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Wal-Mart V/S Indian Mart

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Dr. Krishan Bir Chaudhary

How much beneficial will be the multinational retail chains for the country?

One vital question agitating the public mind today is – Do we need foreign direct investment (FDI) in retail chain? If so for what? The Government says that FDI in retail chain will benefit the farmers and consumers and create about a crore jobs in the country. This tall claim of the Government is nothing but a hoax and without substance.

Usually the demand for allowing FDI is made by the sector or the industry which is in need of capital and technology. But in the case of allowing FDI in retail chain no such demand was put up by the farmers' or consumers' bodies. The fact is that Europe and the US are reeling under economic recession and the multinational companies based in these regions are eager to invest in soft targets in the Third World to get maximum benefit. The Indian Government in turn wants to increase the FDI inflows with the intention of arriving at the magic growth figure of 9% or 10%. If the Government is so ambitious of increasing the FDI inflows then why not it encourage such FDI inflows in large industries and sectors which are capital starved and need modern technology?

Globally the food business is controlled by few retail chains like Wal-Mart, Carrefour, Tesco, Ahold, Kreger, Rewe, Aldi, Ito-Yakado, Metro group, Intermarche. A report of UK's Competition Commission in 2008 has said that farmers were squeezed out and put to heavy losses by the retail chains. The entry of retail chains has displaced thousands of independent proprietors of retail shops every month.

If this is the case of farmers in the developed world what would be the fate of Indian farmers? The entry of multinational retail chains in the country would endanger food security. The retail chains would control all the inputs including seeds and the farmer will grow only what the retail chains want them to grow. But the produces of the farmers may be subjected to rejection on basis of colour and size and for other fake norms. The retail chains would be free to import any food items from outside the country to run their business. Thus the multinational retail chains would controlling the food economy of the country, displacing farmers from their livelihood.

Globally Wal-Mart, Tesco, Carrefour and Metro group together provide around 3.1 million employment. In this context, it is ridiculous for the Indian Commerce and Industry Minister Anand Sharma to say that retail chains in India would provide 10 million jobs in the country. The real fact is that the retail chains would displace more than 40 million small retailers from their livelihood.

Finally the consumers will have to pay high prices for food in malls. They will be deprived of sourcing cheap and fresh fruits and vegetables from local retailers. The rejected GM foods will be dumped in this country.

Krishan Bir Chaudhary

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Corporate Hijack of Retail

*** Dr. Vandana Shiva**

On November 24, 2011, which was the third day of Parliamentary dead lock on issues of rising prices and neo- liberal economic policies that had created a severe economic crisis for the majority of Indians, the Government announced 51% Foreign Direct Investment (FDI) in multi-brand retail.

Commentators have presented the defense of the small farmers and the small retailer as ideology as if the blind commitment of the Government to giant retails is not an ideological commitment.

The Prime Minister Manmohan Singh had made this ideological commitment in 2005 when he signed a



In other words, opening the door to retail giants like Walmart to devastate the Indian retail economy as they have destroyed every economy where they have entered.

In effect, the Government was saying to the people of India and Parliament "we don't care about democracy", "we will push the agenda of corporate rule even as the model collapses in its own countries of U.S and Europe".

US-India Knowledge Initiative in Agriculture to hand over India's seed sector to gene giants Monsanto, India's agricultural trade to grain giants like Cargill and ConAgra and India's retail to retail giants like Walmart. In fact these corporations sat on the board of the U.S -- India Knowledge agreement.

There is a claim being made that opening up Indian retail to FDI will develop backend infrastructure.

Firstly, for our decentralized economy we already have a functioning infrastructure of Bazaars, Mandis and Haats which work at low cost and generate high employment and support the livelihoods of millions of farmers and 400 million people who are involved in small retail. Dr. Vandana Shiva, Founder Director of Navdanya called this model "the model for retail democracy".

The contrast is not between an organized retail controlled by Walmart and un-organised indigenous retail model.

It is between self-organised and democratic retail vs a centralized corporate controlled model which profits at peoples cost by buying cheap from producers and suppliers.

Secondly, the assumption that Walmart will develop backend infrastructure is totally falsified by the fact that since 2007, when Walmart was allowed to enter the wholesale distribution and Cash and Carry outlets in a joint venture with Bharti and it started to open Easy Day and Best Price box stores, it has invested nothing in the backend.

