse gases with reference to the baseline scenario5. Hence with reference to the greenhouse gases emissions by the most likely project scenario, we have to evaluate the reductions in the greenhouse gases by the project.

2. Investment Additionality: The project that is being projected as a CDM project is not the most attractive investment from the financial investment perspective. Certain criteria have been defined to evaluate the investment additionality. These are essentially to standardize the analysis within the framework of international nd nationally accepted accounting practices. Therefore a prior consideration of CDM is an essential ingredient to be eligible for registration. Significant numbers of projects have failed to secure registration on this count.

3. Barrier Additionality: CDM registration should enable a project to cross certain barriers that it experiences in the normal course. It could be reducing risk perception for the financ ing,or any other barrier to the project mov ing ahead.

4. Common Practice Additionality: The project should not be a business as usual condition, either out of competitive situation, or indus trial practice or mandated by law. However,

projects being implemented that are man dated by law could be considered as CDM rojects if it can be proved beyond doubt that the mandatory provisions is not being complied with. An illustration is the municipal solid waste.

In essence, projects that would be implemented in the normal course of business would not be eligible for CDM registration or any other programme unless they can meet the norms of the particular standard. Thus each project has to prove itself to be Additional to be eligible for registration under that standard.

As a consequence, it is not essential that all similar projects would be registered under the same standard. illustratively, Baja Auto's wind power projects implemented in Satara were not registered as CDM projects, whereas some other Wind Power projects have been registered. Similar examples exist in other project activities. Bajaj Auto's Wind Power Project however received registration under VER+ standard.

Thus carbon credits can be garnered by choosing the appropriate standard relative to each project activity. A proper assessment is an essential ingredient to the successful registration in the appropriate standard.

VEGETABLE OIL INDUSTRY AND POSSIBLE PROJECTS FOR CARBON CREDITS

In order to identify projects that can earn carbon credits, we first look at the projects that can generate GHG emissions reductions. The next step is to seek they can pass through the common practice analysis. Once these two conditions are met, we can then look at the other conditions. This methodology has been chosen since the first two criteria are independent of the project activity and the entity implementing the project. It is only with respect to the other criterion that the projects are subject to individual cases.

WIND AND AGRI RESIDUES as Fuels

Vegetable Oil Industry needs energy in two broad forms- electricity and steam. In these areas the GHG emission reduction can take place in the from of Carbon Dioxide emission reduction with the replacement of fossil fuel with other forms of fuels, such as biomass or other renewable sources such as wind, solar. The assessment of the carbon credits would be based on the quantum of fossil fuel replaced by green energy.

Illustratively, 1250 units (kWh) of green energy is equivalent to 1 carbon credit of electricity from grid. For steam and cogeneration projects, replacing 1 tonne of coal by carbon neutral fuel such as biomass is equivalent to about 1.7 carbon credits; and 1 tonne of diesel replaced is equivalent to 2.65 carbon credits. The exact calculations will be on a case to case basis, and will depend on a number of circumstances. And one of the prime cases for consideration is that the practice of using agri residue should not be a business as usual consideration in order to qualify for carbon credits.

To sum up, wind and biomass based power projects and biomass based steam or cogeneration projects can possibly earn carbon credits provided they meet the other conditions required by each standard of carbon credits. Discussing each standard is beyond the scope of this article.

OTHER FUELS for Carbon Credits

Hydrogen is available in surplus in some areas and this can be used as a fuel in the boiler – however special boilers would have to be installed. The calorific value of hydrogen is 33,800 kcal/kg.

If hydrogen is being produced by electrolysis of water, provided cheap electricity is available, then the oxygen generated as a byproduct can be mixed with air to improve the combustion parameters and achieve efficiencies that could earn carbon credits and improve the bottom lines.

The wastes of the vegetable oil industry should be having high COD from organic content. Some of the wastes are being used for producing biofuels, while some are being washed away in water. The waste water is treated aerobically to meet pollution control norms.

It is our understanding that under certain conditions this waste water could be treated under anaerobic conditions to generate biogas. This biogas could be burnt in the boilers with due modi-

fication to reduce the consumption of other fuels, as also reduce the consumption of electricity, since anaerobic treatment requires significantly lower electricity and is more of a natural process speeded up by technological innovations. The calorific value of biogas is around 5,500 kcal/kg.

Similarly the night soil from the staff quarters and the food waste from the canteens can be used to generate biogas.

These practices besides reducing the energy cost and earning carbon credits would add to the image of the Indian industry in the international arena as a green industry

---

1. The author is available at kanwals @ vsnl. Com and is the proprietor of Surbhi Financial Technologies. He has contributed to methodology developments at UNFCCC and CCX.

2. Intergovernmental Panel on Climate Change. It is a venture of United Nations Environment Programme and World Meteorological Organisation.

3. Attributed to actions of humans; as opposed to natural actions and biogenic actions.

4. Reference is to the first Annexure to the United Nations Framework Convention on Climate Change.These are the developed world and erstwhile communist block. List is available at http://unfccc.int/essential background/convention/background/items/1349.php

5. In the context of CDM projects Sustainable Development is an important concept. It is generally described as the ability of the present generation to meet their needs without compromising the need of the future generations – Brandtland Commission UNEP 1980.

6. Baseline Scenario: is defined as the most existing technology for project activities which are retrofits to an existing project. And the most likely technology that would be adopted for imple menting the project, if no CDM consideration would have been there.

[source : Sea news circular, Vol.: XI, Issue:7, Oct.,2008]

GIVE IT A THOUGHT

Gujrat Groundnut Kharif Crop 2008-09

Districts	Area Lac Ha (as on	Yield/Bigha Mund/Kg	Yield per Hectare Bighax 6.25	Crop Lakh M.T.
Amreli	2.54	7 Mund/140 Kgs.	875	2.20
Bhavnagar	1.03	8 Mund/160 Kgs.	1000	1.00
Jamnagar	3.99	8 Mund/160 Kgs.	1000	4.00
Junagadh	4.13	12 Mund/240 Kgs.	1500	6.20
Porbandar	0.92	14 Mund/280 Kgs.	1750	1.60
Rajkot	3.50	8.5 Mund/170Kgs.	1062	3.70
Surendranagar	0.21	6 Mund/120 Kgs.	750	0.15
Sub-Total	**16.32**			**18.85**
Kutchh Others	0.51 1.07	12Mund/240 Kgs 12Mund/240 Kgs	1500 1500	0.75 1.60
Total	**17.90**			**21.20**

Note: Last Year Kharif Groundnut Crop was estimated at 18.0 lakh tones

WISHFUL THINKING?

Commodities head for worst drop on leverage exit

Slower Expansion in US, China, India Undermining Crude, Corn

"A lot of the demand for commodities has been speculation, and now that demand is falling away because of fear taking hold in the market."

Bloomberg: Oct. 6
Commodities markets are heading since 2001 as investors exit leveraged bets and slowing economic growth erodes demand for raw materials. The value of the 19 commodities in the Reuter-Jefferies CRB Index fell $280.6 bullion, or 43 per cent, from its July 3, peak a loss larger than their total worth two years ago, date complied by Bloomberg show. UBS AG , the Zurich-based bank that bought Enron Corp.'s energy unit in 2002 plans to exit most commodity trading. About 15 per cent of investors in Boone Pickens's BP Capital LLC hedge fund may want their money back.

The same credit-market seizure that led to last month's bankruptcy of New York-based Lehman Brothers Holdings Inc and the forced sale of Merrill

Lynch & Co is squeezing speculators who drove commodities to recod highs.
Slower expansion in the US, China and India is undermining prices of crude oil, which fell 36 per cent, and corn, down 43 per cent.

"The day of steadily rising commodity prices is over", said Mr. Chris Rupkey, the New York-based chief financial economist at Bank of Tokyo-mitsubishi UFJ Ltd. "A lot of the demand for commodities has been speculation, and now that demand is falling away because of fear taking hold in the market."

The CRB, which doubled from 2001 to a record 473.97 on July 3, may drop 15 percent this year, said Mr. William O'Neill, a partner at Logic Advisors in Upper Saddle River, New Jersey. The last time the index lost that much was 2001, when the US sank into a recession. It's down 9 per cent for the year.

Price Outlook
A global slowdown may cause crude oil to plunge another 47 per cent to $ 50 a barrel next year, New York-based Merrill Lynch said in an October 2 report. Goldman Sachs Group Inc cut its forecast for copper next year by 12 per cent to $8,265 a tonne and aluminum by 18 per cent to $2, 920 a tonne.

Corn may tumble as much as 15 per cent to $3.87 a bushel in the next six months, and soyabeans by 11 per cent to $ 8.85 a bushel, said Mr. Don Roose, President of U.S. Commodities Inc inWest Bes Moines, Iowa.

Investors who embraced commodities as an investment class like stocks and bonds, while demand from China and India eroded supplies faster than they were replaced, are now in retreat.

Outstanding contracts for 17 commodity futures traded in New York and Chicago fell 26 per cent since a peak on February 29 to the fewest in two years, data compiled by Bloomberg show. Net-long positions,or bets prices will rise, held by hedge funds and other large speculators fell to per cent of total open interest for futures on September 23 from 14 per cent on March 25, according to an October 2 report to clients by Barclays Capital in London.

Unprecedented Rally
The decline follows an unprecedented rally as the UBS-Bloomberg Constant Maturity Commodity Index of 26 raw-materials rose very year since 2001. About 450 commodity hedge funds held $80 billion of assets as of September 1,up from $55 billion last year, said Mr. Brad Cole, President of Cole Partners Asset Management in Chicago.

Investments in commodity indexes reached a record $175 billion at the end of June, Barclays Capital said. Crude oil quintupled from July 2002 to a record $ 147.27 a barrel on July 11, corn more than tripled from June 2006 to the highest ever, $7,9925 a bushel, on June 27. Gold more than doubled in the three years to March 17, when it reached a record $ 1,033.90 an ounce.

While President George W. Bush signed into low a $700-billion bank rescue plan on October 3, the leverage that pumped up commodities is unlikely to return. "Easy Van Batenburg head of research at Louis Capital Markets LP In New York a broker to institutional investors and hedge funds. "I don't think there's going to be a quick end to this situation". The three-month London interbank offered rate ,or Libor, that banks charge each other for 90-day loans in dollars, increased to 4.33 per cent on October 3, the most since January the British Bankers' Association said.

Volatility Benefits
Some investors and analysts expect commodities to rebound after the worst quarter for the CRB Index since at least 1956 . The US bailout may revive speculation as the government buys troubled assets, and record swings in prices may lure investors. The 10-week volatility in the CRB Index last month was the highest since 1973.

While economic growth is slowing, demand for food and fuel will continue to increase even if producers cut back supplies. "I'm not bearish on softs," said Mr. Christoph Kampitsch, who helps oversee $ 1.5 billion in hedge funds at Erste Group Bank AG in Vienna. "In nine to 12 months, soyabeans,cocoa ,sugar and wheat will recover.