It has in fact used the existing infrastructure offered by Indian companies. There is no reason to expect the next five years to be different.

The Government must do an assessment of Walmart's Cash and Carry venture before opening up the retail market blindly to them.

The decision of the Cabinet to allow 51% FDI in multi-brand retail is also constitutionally violative of the federal structure of our country and takes away the powers over retail that States have under the Constitution.

Since this issue has far reaching implications for the livelihood of more than half of India, it must not be implemented till the States make their democratic decisions.

The centre cannot undermine India's federal structure by undemocratic decisions.

The so called conditions put on the FDI are an eyewash and are totally undone by the clause that says that corporations like Walmart will self certify whether they are meeting those conditions. Self certification by giant corporations is de-regulation.

Another myth that is constantly pushed to justify the corporate hijack of retail is the issue of waste.

It is argued that 40% of horticulture produce in India is wasted because of the absence of the giant retail. This is totally false. In our decentralized and diversified economy nothing goes waste.

Fruits and vegetables that go bad are eaten by cows or are composed. This recycling of organic matter is only possible in a decentralized system.

In fact more and more data is now coming out that giant globalised retail is responsible for the waste of 50% of the food in the world as documented in recent books such as the "American Wasteland" by Jonathan Bloom and "Transforming Food Waste into a Resource" by Andrea Segre.

The final myth that is being promoted to justify Walmart entry is that farmers will get better prices. Nowhere in the world have corporations like Walmart and Tesco increased returns to producers.

Their "Cheap Prices" policy is based on buying at extremely low prices from farmers often below costs of production, till the farmer is pushed out of farming after a few years of supplying to the retail chains.

If the Monsanto model of seed monopoly has pushed our costs of production to such an extent that farmers are trapped in un-payable debt and 250,000 farmers have committed suicide, the Walmart model of retail monopoly will destroy farmers by buying below the cost of production and by robbing them of other markets through destroying other alternatives.

This is a model for genocide. It cannot be allowed to spread in India.

Founder Director Navdanya
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WTO D-G issues report for ministers at Mc8

*** Kanaga Raja**

Geneva, 22 Nov, 2011- The Director-General of the World Trade Organisation (WTO), Pascal Lamy, has issued a report to trade ministers who will be attending the eighth Ministerial Conference (MC8) taking place in Geneva on 15-17 December.

In a cover note addressed to trade ministers, Lamy said that the report, prepared under his own responsibility, provides the ministers with an overview of work across the WTO, focusing on those areas which he believed deserves the ministers' particular attention.

According to the Director-General's report, these are not ordinary times and the ministerial conference will not be "business as usual".

"The world is experiencing the worst economic crisis since WWII. Developed economies have been buffeted by strong headwinds.

Disappointing output, employment data and turmoil in financial markets have damaged business and consumer confidence," Lamy said.

He added: "While the outlook is more positive for developing countries, even those economies with strong fundamentals are finding themselves under strain as the global economy continues to show signs of weakness.

Economies are not de-coupled. As long as growth remains sluggish and unemployment at unacceptably high levels, the risks of turning inward will be on the rise."

"In times of global economic uncertainty, the WTO's role is ever more important: not only as an insurance policy against protectionism, but also as an active instrument of international cooperation to create confidence by promoting growth and development."

Lamy said that "Ministers gathered for MC8 can contribute to the improvement of the global economic outlook to the benefit of all, provided you are ready to invest in the strengthening of the multilateral trading system, and provided you are prepared to see this as an opportunity.

As the Director-General of the WTO, I am proposing to you that we work to ensure the WTO is seen as an organisation which moves forward."

"At MC8 we will need to review how the WTO has performed across the entire breadth of its work since we last met two years ago.

Inputs for this will come from the regular reporting of WTO bodies, and from the preparatory consultations.

Most importantly, MC8 will be the opportunity to chart a pathway for our work over the next two years," the Director-General added.

Noting that the WTO is often seen in a segmented way, focusing on one or other aspect of its mandate, to the detriment of others, Lamy said that his aim is to restore a holistic view of the WTO as an integrated system where negotiations, implementation of agreements, dispute settlement, monitoring and surveillance, capacity building, accessions and other activities all have their mutually supportive place.

"The WTO has a significant role in contributing to greater coherence in a world where economic integration is not matched by the same level of policy cooperation.