For agricultural products, there could be supply disruptions very easily. people also need to eat." The drop in prices may lead to lower production and create shortages as soon as next year.

"It's a wholesale liquidation of all assets as people became concerned about the economic outlook", said Angus Murray, founder and joint chief executive officer of New York-based Castlestone Management Ltd., with about $ 1 billion in assets. "If this liquidation continues, commodities producers will stop producing. We'd end up with a severe shortage of commodities that would eventually boost prices back up again."

[source: The Hindu Business Line Dtd. 7th Oct.2008]

REALLY?

Oilseeds' Prices May Go Down On Higher Output

The Prices of the key Kharif oilseeds are expected to remain subdued in the coming weeks owing to anticipated higher output in the wake of the nearly 9.3 per cent rise in plantings and favourable weather.

The outlook for the overall oilseed production in the current kharif season is also quiet encouraging. Total area under oilseeds has exceeded by around 3.5 lakh hectares as compared to last year. The Solvent Extractors' Association of India expects the total production to be between 18 and 19 million tonnes.

The wholesale prices of different edible oils have already fallen by 3.5 to 6.5 percent in past one month. Further4 decline is not ruled out in view of unabated downturn in the international prices due to easing of pressure for conversion of vegetable oils into bio-fuel.

The production of rice, too, is likely to touch a new record because of a rise in acreage. Cotton output, on the other hand, may remain around the last year's level despite some decline in acreage. The optimism stems from higher coverage, over 80 per cent , under the pest-protected transgenic Bt-hybrids.The overall rainfall in the current monsoon season has till now been the best in past six years in terms of distribution though the quantum of rainfall was relatively higher in 2003, 2006 and 2007. The number of subdivisions getting normal or above normal rainfall this year is 34 (out of total 36 subdivisions), which is the highest since 2003.

Similarly, the number of subdivisions falling in the deficient rainfall category is merely two this year, the lowest since 2003. These are western Madhya Pradesh (minus 22 percent) and the subdivision comprising northeastern states of Meghalaya, Manipur, Mizoram and Tripura (minus 24 per cent).Of all districts in the country, 76 per cent fall in the normal or above-normal rainfall category, while 24 per cent are in the deficient rainfall bracket.

On the whole, the country has received 809.9 mm rainfall, which is about two per cent below the normal of 828.5 mm between June 1 and September 17.The total water storage in the 81 major reservoirs was reported on September 18 to be around 106.25 billion cubic metres (BCM), which is lower than last year's 118.7 BCM but higher by about 8.68 per cent than the previous 10 years average (normal) of 97.76 BCM

[source : Sea News Circular, Vol.-XI, October 2008, Issue - 7]

THE BELLY BELT

Banks Begin To Tighten Loan Taps For Corporates

Amid an unprecedented liquidity squeeze, large banks, including the country's biggest lender State Bank of India, are holding back short-term loans to corporates . Some banks are understood to have taken a decision that short-term loans, primarily working capital, will be frozen at Friday's level.
So, if a corporate has a drawing power of Rs 150 crore and the bank's loan outstanding to the com-

pany is Rs 100 crore, the balance Rs 50 crore will not be disbursed immediately. Under normal circumstances, the company could have automatically availed of the full drawing power limit; but now, it will have to wait a while till the liquidity situation eases a little.

According to industry circles, several banks are also pursuing this policy to tide over the liquidity crunch. SBI, sources said, will also refrain from discounting no-customer bills. This means that if a trader having opened a letter of credit with another bank, submits a bill to SBI, the latter will not discount it.

The central bank has also cautioned some banks from using their rupee resources to purchase foreign exchange for onward lending through their foreign branches. This comes in the light of the finding that some banks have been crediting funds to overseas branches for extending loans to fund global business of Indian companies which are hit by the global credit crunch

[source : Economic Times dated 4th Oct. '08]

CATCH UP !

International Use

World Supply & Demand Balance to Remain Rather Tight in 2008/09

Downward revisions made for world production of soybeans and cotton – The major risk factor on the supply side to be seen in the severe drought in key agricultural areas of Brazil and Argentina – Sharp decline in prices in July/Sept 2008 – Demand growth slowing in April/Sept 2008 but expected to pick up in 2008/09, stimulated by lower prices.

In our revised projection we peg world output of 10 oilseeds at 417.3 Mn T in 2008/09. We have made a downward revision by a combined 1.5 Mn T in world production, mainly for soybeans and cottonseed. Still, our estimate is up 25.8 Mn T from the drought reduced production achieved last year.But estimate world supplies of 10 Oilseeds at 488.6 Mn T in 2008/09, up 13.7 Mn T from last season but still below the trend line.Insufficient growth of supplies will make it necessary to curb the consumption growth below average for the second consecutive year.

The supply & demand fundamentals for soybeans will remain tight in the 2008/09 season. We see hardly any potential for US soybean stocks to be replenished to more comfortable levels. We expect world stocks of soybeans to remain almost unchanged at around 61 Mn T at the end of the 2008/09 season. Soybean stocks will fall to their lowest level in five years relative to annual usage. In contrast to the tightness in soybeans and cottonseed, world production of rapeseed and sunflowerseed will increase steeply by a combined 10.1 Mn T in 2008/09. Despite accelerating crushings right from the start of the season, we still expect world stocks of the two softseeds to accumulate I 2008/09.

10 Oilseeds: World Supply and Demand

(Mn T)

	Forecast	Change	
	08/09F	**2007/08**	07/08
Opening stocks	**71.3***	**-12.2**	**83.5**
Production	**417.3***	**+25.8**	**391.5**
thereof soyabeans	**238.2***	+15.7	222.5
Sunseed	**32.7***	+3.8	28.9
Rapeseed	**55.3***	**+6.3**	**49.0**
Oth. oilseeds (b)	**91.1***	+/-0.0	91.1
Total supplies	**488.6***	**+13.6**	**475.0**
Disappearance	**415.9***	**+12.3**	**403.6***
thereof soyabeans	**238.5***	+5.5	233.0*
Sunseed	**32.3***	+3.8	28.5*
Rapeseed	**53.9***	+3.3	50.6*
Oth. oilseeds(b)	**91.2***	-0.3	61.1*
Ending stocks	**72.8***	**+1.5**	**71.3***
thereof soyabeans	**60.8***	-0.3	61.1*
Sunseed	**2.5***	+0.4	2.1*
Rapeseed	**6.2***	+1.4	4.8*
Oth.oilseeds(b)	**3.3***	+/-0.0	3.3*
Stock/usage(a)	**17.5***		**17.7%**
thereof soyabeans	**25.5%**		**26.4%**

(a) Stock in % of annual disappearance.

(b) Groundnuts (shelled), cottonseed , sesameseed, palmkernels, copra, linseed and castorseed.

[source : Oilworld Weekly Dtd. 19th Sept. 2008 Internet:www.oilworld.biz)

LEADS

Castor Oil

Indian production and export supplies of cator oil may turn out above expectations in Jan/Sept 2009. Latest estimates suggest that planting of castorseed were increased by approximately 100 Thd ha due to favourable prices and improved moisture conditions (which stimulated late plantings).

If weather conditions remain favourable the Indian castorseed crop could reach a record level of around 1.0 Mn T in 2008/09 compared with 920 Thd T last season. Some observers point to the possibility that production could even rise to 1.05 Mn T.

In Brazil castorseed production has increased to 132 Thd T in 2008/09 compared with 94 Thd T last season. Most of the harvesting was done in June/Aug 2008.

Prices of castor oil are set to come under additional pressure from Nov or Dec onward, if current expectations of sharply higher Indian production materialize. Prices had been well supported from July until early Sept but already showed a decline by about Us$ 130-150 in the second half of September.

[source : Oilworld Weekly Dtd. 19th Sept. 08 Internet : www.oilworld.biz]

HOZZAT?

Reimpose edible oil import tariff

By
Dr. N. Raveendaran [1] and Ms. D. Sri Akita [2]

Executive Summary
India is the world's leading importer of edible oils and is likely to remain an important source of global import demand for the foreseeable future. A large population and steady economic growth are important contributors to India's increasing consumption and imports, but policy also plays a key role. Production of oil seeds increased from 18.4 million tonnes in 2000 to 24.28 million tonnes in 2006.The Agriculture Ministry has projected that India will produce an estimated 33 million tons of oilseeds during the 2007-08 marketing year. Each year, India consumes around 11.5 to 12.0 million tonnes of edible oils. Although edible oils are widely consumed, the per capita consumption is around 11 kg per year, considerably lower than in most developed countries. The deficit in domestic supply of about 4 to 5 million tonnes of edible oils is being met by imports. More than 70 percent of oil import is in the form of palm oil from Malaysia and Indonesia and the rest by soy oil from Brazil and Argentina. The impact of edible oil import has wide influence on the domestic edible oil markets, domestic oil seeds growers, processing industries and finally consumers.

Under this back ground a study was made with an objective of analysing the impact of reduced and zero import tariffs on edible oils with special focus on oil seed growers. The study shows that the above measure has led to further decline in oilseed prices benefiting the consumers at the cost of farmers. The reduction in palm oil prices in spot and futures started reflecting in domestic oilseed prices. (Malaysian palm oil future for October, November 2008 had decreased by more than 30% comparing August 2008)The price decline is found to benefit only rich consumers than the poor. With harvesting beginning in October there is a danger of steep decline in oil seed prices in forth coming months affecting about 50 mil-

lions of oilseed growers. Hence Tamil Nadu Agricultural University insists that instead of relaxing the import tariff to curb the rising prices in favor of only rich consumers government could think off a whole round approach thereby promoting higher domestic production in ways of providing subsidy and such other incentives for farmers. Hence urgent action is required from the side of Government of India and one of the short term measures is reimposing tariff for edible oil imports suitably.

ESTIMATE FOR AVAILABILITY OF VEGETABLE OILS FROM KHARIF OILSEEDS CROP AND SECONDARY SOURCE DURING 2008-09 SEASON & COMPARATIVE PERIOD FOR 2007-08 SEASON

(Qty. in Lakh Tonnes)

Source	Oil recovery %	Kharif Oilseeds Crop		Marketable Surplus for Crushing		Oil Availability for Domestic Purpose from Kharif Crop	
I. Oilseeds		**2008-2009**	2007-2008	**2008-2009**	2007-2008	**2008-2009**	2007-2008
1. Groundnut (in shell)	40	**45.2**	48.7	**12.6**	18.1	**5.0**	7.2
2. Soybean	17	**98.9**	94.6	**87.9**	84.6	**14.9**	14.4
3. Toria	33	**1.5**	2.0	**1.5**	2.0	**0.5**	0.7
4. Sunflowerseed	35	**4.0**	5.3	**3.9**	5.2	**1.4**	1.8
5. Sesameseed	45	**3.0**	4.5	**1.5**	1.5	**0.7**	0.7
6. Castorseed	45	**10.7**	9.1	**10.7**	9.1	**4.8**	4.1
7. Nigerseed	30	**0.8**	0.7	**0.4**	0.3	**0.1**	0.1
8. Safflowerseed(Kardi)	30	**-**	-	**-**	-	**-**	-
9. Linseed	43	**-**	-	**-**	-	**-**	-
Sub Total		**164.1**	164.9	**118.5**	120.8	**27.4**	29.0
II. Other Oilseeds							
10. Cottonseed	12.5	**96.1**	99.2	**81.1**	84.2	**10.1**	10.5
11. Copra	65	**6.5**	6.5	**6.5**	6.5	**4.2**	4.2
Sub Total		**102.6**	105.7	**87.6**	90.7	**14.3**	14.7
III. Secondary Source						**8.5**	
12. Rice Bran	15	**-**	**-**	**-**	**-**	**1.8**	8.0
13. Rapeseed Cake	9	**-**	**-**	**-**	**-**	**0.7**	1.8
14. Sunflowerseed Cake	12	**-**	**-**	**-**	**-**	**0.8**	0.9
15. Groundnutt Cake	7	**-**	**-**	**-**	**-**	**0.5**	1.0
17. Cottonseed & Others	7	**-**	**-**	**-**	**-**	**1.0**	1.0
18. Local Palm Oil		**-**	**-**	**-**	**-**	**0.7**	0.6
Sub Total		**-**	**-**	**-**	**-**	**14.0**	14.3
Grand Total I, II & III		**266.7**	**270.6**	**206.1**	**211.5**	**55.7**	58.0
10 Lakh = 1 Million							

Data Complied By : The solvent Extractor's Association of India (SEA Data Bank)
142,Jolly Maker Chamber No.2, 225, Nariman Point, Mumbai-400 021
E-mail : solvent@mtnl.net.in, Web -site: http://www.seaofindia.com

OUTLOOK : Bio-dielsel impact on the palm oil industry

By
Dr. Yusof Basiron
C. E. O. Malaysian Palm Oil Council

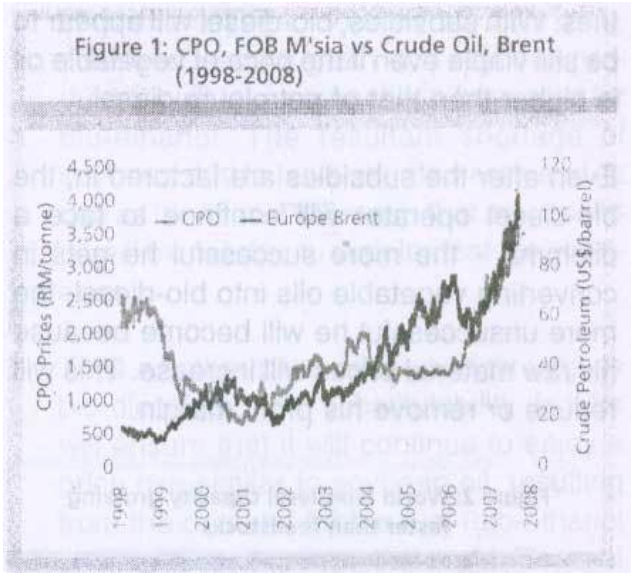
The rapid increase in petroleum prices above the price levels of vegetable oils, beginning in 2004, provided the impetus for turning vegetable oils into bio-diesel for transportation fuel. It was attractive to convert cheaper palm oil rapeseed oil or soybean oil into methylesters or bio-diesel and sell these at the price of petroleum diesel to earn a gross margin of up to US$200 per tone or 40% of the price of the vegetable oils.

The initial attraction led to many governments especially in the EU, as well as the US Administration, to promote the increased use of bio-diesel to at least partially replace petroleum diesel.

The period when palm oil prices were below those of crude petroleum began in 2004 as shown in Figure 1, but because of the resultant increase in bio-diesel demand, palm oil prices reverted to the premium position against petroleum prices after about two years at the end of 2006.

Governments in the EU also provided subsidies or incentives to encourage the use of bio-fuel as it was part of their policy to reduce dependence on fossil fuels, and to lower carbon dioxide emissions to reduce global warming. Prices of vegetable oils were relatively cheaper than those of petroleum fuel at the end of 2004 and, with additional subsidies, it was even viable to burn palm oil directly in power plants to generate electricity in the EU.

Before long, the demand for bio-diesel influenced prices of the oils and fats raw materials to increase rapidly, as shown for the period after 2006 in Figure 1; this caused the profit margins for bio-diesel producers to be reduced or even vanish. The vicious cycle of margin fluctuations is a feature of the biodiesel industry which needs more detailed analysis if its long-term implications are to be fully understood.



Economic Dilemma

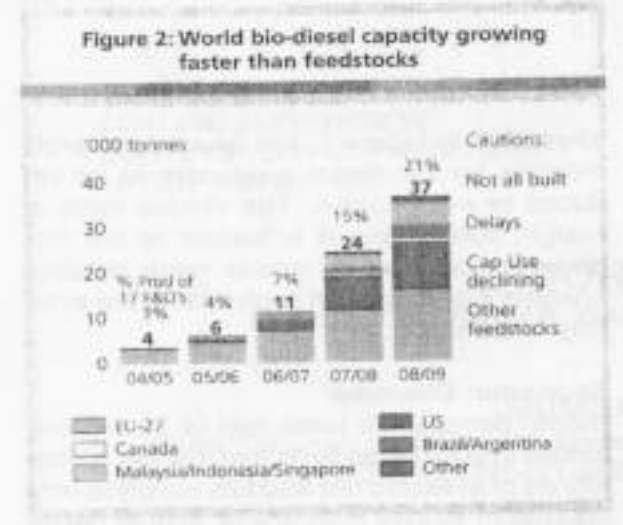
Global demand for fossil fuel (4,231 million tonnes in 2007) is so large that the 154 million tonnes of available oils and fats supply is only equivalent to less than 4% of annual petroleum consumption. While the oils and fats market has been in some degree of balance between supply and demand for the traditional food and oleochemical applications, the new big potential demand for bio-diesel will led to a major imbalance

Prices of vegetable oils and fats will have to increase to help reduce demand and recreate market equilibrium. The cycle of reduced demand will lead to price reduction which in turn will re-stimulate the demand for bio-diesel, and the price fluctuation cycle will be repeated.

Such cyclic changes will be tempered by market prices being distorted by subsidies on bio-diesel

petroleum diesel.

Even after the subsidies are factored in, the bio-diesel operator will continue to face a dilemma - the more successful he gets in converting vegetable oils into bio-diesel, the more unsuccessful he will become because his raw material prices will increase. This will reduce or remove his profit margin.



[source: Prudential Balance Commodities,LLC]

Bio-diesel Plant Capacity

In view of the attractive margin for bio-diesel during the first cycle between 2004 and 2007, which was somewhat extended by the effect of subsidies, many countries promoted investment in bio-diesel plants.

As shown in Figure 2, world capacity for bio-diesel increased from an equivalent of 3% to 22% of oils and fats supply between 2004 and 2008. Considering that oils and fats supply expanded only at 4% per year, or 16% over the last four years, it implies that bio-diesel plant capacity is expanding faster than supply.

The current expansion in oils and fats supply is meant to cater for normal expansion in traditional applications such as food and oleochemical uses. If demand expansion for bio-diesel is to grow according to plant capacity, the supply of oils and fats to meet the total need for the food oleochemical and bio-diesel industries would have to grow at a much higher rate.

In total supply should have expanded by 38% (16%+22%) over the last four years to meet food, oleochemical and bio-diesel demand. As it was not possible for the food and oleochemical uses to contract over the last four years, or for the total oils and fats supply to expand at 38%, prices had to increase mainly to discourage bio-diesel production.

Food Versus Fuel

The projected price increase for oils and fats is driven by the large capacity of bio-diesel plants established globally. It represents unlimited demand whenever the effective price of oils and fats is below or close to that of petroleum fuel. The threat of reduced availability forces the food and oleochemical sectors to react by raising their buying prices in order to bid for supply. Demand for food and oleochemical uses is rather inelastic when compared to demand for fuel.

A gallon of cooking oil may take a person one month to consume in the food sector, and his per day cost of oil use is therefore 1/30 of a gallon price. The same gallon of oil, if used as fuel, would last a person only for 20 miles or 30 minutes of travel time. His daily cost in using vegetable oil bio-diesel is probably equivalent to the cost of 2 or 3 gallons of oil to cover daily travel.

Thus the person in the food industry is more able and willing to pay a higher price for oil than the person in the fuel industry who will revert to using cheaper petroleum diesel as an alternative, once bio-diesel becomes relatively expensive. In essence, the food industry will always have its supply of oils and fats because of the willingness to pay a higher price compared to the fuel user.

Assuming supply of vegetable oils and fats is more than adequate to meet the traditional demand in the food and oleochemical market, prices of vegetable oils will not rise far above the prices of petroleum for too long, as the fuel sector will not support such high prices.

On the other hand, effective prices of vegetable oils will not far below the prices of petroleum fuel as the bio-diesel industry will use large quantities

of cheaper raw materials for its current capacity. This will force prices of oils and fats to be highly correlated with those of petroleum fuel as shown in Figure 1 for the period between 2007 and 2008. In the debate of food versus fuel, a few outcomes are expected:

1. Demand for vegetable oils for use as biofuel will be highly cyclic as many bio-diesel plants will stop operations when vegetable oil effective prices are higher than petroleum diesel prices; the plants will resume operations when raw materials (vegetable-oils) are cheaper. Over time, some of the non-integrated plants with weak financial support will have to be closed due to lack of sustained profits.

2. The food industry will have to live with the fact that vegetable oil prices will no longer be as cheap as in the years before bio-diesel was introduced. Prices of vegetable oils will be at least as high as the prices of petroleum fuels. Prices of vegetable oils will only become cheaper when the prices of petroleum come down, as hey are highly correlated.

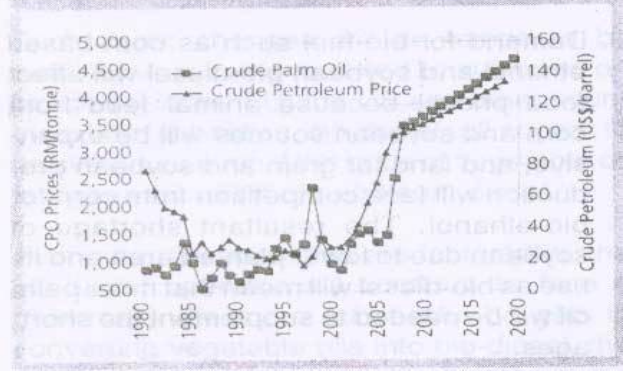
3. Demand for bio-fuel such as corn-based ethanol and soybean bio-diesel will affect food prices , because animal feed from corn and soybean sources will be expensive, and land for grin and soybean production will face competition from com for bio-ethanol. The resultant shortage of soybean due to lower planted a rea and its use as bio-diesel will mean that more palm oil will be needed to supplement the shortages

   Thus whether palm oil is used directly as bio-diesel or not, substitutability factors will ensure that it will continue to enjoy a price rise similar to soybean oil, resulting from the demand for bio-fuel (bio-ethanol and bio-diesel) around the world.The real driver in pushing up prices of food is not bio-diesel demand but high petroleum prices, which triggered the bio-fuel industry.