To live up to this role, it must itself function in a coordinated way, bearing in mind that coherence begins at home," said Lamy, adding that Ministers are uniquely placed to contribute to this integrated perspective, which is all too easily lost in the more narrowly-focused concerns of the day-to-day in Geneva.

On the Doha Development Agenda (DDA) negotiations, Lamy said: "There is no beating around the bush: the Doha negotiations are at an impasse.

Despite numerous pronouncements and commitments, Members have not been able to finalise the negotiations as originally envisaged."

Noting that on 21 April 2011, that he and the Chairs of the Negotiating Groups had unveiled the "Easter Package", Lamy said that in sum, the documents leave no-one in doubt about the value of what is on the table, but also reveals the issues that still divide Members.

He stressed that the area where this divide is most evident is market access for industrial products.

"There are fundamentally different views on the ambition provided by the cuts to these tariffs under the agreed formula, on whether the contributions amongst different Members are proportionate and balanced."

Without specifying other areas of major differences such as in Agriculture, Rules and Services, Lamy said that although "there are other issues than industrial tariffs which are outstanding, and the Round cannot be completed without these being resolved, the key differences which have blocked progress in the Round are at present in the industrial area."

"Following the realization that the full DDA would not be possible by the end of the year", Lamy reported to ministers that "we embarked on a process aimed at delivering a smaller package by the Eighth Ministerial Conference."

It was understood that this was not going to be the final package, but rather a step forward to demonstrate with facts that "we could deliver on the entire DDA at a later stage."

From the start, he said, it was clear that Least-Developed Countries (LDCs) issues were a priority.

But some Members felt that this component alone would not address their constituencies' requirements and that there had to be a "plus" element.

"We therefore explored the possibility of building an 'LDC Plus' package which could include trade facilitation, a special and differential treatment monitoring mechanism, export competition in agriculture, a step forward on environmental goods and services, and a step forward on fisheries subsidies."

In July, Lamy said, it became clear that the "LDC Plus" package as Members had framed it was not taking shape. He added that since September, he has been consulting with Members on "what next" for the DDA during and after Mc8.

So far, Lamy said that his consultations have shown that while no Member is ready to give up on the objectives in the Doha mandate, "there is a collective sense that we need to explore different approaches from the ones already used."

In particular, Lamy said that Members wish to advance negotiations pragmatically in areas where progress can be achieved whether on a provisional or definitive basis, as a step towards delivering the entire Doha agenda.

This possibility is already provided in paragraph 47 of the Doha Declaration. In addition, Members believe efforts need to be intensified to address areas where substantial differences remain.

"What is needed now is to operationalise these principles. Ministerial guidance is therefore essential to ensure that real progress can be achieved in 2012," Lamy said.

"In doing so, Ministers need to address the essential question behind the current impasse: different views as to what constitutes a fair distribution of rights and obligations within the trading system, among Members with different levels of development. For some, emerging economies have attained a level of competitiveness and efficiency in key sectors that warrants treating reciprocity as parity in obligations."

Others, said Lamy, emphasize that emerging economies still face formidable development challenges in many areas of their economies and are still far from enjoying the per capita income levels and standard of living of those in industrialised economies.

In this world, it is argued, treating reciprocity as equality of obligations is not appropriate.

"It is clear that progress in multilateral trade negotiations, as is the case in climate change negotiations, will require a political response to this political question."

In addressing this question, Lamy said that it would be important to verify that all Members remain committed to the objectives enshrined in the Doha Development Agenda and more broadly in the World Trade Organisation.

Lamy went on to summarize these objectives as he saw them: keep opening trade; keep trade open; keep updating the rules that govern global trade to ensure these remain relevant to evolving trading patterns; and take measures to facilitate the integration of the world's poorest countries into the world economy.

"These global objectives stem from one belief that binds all WTO Members, namely that a more open and rules-based multilateral trading system is a useful tool in the hands of countries to generate growth, to help maintain and create jobs, reduce poverty and ultimately to help countries develop sustainably."

The Director-General also mentioned four other negotiating areas that are not part of the DDA, which in his view, deserve Ministerial attention: the Dispute Settlement Understanding (DSU) negotiations, Rules of Origin, the Information Technology Agreement (ITA) and the Plurilateral Agreement on Government Procurement (GPA).

On the DSU negotiations, noting that since the Seventh Ministerial Conference in 2009, Members have continued negotiations to improve and clarify the DSU, Lamy said that his sense is that Members are satisfied with the overall functioning of the dispute settlement system and recognise that the system is widely regarded as an example to follow elsewhere.

According to the Director-General, Members are not looking to make fundamental changes to the DSU; rather, they are seeking to make discrete improvements to the existing system.

His sense is also that the experts have worked long and hard to identify possible landing zones to the questions that remain open.

"The question in front of Ministers today is whether you believe the time has come for ringing the bell signalling the final lap in these negotiations, i.e. if Ministers wish to call now for a prompt conclusion of these negotiations."

On Rules of Origin, Lamy said that negotiations to harmonize non-preferential Rules of Origin for around 2,700 products in the nomenclature were launched 16 years ago, based on the belief that simple and clear rules of origin can help to improve the international trade environment and reduce costs for trade and economic operators.

So far, Members have reached an understanding on rules for some 1,500 products.

Completion of the remaining ones is closely linked to the issue of whether these rules apply to trade remedies or whether trade remedies will follow a different set of rules.

"The question in front of Ministers is whether they believe that, after 16 years of negotiations, the time has come to reach agreement on the non-preferential rules of origin for the remaining products."

Beyond the non-preferential rules of origin also lie those applied to preferential trade. "We have seen some progress in the simplification of rules relating to preferential schemes for LDCs.

But despite this positive sign, the proliferation and complication of different regimes - national, bilateral, regional or unilateral - need, in my view, to be seriously examined."

In recent months, Lamy noted, some ITA participants have begun reflecting on a possible new ITA negotiation to inter-alia expand the current product coverage and membership and to address non-tariff barriers. In parallel, there has been suggestion to transform the ITA into an International Digital Economy Agreement.

“These are interesting developments aimed at keeping the ITA rule book up to date with rapidly developing technological developments. This is in my view a promising area for future work. The question ahead of Ministers is whether the ITA can serve as an example to be emulated in other sectors."

With regards to the GPA negotiations, the Director-General said that for over 10 years the Members of the GPA have been negotiating an improvement in its rules, as well as an expansion in the market access it provides.

A "GPA Package" is now within reach. He added that a conclusion to the on-going negotiations would also facilitate a further round of accessions to the Agreement, including by Members currently negotiating joining the GPA such as China.

"In my view, the question ahead is whether you believe this is the time to step up efforts to conclude all aspects of the on-going negotiations and to turn the focus to the pending accession negotiations.”

Lamy also addressed the issue of Regional Trade Agreements (RTAs), saying that RTAs are an increasing feature of Members' trade policies and it is therefore important that the multilateral trading system improves its understanding of these agreements.

For the moment, Members have pragmatically put aside the question of the legal relationship between multilateral and preferential trading systems and instead have focused on using the WTO Transparency Mechanism to seek to better understand the features of RTAs notified to the WTO.

"Overall, I believe that the transparency mechanism has allowed us to gain useful insights into each agreement. I nevertheless believe that there is much scope for a more in-depth look into issues across Regional Trade Agreements.

This would help us further understand the extent of regulatory convergence and divergence in these agreements, as well as the scope for market segmentation.

The question for Ministers is whether MC8 could be a good occasion to launch an enhanced dialogue about Regional Trade Agreements.” Lamy also went on to report in the areas of building trade capacity in developing and least-developed countries, accessions to the WTO, WTO outreach, coherence in global economic policy-making, and the work of the Secretariat

Meanwhile, in a separate annual report on developments in the international trading environment, released on Monday, the Director-General said that the outlook for the global economy has worsened considerably in recent months. Risks and uncertainties are increasing, after the encouraging signals of recovery seen at the end of 2010.

“Global activity is slowing down, economic performance continues to be uneven across countries, debt levels and financial volatility are rising, high unemployment levels persist in many countries, and confidence has recently fallen sharply.

These risks are aggravated by perceptions in markets that governments' responses to these challenges have so far been inadequate.”

The report, which reviews trade and trade-related developments during the period mid-October 2010 to mid-October 2011, said that world trade has grown more slowly than expected in recent months.

Developed economies have been hit by a number of problems ranging from shrinking global demand, to the impact of natural disasters, to issues related to national budgets, credit conditions, and the sovereign debt crisis.