4. Farmers will benefit from high prices of vegetable oils and this may encourage them to increase supply of oilseeds. The increase in supply will probably not be able to reduce prices in a significant way as it will be insufficient to meet the needs of the large bio-diesel market.

5. For a producer-country like Malaysia, oil palm will still be the most profitable crop for farmer. Planting non-edible oil crops for bio-diesel feedstock would penalise farmers with lower income potential, compared to planting oil palm. The food industry will have access to palm oil as long as they pay at prices above the equivalent of petroleum fuel. Otherwise the farmers would want to benefit from the higher price by selling their palm oil partly to the fuel industry.

Figure 3: CPO vs Crude Petroleum Price Movement and Forecast



The Outlook

It is possible for bio-diesel development to suffer an abortive growth trend in the near future because of the self-conflicting effects of success that will automatically lead to failure. Success in the bio-diesel industry will promote excessive demand and high prices, and this will reduce or create a negative margin tendency and, ultimately, failure to obtain a profit margin. In this regard, the development of the bio-fuel industry is going to be transitory in nature.

It is no different to past trends where no bio-diesel plant could exist and vegetable oils were not used as bio-fuel because of their relative high

prices compared to petroleum fuels even though there has long been awareness of the production technology. Commercialisation of bio-diesel was then not feasible because the food industry was always willing to by oils and fats at prices above the prices of petroleum products.

Another possibility is the mandatory blending of biodiesel which will force up prices of vegetable oils, higher than petroleum diesel. Such large demand for vegetable oils will push prices up so high that the fuel industry will be forced to reconsider the wisdom of burning very expensive oils for fuel relative to petroleum oils, even though the impact of bio-diesel on petroleum demand or supply replacement may be negligible.

This scenario may allow the bio-diesel cycle to survive a little longer before a public outcry sets in, because high oils and fats raw material prices will be passed on to them when they buy mandatory blends of transport fuel.

Ultimately, there is a strong possibility that vegetable oil producers will encourage an optimal number of bio-diesel plants to survive so that oilseed farmers will be assured of an additional demand that will keep prices high for their produce. This is leveraging on the bio-diesel industry to maximise on high prices to benefit the oils and fats production business.

The subsidy needed to sustain a small number of bio-diesel plants is not significant compared to the revenue earned from high prices by the rest of oils and fats supply participating in the traditional oils and fats market. This leverage opportunity will likely be exploited by major oils and fats producers including the Malaysian palm oil sector in the future, as it forms a floor-price assurance protecting producers and farmers from the affliction of low prices for oils and fats commodities .

Future prices of vegetable oils and fats will be correlated with petroleum prices because bio-diesel capacities already in existence will mop up any excess supply of raw materials. Prices of oils and fats will not likely move too high relative to petroleum products, as demand from the bio-diesel operators will vanish if raw materials are at a high premium to petroleum prices.

Prices of palm oil could be projected to correlate closely with the prices of petroleum. As the price of petroleum is projected to remain high due to depleting supplies, future prices of palm oil will depend on the prices of petroleum as shown in Figure 3, provided that demand for food and oleochemical is adequately met by projected expansion in supply.

Prices of oils and fats may break away from the close correlation with petroleum prices if their supply cannot meet the projected growth through traditional demands for the food and oleochemical industries. This possibility is real.

Current demand expansion for food and oleochemical uses is about 3-4% per year as influenced by income and population growth trends. With world annual production of 154 million tonnes of oils and fats in 2007, the 3% expansion amount to 4.62 million tonnes of additional oils and fats needed per year.

Simple cumulating of additional demand for 10 years would lead to 46.8 million tonnes of additional oils and fats in the 10th year from now. If this additional demand from the 10th year onwards were to be produced from palm oil, it would require about 12 million hectares of new oil palm plantations. If it were to be supplied by soybean oil, 120 million additional hectares would have to be cultivated

After more than 40 years of rapid expansion the oil palm industry in Malaysia and Indonesia can only produce about 33 million tonnes of palm oil from a combined area of 13 million hectares of plantations. It is therefore unlikely that the additional 46.8 million tonnes of oils and fats can be produced via palm oil cultivation in the next 10 years. Similarly, such additional quantities cannot be met by soybean supply expansion alone as the 120 million hectares of land needed may not be readily available.

It could be wishful thinking to expect a large

production of bio-diesel from vegetable oils & fats knowing that there may not be enough even to meet the projected needs of the growing demand for food and oleochemicals in the intermediate to longterm projection.

By implication, the world oils and fats prices may continue to be higher in the future to reflect the projected shortage in supply even in the traditional food and oleochemical market, and prices may move up independent of petroleum prices because of the projected shortages.

Very few countries are in a position of net excess to supply oils and fats to the world market. As Figure 4 shows, only three countries- Malaysia, Indonesia and Argentina – are major net exporters of oils and fats. Most countries are net importers, including the U S for the first time in 2006.

Developed countries like those in the E U with ambitious bio-diesel programmes and future targets are already major net importers of oils and fats – even when the biodiesel industry has not yet taken off in a big way. This presents a pessimistic scenario for bio-diesel development due to potential supply shortages. However, the same factors provide an optimistic scenario for oil and fats suppliers and exporters as they can expect prices to remain remunerative.

Conclusions

The Bio-diesel industry is currently undergoing a difficult phase of its development. Producers face the problem of no margins because of high prices of raw materials, as a result of over- capacity in plants. This conform to the theoretical projection that the large demand created by bio-diesel capacity will push prices upwards to eventually affect profit margins and viability of the bio-diesel industry.

Profit margins may be re-created with oils and fats prices weakening subsequently but oil- seed producers will likely take the strategy of keeping a certain capacity of the biodiesel plants active to prevent prices from falling too low.

Need for bio-diesel will be regarded as a new “Blue Ocean” demand that will change the structure of the oils and fats market. It is projected that prices of oils and fats will not fall below the equivalent level of petroleum prices because active bio-diesel capacity maintained by oilseed producers will mop up any cheap oils and fats in the market.

Consequently, the food industry will not be able to buy oils and fats as cheaply as in the past because of potential demand in the bio-diesel sector. Still, prices will not rise excessively as the bio-diesel industry will not tolerate prices higher than that of the petroleum equivalent.

With the projection that prices of non-renewable crude petroleum will continue to remain relatively high, prices of oils and fats will also remain high because of their close correlation.

This provides an optimistic outlook for oils and fats producers,but most of the bio-diesel producers will have a transitional existence whose survival will be highly dependent on supporting subsidies. This will limit capacity expansion to an extent encouraged by oils and fats producers who may be looking at price leveraging for its floor-price protection effect.

In the long term, oils and fats supply may not be able to meet the need for the normal 3-4% expansion in demand in the food and oleochemical sectors. This could push prices higher than those of petroleum until the high prices force a reduction in demand, thereby bringing the market into supply and demand equilibrium.

(Source : Global Oils & Fats Business Magazine Vol. 5,Issue 3 (July-Sept.) 2008

Global Self-Sufficiency Status in 2007
Oils and Fats Balance 2007

('000 Tonnes)

Country	Production	Disappear-ance	Imports	Exports	Net Exports/ (imports)	2006 Net Exports/ (imports)
ndonesia	19,438	4,794	86	14,515	14,429	13,675
Malaysia	17,754	3,543	881	15,038	14,157	14,248
Argentina	8,637	1,094	16	7,491	7,475	7,357
Brazil	7,758	5,342	303	2,536	2,233	2,334
Ulkraine	2,661	963	358	2,105	1,747	1,432
Canada	2,535	1,388	531	1,682	1,151	1,133
Philippines	1,352	785	301	868	567	816
Us	16,898	16,582	2,743	3,106	363	-41
Thailand	1,421	1,043	96	438	342	167
Australia	866	765	326	451	125	162
Colombia	938	882	266	325	59	35
Russia	3,403	3,506	897	676	-221	-252
Taiwan	502	820	326	17	-309	-296
Nigeria	1,454	1,841	400	24	-376	-354
South Korea	417	1,212	799	10	-798	-751
Turkey	1,299	2,239	990	167	-823	-1,368
Japan	1,900	2,824	930	11	-919	-913
North Africa*	439	1,568	1,368	275	-1,093	-1,329
Egypt	373	1,515	1,353	229	-1,124	-1,144
Mexico	1,658	2,822	1,174	29	-1,145	-1,071
Iran	467	1,643	1,315	95	-1,220	-1,204
Bangladesh	208	1,481	1,280	-	-1,280	-1,102
Pakistan	1,730	3,500	1,832	339	- 4,994	-4,650
EU-27	19,561	28,249	9,844	1,478	- 8,366	-8,416
China	19,726	29,085	10,074	202	- 9,872	-7,525
Others	-25,213	-32,220	-12,712	-5,700	7,012	-8,406
World Total	**154,024**	**154,814**	**58,639**	**57,829**	**- 540**	**203**

* North Africa = Algeria , Morocco, Tunisia

PFA Specifications Amended-
Unsap Matter in Refined Rice Bran Oil Raised to 4.5%

PREVENTION OF FOOD ADUTERATION
NOTIFICATION
Dated 27th October , 2008

Whereas a draft notification of certain rules further to amend the prevention of Food Adulteration Rules, 1955, was published, under sub-section (1) of Section23 of the Prevention of Food Adulteration Act 1954 (37of 1954), vide notification of the Government of India in the Ministry of Health and Family Welfare (Department of Health), number G.S.R.106 (E) dated the 25th February,2008 ,inviting objections and suggestions from all persons likely to be affected thereby till the expiry of a period of thirty days from the date on which the copies of the Official Gazette containing the said notification, were made available to the public;

And whereas, the copies of the said notification were made available to the public on the 27th February,2008;

And whereas, objections or suggestions received from the public within the specified period on the said draft rules have been considered by the Central Government;

Now therefore, in exercise of the power conferred by Section 23 of the Prevention of Food Adulteration Act, 1954, the Central Government, after consultation with the Central Committee for Food Standards, hereby makes the following rules further to amend the Prevention of Food Adulteration Rules, 1955,namely:-

1. (1) These rules may be called the Prevention of Food Adulteration (Sixth Amendment) Rules, 2008
   (2) They shall come into force on the date of their publication in the Official Gazette.

2. In the Prevention of Food Adulteration Rules 1955, in Appendix B,in item A. 17.23 relating to Rice Bran Oil, for the words and figures "(vi) Unsaponifiable matter, per cent by weight …… Not more than 3.5*, the following shall be substituted, namely:-

" (vi) Unsaponifiable matter, per cent by weight-
(a) for chemically refined …… Not more than 3.5
(b) for physically refined …… Not more than 4.5
Oryzanol Content …….. Not less than 1.0"

Sd/-
(Debasish Panda)
Jt.Secy.

G.S.R.754(E)
F.No. P. 15014/28/2007-PH (Food)
Issued by :
Ministry of Health and Family Welfare
(Department of Health)
New Delhi

Notes: The Prevention of Food Adulteration Rules, 1955 were published in the Gazette of India, vide notification number S.R.O.2106, dated the 12th September, 1955 and were lastly amended vide notification number GS.R.664(E) dated 19.9.2008.

[source : Sea news circular, vol.-XI, November 2008, Issue - 8]

COFFEE TASTE

Coffee growers exploring right biofuel plants

Vayu Grid Renewable Energy Technologies, a company floated by a group of US based technocrats, is exploring the possibility of growing trees suitable for biofuels in the plantation districts in Western Ghats. Form this project, some coffee growers from Mudigere in Chickmagalur district have come forward by offering their land for trails.

The company has roped in Mr. Udipi Srinivasa, a professor of mechanical engineering at the Indian Institute of Science, Bangalore and Credited for exploring alternative and low cost technologies which have high relevance to rural areas. Mr. Srinivasa will guide the coffee growers.

"The company is looking at intercropping with coffee and has selected plants like honge (Scientific name : Pongamia pinnata) and castor, which have high oil content," said Mr. Udipi Srinivasa.

"Hong takes three years to yield seeds for commercial production where as Castor is a four month crop. Presently a trial block is being prepared on a 10 acre coffee estate at Mudigere in Chikmangalur and nursery is being raised," he said.

Biofuels also have many advantages in plantation districts for it is cheap and renewable. It also disperses profits, are safe to store, need nothing new to be invented to run diesel engines and have a long shelf life.

Mr. Varu Gurjer, coffee planter from Mudiere, Chikmalkuar on whose land the experiment is on declined to reveal the Investment in the project. But said that once the trial block is ready once the trial block is ready and functional only then we will be able to work on economics and return on investments. When this model is fully functional, it has potentially very large resource in the form of non-edible seeds. Vayu Grid Renewable Energy Technologies, on similar lines, has initiated a few projects in Maharashtra in semi-arid regions. "These seeds contain oil that can substitute diesel in power generating set and irrigation pumpsets (which need no modification) and further which have high value as mulch and fertilizer," said Mr. Udipi Srinivasa.

In normal semi-arid land with densities of over 100 trees per hectare (as a plantation),these trees yield 10 tonnes of seeds per hectare on maturing. Also 15-20 year old trees use the soil upto a depth of 10 metres (unlikje agricultural crops which use only 150 mm of topsoil) both the survivability during dry periods and annual output per hectare are better than what could be obtained from many agricultural crops.

"Honge yields 2.5 tonnes of oil that has comparable value to diesel as fuel. The cake with multiple uses, is primarily a fertilizer," said Mr. Srinivasa.

[source ; Plant horti tech , vol.8, No.4, October-November 2008]

KNOW ALL

Oil palm products and their uses

Oil palm products may be categorized into :

(I) **Primary products** : Palm oil, Palm Kernels and Palm Wine

(II) **Secondary products** : Shell, Fibre, Leaves, Trunk.

Primary products and their uses :

1. **Palm oil** : Palm oil is extracted from the

mescocarp of ripe fruits in a milling process – a semi continuous process involving sterilization, bunch stripping, oil extraction, oil clarification and purification. Palm oil so obtained is the most suitable fatty material for the many uses of vegetable oils and fats..

(A) **Edible uses of palm oil :** As a food commodity, palm oil is the main cooking oil in most parts of Nigeria. It greatly contributes to a balanced diet because of its high content of vitamin A (carotene) which imparts the rich red colour to the oil. Palm oil is used in the manufactures of cooking/frying oil, margarine, shortenings which are used in making bread, cakes, cream and sweets. It is also used as an additive in the manufacture of livestock feeds.

(B) **Non-edible uses of Palm Oil :**
Palm oil is used in the manufacture of soap Indeed, the soap industry is the largest non-edible user of palm oil. Palm oil is used to the practical exclusion of other oils in the tin-plate industry (metallurgy) because it is relatively cheap and has a fairly good composition for the purpose. During the tining process, palm oil process fatty acids and other compounds which assist in dissolving metallic oxides to promote uniform wetting of metal by the oil.

Palm oil may be used in the treatment of cream ointments and lotions since it is more readily absorbed by the skin than mineral oils.

Palm oil is also used for nondrying products like in burning oils for illumination, and to a limited extent may be used as diesel engine fuel.

Palm oil may also be used as one of the components in making lubricating oils, greases and plasticizers. Palm oil is also used in the manufacture of candles and polish.

Palm kernel Oil
Palm Kernel oil is obtained from the kernel through various extraction process. It is used in the manufacture of edible fats, confectionary, bakery trade, ice cream and mayonnaise.
Non-edible use of Palm Kernel Oil : Kernel oil is used largely in the manufacture of toilet soap, detergents and pomades. It is also used in making glycerine.

The residue left after extracting oil from the kernel, usually referred to as palm kernel cake, is used in the manufacture of live-stock feed.

Palm Wine
Palm wine is obtained by tapping the inflorescence and also the trunk of the oil palm. Fresh Palm wine is a nutritious drink and contains sugars vitamins, proteins and minerals. It is therefore important as food, and occupies a place in the social life of many Nigerians. The palm wine could be distilled to produce ethanol.

Secondary products and their uses :

(1) **Fibres and shells :** The fibres which constitute the residue after oil has been extracted from the mesocrap, and the shells which result from the craking of the kernels, are both used as fuel in firing the boilers of oil mill to generate steam. Blacksmiths also use the shells as fuel. The shells are also used as aggregates for flooring.

(2) **Leaves :** The leaves of the oil palm are used in many ways; the leaflets could be used for making thatches for roofing homes; the rachises could be used for fencing and for reinforcing building; the midribs of the leaf-lets could be turned into brooms, the palm cabbage derived from the young tender leaves at the crown and apex of the stem is an excellent vegetable and is a delicacy.

(3) **The Trunk :** The trunk of the oil palm could be sawn into logs and used as timber for building.

(4) **Bunch refuse :** Bunch refuse is the material left after the fruits have been removed from the fruit bunch. It is used traditionally in making native soap. More importantly, bunch refuse is good source of potassium and may be used in replenishing the nutrient level of the soil. It could be used for mulching purposes at the seedling stage.

[source : Plant horti tech, vol.8, No.4, October-Novemeber 2008]

Earthworm

By
R.P.Soundarajan and C. GAilce Leo Justin

The food grain production in our country has increased from 50 million tones to 200 million tones in the last three decades. The achievement was obtained by increased intensive farming with modern agricultural technologies. Basically all these were attributed by use of high yielding varieties, more of inputs like fertilizers, pesticides, weedicides and better irrigation facilities pesticides efficient management. These results in increased production of wheat and rice. Problems that emerged are varied notably heavy dependence on fertilizer inputs dependence on fertilizer inputs increased micro-nutrient deficiency, reduced cultivating acreage of pulses and others depleted sub soil water table, increased dependence to pesticides and weedicides and deterioration of plant substrate. Excessive uses of chemical fertilizer has ecological and economic implications. These are well known to affect soil chemistry, deplenish soil chemistry, deplenish soil micro nutrients and cause water pollution. Some of these as chain reaction affect human health viz., Higher nitrogen application in some leafy vegetables and accumulation of nitrites in leaves, which affect various body functions in human.

Principle of organic farming is to produce food of good quality and quantity by using eco-friendly technologies which can co-exist with nature. Such practice exclude use of chemical fertilizer, pesticides and weedicides, etc. The system depends upon use of leguminous plants and microbial inoculations for nitrogen fixation, crop rotation, organic manures recycling of waste and biological control methods. Utilization of earthworm and its natural activity minimize the problems to a great extent.

Earthworm – a friend to farmers

Earthworms are known as friends to farmers and helps in several ways to farming. The activities of earthworm in soil and in nature are numerously beneficial. The main activities include feeding, burrowing, casting and related activities.

Earthworm activities

Burrowing of earthwork brings about tillage of soil. In most conventional method of tillage is up to depth of 30 cm while earthworm do tillage up t0 3 meters without adversely affecting plants.

Incorporate plant residue, organic wastes and dung with soil from surface. Thus in different soil layers organic matter is mixed result in redistribution of nutrient which are brought closer to roots of plants for adsorption.

Earthworm eat its way through soil organic humus etc. In this process it continuously keep its body moist and passes out urine, thus keeps on adding micro quantities of humidity and urea.

Earthwork break up large mineral particles to smaller units during ingestion and distributed with expulsion as casts. These promote better root system in plants.

Earthworks bring about breaking up of complex organic matter in soil into readily absorbable or assimiable forms to plants.

Earthworm feeding in organic matter subject to enzymatic action in its gut (stomach) and convert organic matter to simple fractions, which are expelled as dropping or casts, referred as 'vermicast.'

Earthworm improve soil aeration by making pores with its burrowing activities. This results in good oxygen supply to roots of plants and growth of aerobic miro organisms.

The final process of organic matter decomposition is humification. It is hastened by earthworms. Micro organisms within its stomach passout with the casts and act on the organic matter.

Earthwork movement in soil increases water impercolation and other functions of porosity in soil.

Vermitechnology

It is a method of converting wastes into useful products through actions of earthworm. The method comprising two main component processes viz., Vermiculture and vermicomposting. Vermiculture can only be done on compost gable or decomposable organic matter. Vermicomposting is the outcome of earthworm activities. Both the process can be brought about simultaneously. The earthworm's can be multipled for various uses and can obtain vermicast or vermicompost at faster pace.

Vermiculture

The method provide multiple benefits in various perspective namely waste biomass management. Wasteland conservation, Land reclamation, Production of worm worked manure, Soil fetility maintenances and enhancement of plant product. By culturing earthworms. Animal proteinvermi protein can be produced at low price form wastes. This protein can be used for sale as fish bait, fish culture feed, feed for poultry, piggery and general fish farming.

Vermiculture is also helpful in pollution abatement. Vermiculture provide tool for use in recycling degradable organic waste into useful product, the compost. Earthworm area capable of accumulating chemicals. They found to accumulate lead, cadmium, chromium, copper, nickel, mercury and zinc. Earthworm has also been shown to develop more on metal binding proteins.

A recent report on earthworms that it can be useful in Unani medicine system is interesting. This can use for treating wounds, piles, chronic, boils, sore throat, hernia and with internal preparations for curing rheumatic pains, jaundice and respiratory ailments.

Vermicomposting

Almost all types of biologically degradable and decomposable organic wastes can be used for vermicomposting. Animal Dungs like cattle dung, sheet dung, goat and poultry droppings are used for composting. Poultry droppings are used for composting. Poultry droppings are rich in calcium. Agricultural wastes viz., Stem, leaves, hust, peels, vegetables waste orchard leaf litter, processed for wastes and sugarcane trash are used for composting. The other products such as city leaf litter, waste paper, cotton cloth, city refuge, biogas slurry nd industrial waste can be used in vermicomposting.