Trade growth in developing countries has also been adversely affected by global developments, including signs of overheating in some major emerging markets.

In light of the deteriorating economic situation, the forecast for world export growth in 2011 was revised to 5.8%, down from the earlier estimate of 6.5%.

Developed economies' exports are expected to rise by 3.7% and those from developing countries by 8.5%.

The Trade Policy Review Body (TPRB) monitoring exercise and individual Trade Policy Reviews undertaken in 2011 show that on the whole governments have largely continued to resist protectionist pressures, although an upward trend was observed this year in the imposition of new trade restrictions, said the report.

During the period under review, 339 new trade restrictive measures (and those that have the potential to restrict or distort trade) were recorded, which is 53% more than in the previous period. In particular, the number of new export restrictions has increased sharply; although accounting for only 19% of total restrictions during the monitoring period, export measures were the fastest-growing component.

Moreover, said the report, there is a growing perception that trade protectionism is gaining ground in some parts of the world as a political reaction to current local economic difficulties - difficulties that trade restrictions are very poorly equipped to resolve.

"There are various signs of a revival in the use of industrial policy to promote national champions and of import substitution measures to back up that policy.

Unilateral actions to shield domestic industries, although appealing from a narrow short-term perspective, will not solve global problems; on the contrary, they may make things worse by triggering a spiral of tit-for-tat reactions in which every country will lose.

These developments are adding to the downside risks to the global economy."

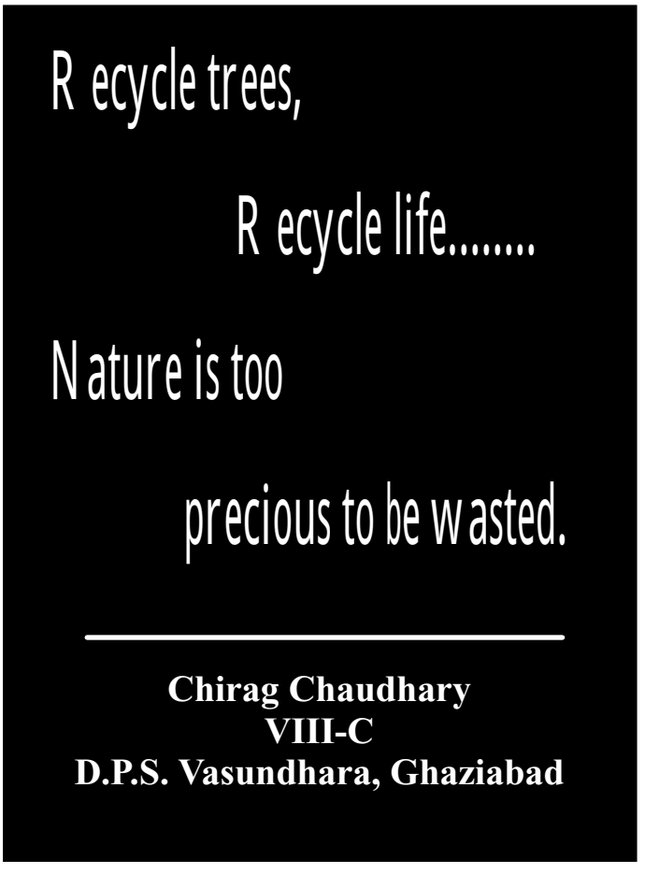
The report said that the multilateral trading system has been instrumental in maintaining trade openness during the global financial and economic crisis. "WTO Members need to preserve and strengthen this system so that it keeps performing this vital function in the future.

The best way to further open trade in a global, predictable and transparent manner remains the multilateral route. The multilateral trading system has helped countries navigate the crisis so far and resist protectionism."

According to the report, in a context of greater economic uncertainty and rising global risks, it is all the more important that the process of global trade opening continues; not only by WTO Members showing pragmatism and determination to find a way out of the current impasse in the Doha Round, but also through accession to the WTO of the Russian Federation, Samoa, Vanuatu, and other acceding countries, as well as through the prompt conclusion of the Government Procurement Agreement negotiations.

The forthcoming eighth Ministerial Conference provides a possibility to find a way forward, the report said.

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How Food Affects Genes

Tiny RNA molecules in food eaten can circulatein the bloodstream and turn genes off in the body; what are the implications of eating genetically modified food?

*** Dr. Mae-Wan Ho**

Nucleic acids circulating in the bloodstream and Darwin's theory of pangenesis

The age-old adage that you are what you eat has taken a literal turn in the rush of startling findings since the human genome sequence was announced 10 years ago, which overturn every tenet of the genetic determinist ideology that had made the Human Genome Project seem a compelling undertaking.

In 2009, we reported on nucleic acids circulating in the bloodstream that offer golden opportunities for disease diagnosis, and may also play a role in communication between cells within an organism.

But would circulating nucleic acids cross species barriers? Yes, according to Liu Yongshen at the Henan Institute of Science and Technology in Xinxiang, China. Furthermore, Charles Darwin was really the first person to have proposed a mechanism for it in his theory of pangenesis.

Darwin's theory of pangenesis suggested that all cells of an organism shed minute particles, gemmules, which circulate throughout the body and are passed on to the next generation through the germ cells. In that way, the characteristics of the parents are passed on to their offspring.

And if the cells of the parents undergo changes during their life time, those changes would also be transmitted to the offspring. Liu described Darwin's theory of pangenesis in some detail and reviewed both historical and more recent evidence in support of it, including fascinating findings on transmission of characteristics through blood transfusion that have been expurgated from the mainstream account.

He concluded that : “a considerable revision of views on Darwin's Pangenesis must occur before a new comprehensive genetic theory can be achieved.”

In my article on the subject Darwin's Pangenesis, the Hidden History of Genetics, & the Dangers of GMOs , I raised the potential dangers of genetically modified (GM) nucleic acids in GM food being taken up by cells in our body.

Now, a team of researchers in China have documented just this possibility. Plant nucleic acids are found to survive digestion in the gut, escape into the bloodstream, and taken up into the liver cells to target a very specific gene for silencing.

MicroRNAs a new class of signalling molecules between cells

Zhang Chen-Yu and colleagues at Nanjing University, National University of Defence Technology, Changsha, and Tianjin Medical University, have been researching stable microRNAs, which they found circulating in the bloodstream of mammals that are actively secreted from the tissues and cells in the body.

In a paper published in 2008, the team presented results suggesting that the miRNAs could serve as a novel class of biomarkers for disease, and later showed that they could act as signaling molecules in intercellular communication.

MicroRNAs (miRNAa) are a class of 19-24 nucleotide long non-coding RNAs that silence an estimated 30 percent of protein-coding genes in mammals after the genes are transcribed.

They do so by pairing, usually with complementary sequences in the 3' untranslated regions (UTRs) of the targeted gene transcripts.

The targeted genes are involved in a range of vital functions including cell differentiation, apoptosis (programmed cell death), cell proliferation, the immune response, and the maintenance of cell and tissue identity.

Dysregulation of miRNAs is linked to cancer and other diseases; and specific miRNA profiles in the blood are potential biomarkers for diagnosis.

Zhang and colleagues had characterized the possible carriers of circulating miRNAs as microvesicles (MVs) shed from almost every cell type under both normal and pathological conditions (rather like Darwin's gemmules).

The MVs carry surface receptors and ligands of the original cells and have the potential to selectively interact with specific target cells to transport lipids, mRNA, proteins, or other signalling molecules between cells.

Many MVs also contain miRNAs that could be selectively packaged and delivered into recipient cells where they regulate the expression of target genes and recipient cell function. In other words, miRNAs can serve as a novel class of signalling molecules between cells in the same organism.

To their surprise, Zhang and colleagues found plant miRNAs in the serum and plasma of humans and other mammals . More than half of the plant miRNAs detected are present in Mvs.

In an extensive series of experiments, they showed that a particularly abundant plant miRNA, MIR168a, can pass through the mouse gut and enter the bloodstream, ending up in various organs especially the liver, where it regulates a specific protein, LDLRAP1, involved in low density lipoprotein uptake.

Plant miRNAs detected in the blood of healthy Chinese adults and in animals

On investigating the global miRNA profile in human serum, Zhang and colleagues consistently found plant miRNAs in healthy Chinese men and women.

Sequencing revealed ~30 known plant miRNAs in Chinese healthy subjects, among which MIR156a and MIR168a were most abundant, and most likely originate from rice eaten by all the subjects. Plant miRNAs were also detected in the serum of other animals such as calves.