Application of vermicompost is preferred to horticultural crops by mixing equal quantity of cow dung manure. Application of quantity depends upon age and size of plants. Method involves preparation of a ring around plant base of ‰ to 1 feet depth and 1-2 feet wide. In this, compost mixture is filled. Then mulch the ring with dry leaves, weeds, husk, or coir then watering mixture is filled. Then much the ring with dry leaves, weeds, husk, or coir then watering should be done. Generally application can be done once in 2 moths or 3 months.

The vermiculture and vermicomposting can serve as a vital methods of organic farming and thus reducing the environmental pollution by avoiding over dependence on chemical fertilizers. The future trust on sustainability in agriculture is depend on organic way of agriculture as described by scientist Dr. M. S. Swaminathan.

[source : Plant horti tech, Vol.8, No.4, October-November 2008]

MORE ON MANAGEMENT

Performance inspired by Good Leadership

The successful management of an organization can be measured by the people working for it and their level of satisfaction and happiness. The overall success of an organization must necessarily be geared to the satisfaction and happiness of the customer as well in the business world. Customer satisfaction is given top priority – the customer is always right, no matter what!

Much depends on the leader in an organization, who must rise above limited views. He must carry in his mind the total vision, the complete pan-

orama. If his idea of success is limited, then his success will also be limited. Ultimately, the vision of the totality that the CEO carries, determines the growth, development and success of his enterprise. True knowledge gives us humility. Humility leads to greater ability which in turn leads to higher prosperity. Prosperity if used for righteousness will lead to true happiness.

Every leader has some duties or responsibilities towards those working for him. A good leader must assume three basic responsibilities towards those working for him. A good leader must assume three basic responsibilities towards his employees.

1. He must give security to his employees.
2. He must design their job content appropriately.
3. Teach them what dharma is Explain to them the significance of right values.

Of the three, the third aspect is most important. A leader must instill the right moral values in his employees and teach them the right way to live and work, Inspiration gained from the empirical world alone cannot give true fulfillment. People must understand that joy lies in inspired action and not in material gain. When happiness depends on the result, we postpone our experience of happiness to the future.

There is a contradiction here. We want happiness in the present but have, by depending on the result, delayed the experience of enjoyment to the future. The result that we look forward to with great anticipation also does not last. We often lose it and promptly return to square one.

The secret of enjoying life is to understand that joy lies in the very performance of the action. Action is always in the present and so too is happiness. When workers are happy, they are more productive. If they are disgruntled, production figures fall. The higher or greater the level of inspiration, the more will be output of the workforce. When people discover joy in the very execution of action, the quality of their performance changes.

With dedication, the quality of performance undergoes a radical change. When actions are dedicated to a nobler and higher ideal, inspired thinking produces more refined performance. Akbar was very pleased with Tansen's singing prowess and praised him greatly. Tansen humbly requested the emperor to listen to his guru, who he opined was a greater artist. Akbar was intrigued and after listening to Tansen's guru, wanted to know the reason for the difference in the quality of his singing. Tansen attributed the superiority of his guru's singing to the fact that his guru sang for the Lord, Whereas, he himself sang for the emperor.

The inspiration gained while working for the Higher Self is much greater. Inspired performance will yield superior result. Knowledge leading to humility ensure success and power, which in turn leads to greater knowledge, more humility and even greater success and power.

Sawmi Tejomayanda
[source : Plant horti tech, Vol.8, No.4, October-November 2008]

UPDATE THE WISDOM

.

The Bio and Nano-technology : Concept and Scope

Biotechnology is a widely used, and much understood, term, so much so that the term needs no explanation and its relevance is already understood. It is, to put it in simple terms, a broad generic term that is centered around the genetic modification of living organisms undertaken with a view to specific goals. The science of biotechnology has acquired significant popularity in the context of our search for optimization popularity in the context of our search for optimization of gains of various types, namely productivity gain, longevity gain, improved quality of life, food, etc and so on.

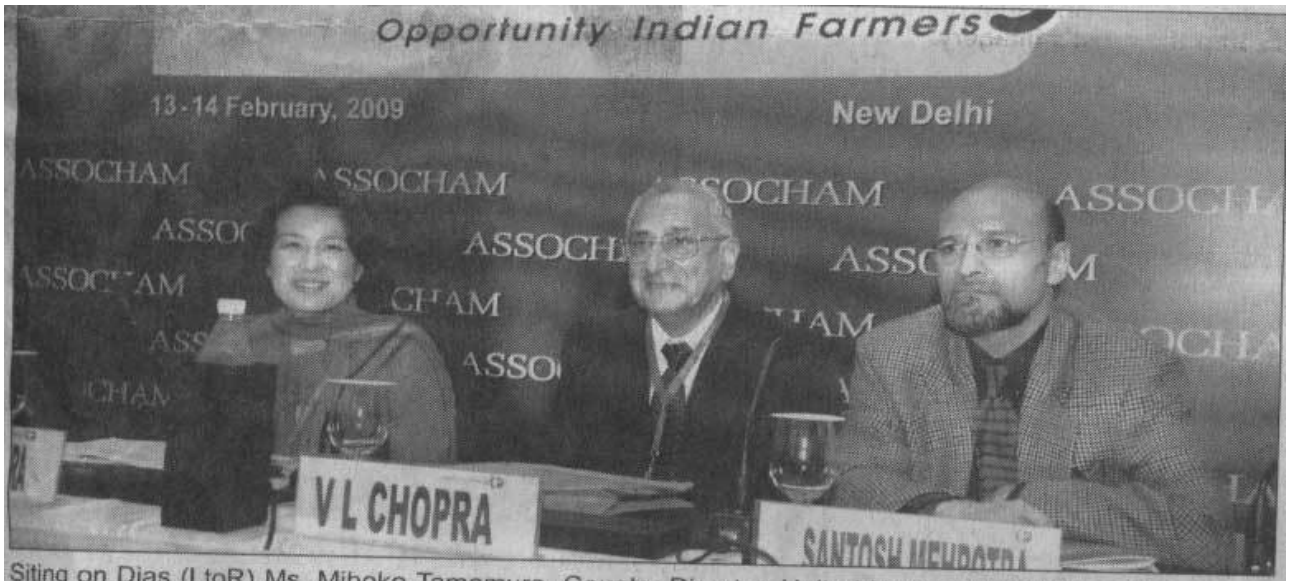
Hardcore scientists and technologists will better explain the technological processes involved genetic modification of living organisms such as seeds and plants, human beings, or animal, solid

or liquid elements, etc. From the perspective of a social scientist, biotechnology is a process that uses genetic modification as a tool for maximization of benefits in the world of constraints and /or limitations that we have to live through. Exercise in biotechnology, and its application, for various purposes in, thus, a welcome development. It is entirely a rational endeavor, and it is no wonder that application of bio-technology is gaining wider acceptance.

Particularly, application of biotechnological process in agricultural is spearheading rapidly in several countries. Its role in enhancing productivity by way of hybrid seeds, pest resistance quality, post-harvest loss minimization, better storage life of crops, etc is well-established. Its potential in increasing farm income, and thus mitigation of poverty, is also, accordingly, established. Ever since the beginning of commercial application of agro-biotechnology in the early 1990s, the production of GM food and seeds has been increasing, though in the developed counties mainly. The progress has not been without controversies and obstructions. We shall talk about it in the next section. Controversies not with standing, popularity of agro-biotechnology (or Green Biotechnology) has been on the rise.

And now we have another technological feat that is coming, which is the rapidly expanding branch of technology that allows us to create tools and materials at the molecular levels of materials and organisms, and has wider application of nanotechnology, considered as having the potential for ushering in new industrial revolution, is being increasingly adopted in many countries in their endeavor for a knowledge-based economy in the 21st century.

With respect to agriculture, nano-technology it is widely recognized, has the potential to revolutionise agriculture and food industry, with application of new tools for the molecular treatment of diseases, rapid disease detection, enhancing the ability of plants to absorb nutrients, etc. it is primarily aimed at facilitating precision farming that can serve several purpose, such as enhancing cost-efficiency, optimum utilization of agricultural inputs, cost reduction through waste control, sustainable and environment-friendly agriculture, etc.



Siting on Dias (LtoR) Ms. Mihoko Tamamura, Country Director, United Nations World Food Programme, India, Prof. V.L. Chopra, Member, Planing Commission and Dr. Santosh Mehrotra, Head, Development Policy Division, Planing Commission.

A thorough analysis of application of nano technology would reveal that, with its help, we can indeed address most of the problems confronting agricultural operations in the developing economies like ours. It hardly needs any elabo-

ration, if we claim that in the much emphasized imperative for next phase of technology revolution in our agriculture, nano-technology would have a significant role to play. More specifically, world-wide, combined package of BNT is likely to take agriculture, the oldest economics activity of human being, to its new incarnation sector. Needless to say, rapid use of IT by the farming community will accelerate the process. In fact, the world is on the threshold of an entirely new paradigm in the field of agricultural operations and down stream food industry.

The Concerns

Having said these, we must take not of the issues and concerns that have come to debated in connection with growing use of BNT and food products coming from application of BNT. The concerns relate largely to effects on human health and food safely. The effect and relevance of genetically modified (GM) food, for instance, continue to be a major area of debate that was generated by the European Union, and subsequently picked by several civil society organization in the developing counties including in India.

In our view, the debates are welcome as every new technology is likely to bring with it several concerns and fears, more so when they are related to welfare of the people. Technology, we understand, is not an end in itself, and has to be evaluated in the context of effects on the end-users. When it is agriculture, the end-users are the people, be they producers or consumers. In the ultimate analysis, any technology must be viewed in the context of its ability to enhance welfare, in every respect. Health and food safety concerns are on top of the concerns relating to BNT, but there are other concerns as well.

The basic point is this: While the benefits is very ell established, it must be remembered that agricultural economy is a country specific situation. What has benefited some countries, may not necessarily benefit every country. In order to make it beneficial for a developing country specific situation, one has to keep in mind the specific situation, one has to keep in mind the specific situation, one has to keep in mind the specific aspects of agrarian system and practices in that country.

Taking the case of India, we have already talked about the structural constraints and characteristics of our agricultural system. One may still mention some of them. Of particular importance in this context are the following facts.

i) Small size of operational holdings

ii) Preponderance of small marginal farmers who account for roughly 40% of operational holdings but 80% of farming households.

iii) Low profitability and therefore low remu neration from farming operations.

iv) Extremely limited capacitates to invest on the part of large number of agricultural households.

v) Already, agriculture suffers from low level of investment. i.e. rate of capital formation is extremely low.

vi) High degree of vulnerability to natural calamities, leading to crop and economic uncertainty.

vii) Crop insurance scheme exists, but not very effective.

viii) Subsidies remain the basic support system, while the government's fiscal situation does not permit adequate subsidization where ever needed.

ix) Agri-infrastructure still suffers from irregularities and inadequacies.

When we are talking of application of BNT, these and many other aspect of our agrarian system have to be kept in mind., The reality is that while we have a large potential in our agriculture and we can indeed develop it as a dynamic sector of an economy.

[source : DNA,mUMBAI, fEBRUARY 14, 2009.]

Dow Fabric & Surface Care

The Dynamics of Industrial and Institutional Cleaning

2nd RSDC
Goa, India
12-15 October 2008

Carlos Silva Lopes
Global Marketing Director

I&I Touches the Lives of Billions of People

Vehicle Cleaning

Janitorial Sanitation

DISTRIBUTORS

Janitorial Sanitary Supply Houses
Food Service Companies
Paper Supply Houses
Chemical Distributors
Car Care Specialists

Kitchen & Catering Cleaning

Food/Dairy Processing

Industrial laundry

Industrial Cleaning

END-USERS

Restaurants
Hotels and Motels
Retail Outlets
Transportation

Food Processors and Farms
Commercial Laundries
Hospitals and Nursing Homes
Schools

Building Services Contractors
Metal Processors
Others

Urbanisation & Industrialisation Drive I&I Development

- Expansion of infrastructure, office & retail space
- Increased hygiene standards & health concerns
- Globalization of end-users
  - Consistent sanitation and hygiene standards
- Dynamic growth in developing countries
- Aging population in developed markets
  - Increasing hotel & restaurant use & cleaner demand
  - Growth in nursing homes
- Growing influence of industrial food processing

Drive the need for organized cleaning

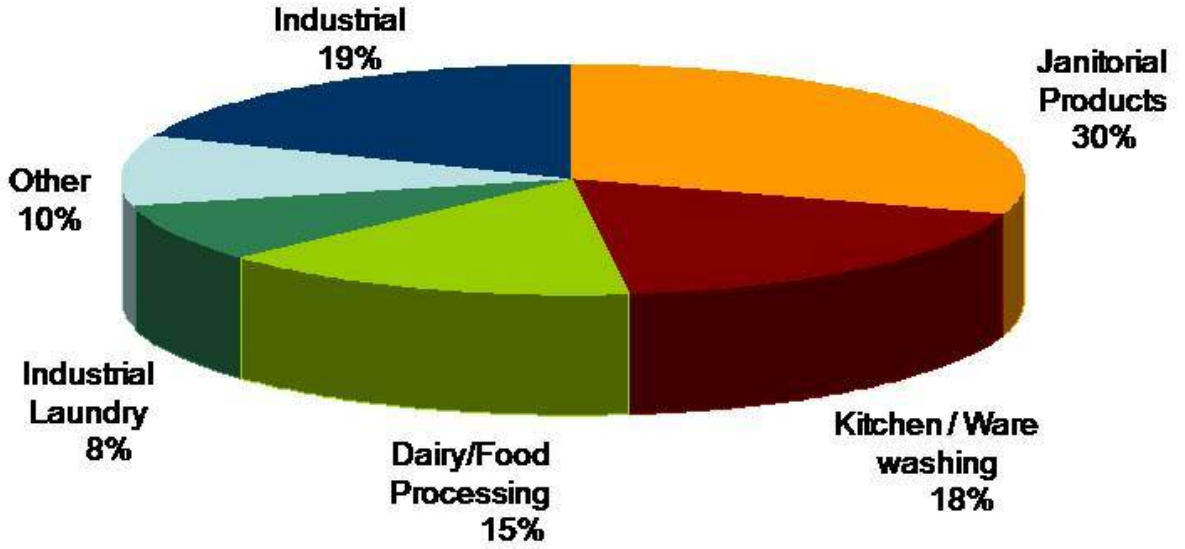
Conventional Industry with Contemporary Stance

- Differs from household care in degree of mandatory hygiene, products & equipment used
- Growing at a higher rate than household care in most regions
- Usually performed by contract cleaners or specialised in-house team
- Labor costs account for majority of cleaning expenses
  - Cleaning products represent minor share of total cost
- R&D spending is low (2%)
  - Applications rather than novel products (except niche)

Janitorial is a Fundamental I&I Platform

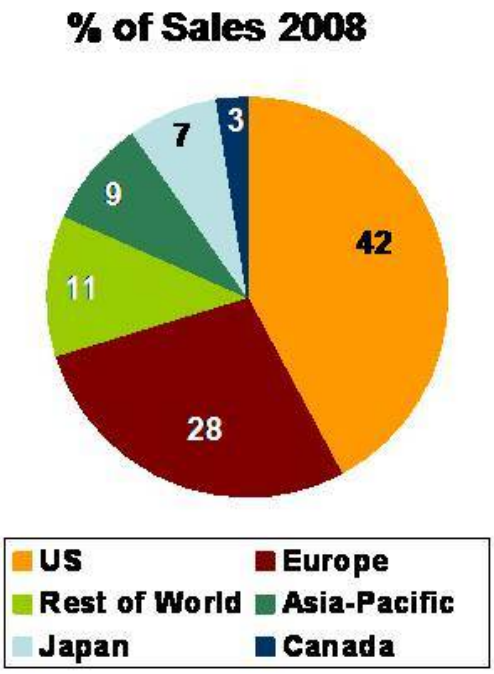
USD 21,7 Billion

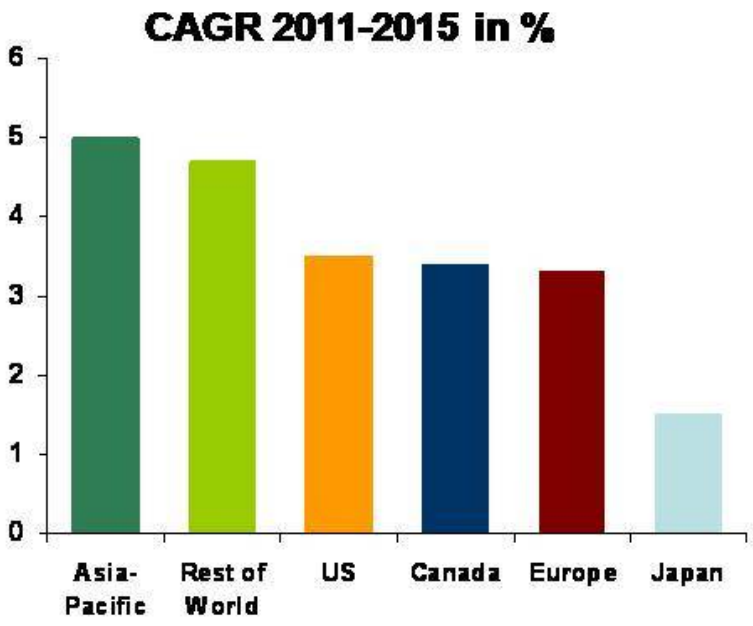
CAGR: ~3% over 2000-2010



Source: Global Industry Analysts, May 2008

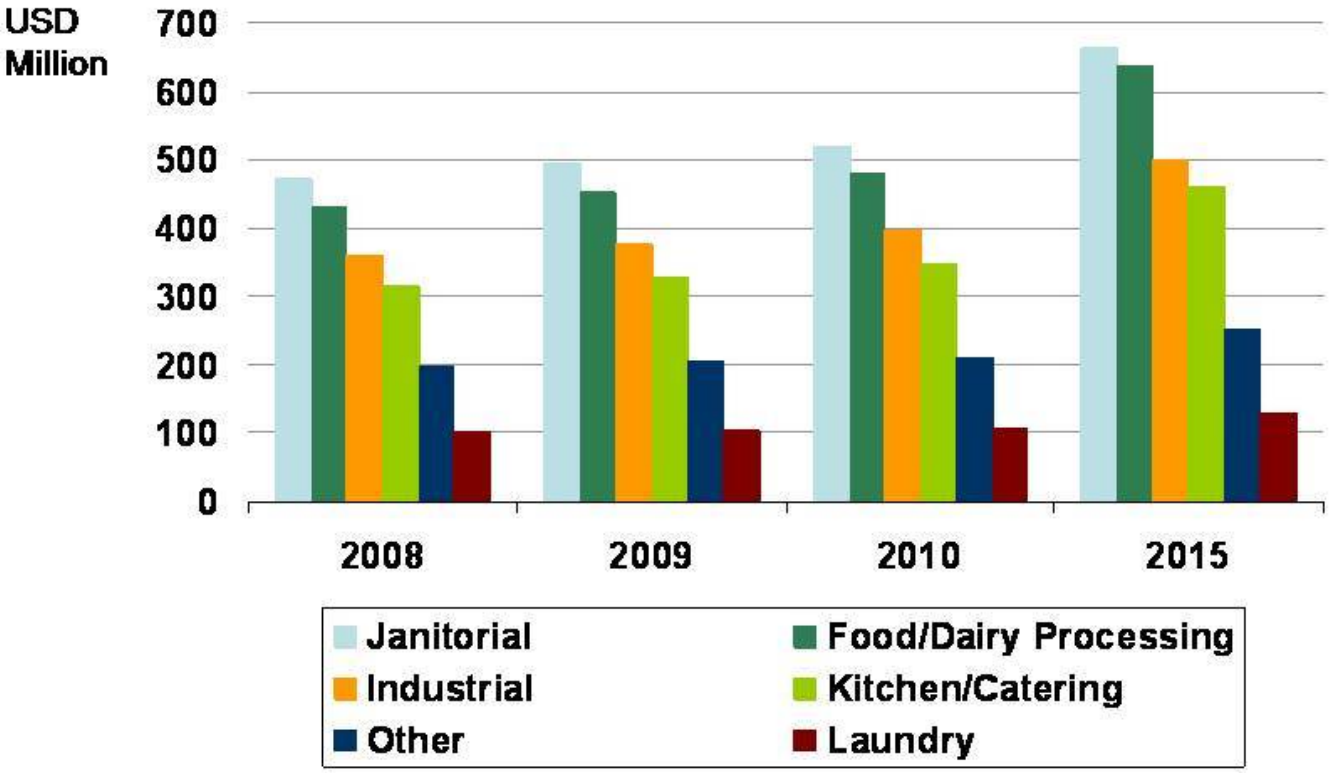
Asia-Pacific and Middle East Fastest Growing Markets





Source: Global Industry Analysts, 2008

Asia-Pacific – Dynamic Growth Prospects



Highly Fragmented Global Market

- Two major players: ECOLAB and JohnsonDiversey
  - Operate in all the major geographical regions
  - Together account for ~35% of global market share

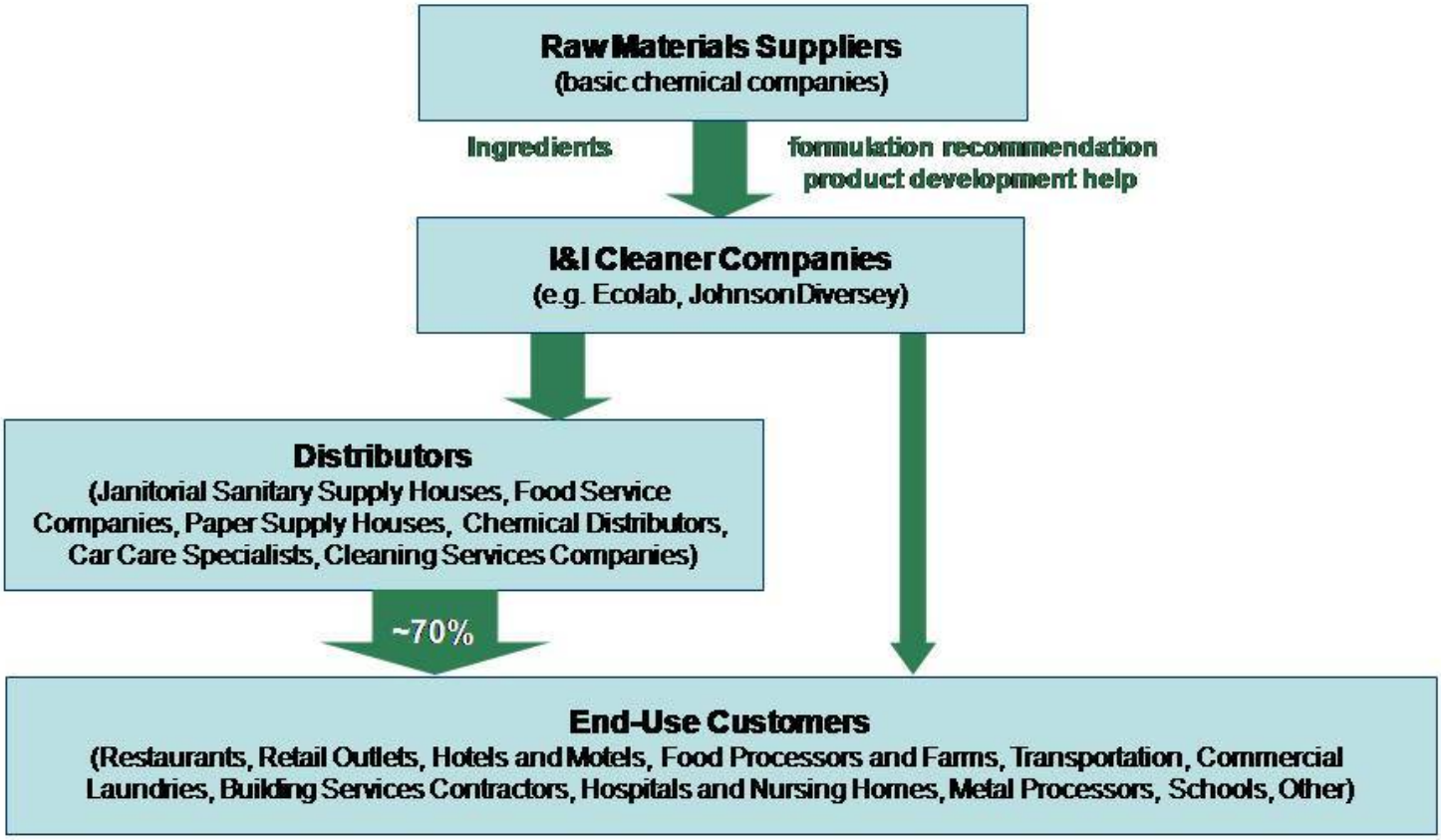
~35%

- Remaining market is highly fragmented
  - Thousands of small local companies with less than 50 million USD in annual I&I sales
  - Lots of category specialization

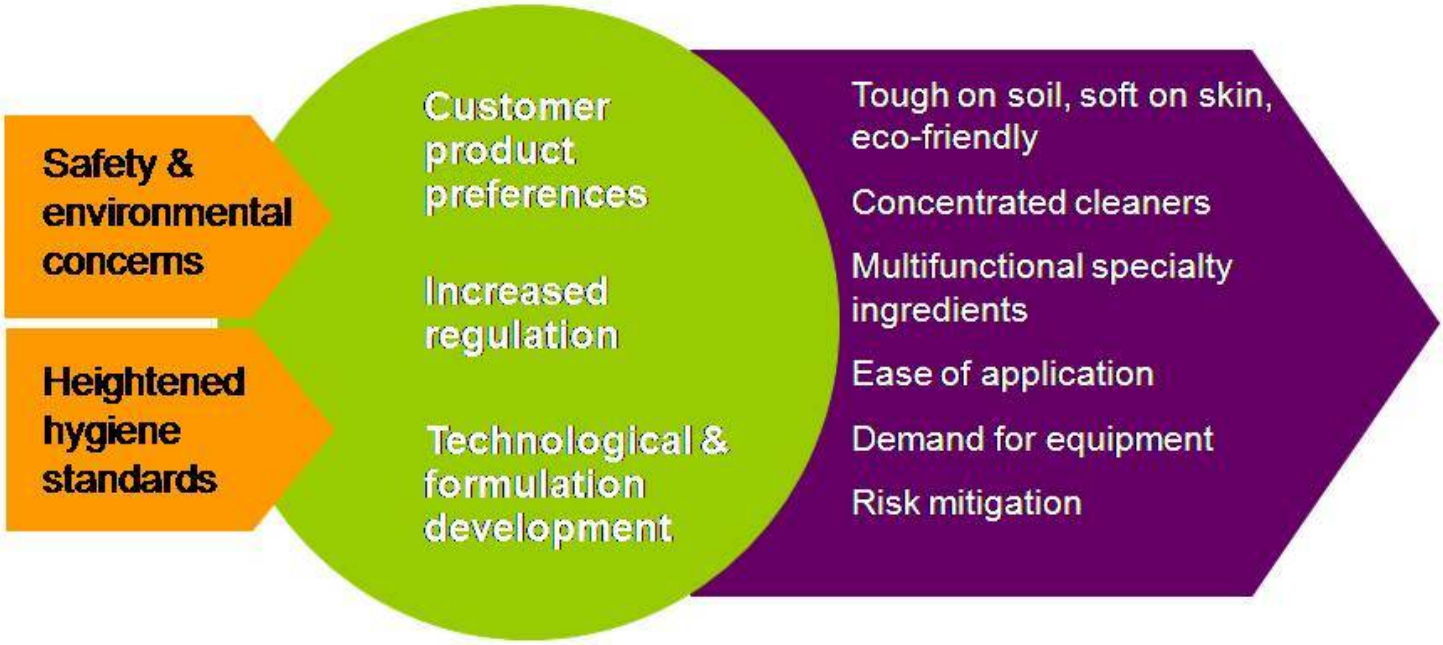
>50M $

- India / S. East Asia: high growth from small base
- Ongoing consolidation

I&I Cleaners Industry Supply Chain



Effective, Eco-friendly, Easy

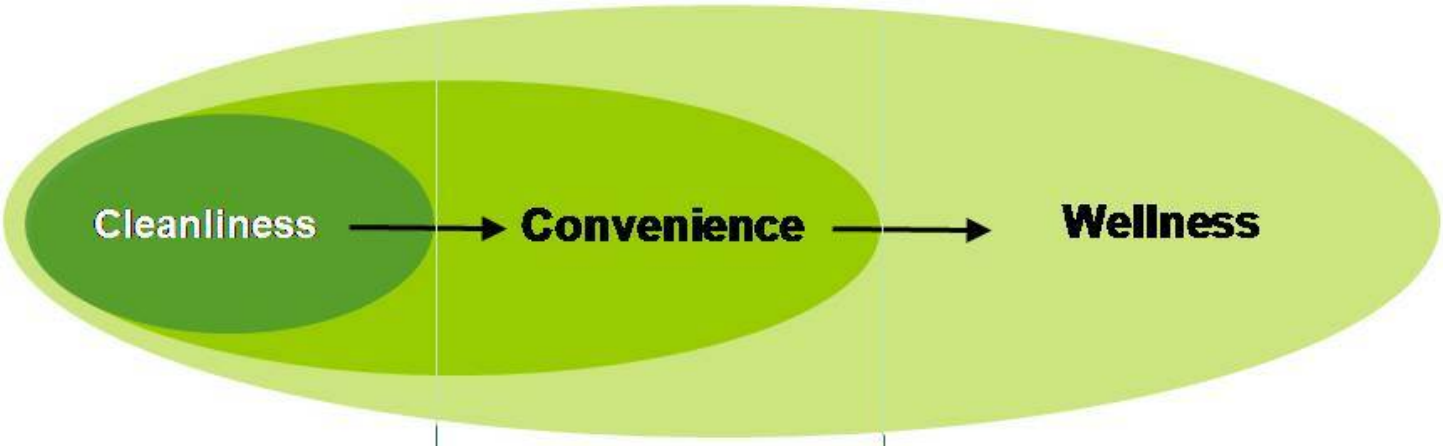


Service and System Approach Drives Success

- High service levels
- Ability to own cleaning space in its totality
- Broad-ranging product portfolio
  - Solution offerings eg techniques, blend of technology and application
  - Multifunctional cleaners
  - Specialty ingredients
- Global presence
- Lighter environmental footprint
  - environmentally compatible formulations
  - concentrated products

Dow Fabric & Surface Care Addresses Evolution of Needs

low — Disposable Income — high



Surfactants	Conditioning Agents	Lower VOC Systems
Solvents	Actives Encapsulation	Biodegradability
Foam Control Agents	Antimicrobials	Less Water/Energy Consumption
Emulsifiers	Thickening Agents	Renewable Raw Materials
Chelating Agents	Delivery Systems	Meeting Eco-label Requirements
Formulation Services	Formulation Services	Formulation Services

Dow Capabilities in Collaborative Innovation

Customer Benefits

Improved Environmental Profile	Enhanced Process Efficiency	Increased Convenience
• All purpose hard surface cleaning • Dishwashing formulations	• Dishwashing / Stain removal • Foam cleaning • Soil removal at low temperature	• Dishwashing: easy rinse / sensory benefits • Hard surface: protection, fast dry. shine

Rapid Formulation Development and Computer Modeling

Products / Technologies

• ECOSURF™ and new developments • Glycol ethers: EO, PO, blends • no VOC solvent/surfactant systems • Biodegradable chelants: HEIDA	• New surfactants for cold cleaning • Solvent/surfactant blends for better fat removal at low temperature • Surfactants and celluloses for long-lasting highly efficient foam • Efficiency and cost/material reduction	Water Soluble Polymers for • Building repellent thin film, easy to rinse • Sensory feel • Odor neutralizing

Example Hard Surface Cleaning

Summarizing

- Grow at a higher rate than household care
- See consolidation in number of suppliers
- Increasingly global in nature
- Next–generation I&I products go beyond just cleaning
  - include value-added services and system offerings
- Dynamic growth opportunities in region
- Dow Fabric & Surface Care in India well positioned to help leading I&I players capture growth
  - Ingredients
  - Technologies
  - Rapid Formulation Development

Dow Fabric & Surface Care

Thank you!