Plant miRNAs are generally present at one-tenth the level of the most abundant endogenous mammalian miRNAs; and their presence has been confirmed by reverse-transcription PCR and northern blotting.

Plant miRNAs are 2'-O-methylated on their terminal nucleotide, which makes them resistant to periodate treatment. In contrast mammalian miRNAs with free hydroxyl groups are sensitive to periodate.

This is a further method for distinguishing between plant and animal miRNAs. Whereas MIR156a and MIR168a in rice and serum are highly resistant to periodate, the mammalian miR-16 in liver and serum was oxidized and not detectable after periodate treatment.

Plant miRNA in food can pass through the mouse gut and enter the serum and organs

In mice, MIR168a and MIR156a were detected in various tissues including liver, small intestine and lung, while MIR166a, another plant miRNA could not be detected in the mouse tissues, although it was present in the serum.

The ordinary chow diet of mice had MIR168a, MIR156a and MIR166a at concentrations less than 1 fm/g (fm, femtomole, is 10-15mole), but 3-10 times as high in fresh rice.

The same plant miRNAs are also present in Chinese cabbage, wheat and potato, and are not destroyed by cooking.

Mice fed the chow diet did not show elevated levels of MIR168a and MIR156a. In contrast, the plant miRNAs were significantly increased in both the sera and livers of mice fed with fresh rice for at least 6 h afterwards.

It appears that only the mature single-stranded MIR168a was taken up into the blood stream, as precursors and double-stranded forms fed to mice could not be detected in the serum afterwards.

Plant miRNAs, being 2'-O methylated, are also protected from acid degradation in the stomach.

Specific mammalian gene silenced by rice MIR168a

Given that functional plant miRNA in food can enter the bloodstream of mammals, Zhang and colleagues wanted to know if it can also silence mammalian genes, the same way it silences plant genes. A bioinformatics analysis identified 50 genes that might be the target for MIR168a silencing in mouse, human and rat genomes.

The most highly conserved sequence is located in exon 4 of the low-density lipoprotein receptor apoprotein 1 (LDLRAP1) LDLRAP1 is enriched in the liver, where it plays a critical role in the removal of low density lipoprotein (LDL) from circulation.

Transfection of HepG2 cells (a liver carcinoma cell line) with the precursor of MIR168a resulted in 1 000 fold elevation in MIR168a, indicating that the precursor can be processed to mature MIR168a in the liver.

Concomitantly, the LDLRAPI protein was significantly reduced, but the mRNA level was not affected, consistent with MIR168a acting post-transcriptionally to silence the mRNA.

The binding of MIR168a to the LDLRAPI coding sequence was confirmed by a luciferase reporter assay, in which a mutant or wild-type human LDLRAPI exon 4, and the human LDLRAPI coding sequence were cloned into a luciferase reporter plasmid and transfected into HEPG2 cells together with pre-MIR168a. As expected, luciferase activity for wild type was significantly reduced through MIR168a binding, where the mutant luciferase activity was not affected.

Gut cells take up MIR168a and package it for transport

The possibility that the epithelial cells lining the intestine could take up the plant miRNA and package it into microvesicles (MVs) for transport was investigated in human intestinal Caco-2 cells, which were transfected with single-stranded mature MIR168a and the MVs released were collected and added to HepG2 cells.

The level of MIR168a was boosted 200-fold in Caco-2 cells after transfection, and rose 100-fold in HepG2 cells treated with the MVs released from Caco-2 cells.

As a result, the LDLRAP1 protein in the HepG2 cells was significantly decreased, without affecting the LDLRAP1 mRNA level. Repression of LDLRAP1 expression in the HepG2 cells was dose dependent, as Caco-2 MVs containing more MIR168a correspondingly led to greater depression of LDLRAPI protein levels.

The protein Argonaute 2 (AGO2) is present in MVs and facilitates miRNA binding to its target gene via the RNA-induced silencing complex (RISC).

To see if plant MIR168a is associated with mammalian AGO2 and LDLRAPI mRNA, the researchers used anti-AGO2 antibody to precipitate the protein from HEPG2 cells treated with Caco-2 MVs. They detected both MIR168a and LDLRAP1 mRNA together with the AGO2.

MIR168a inhibits mouse liver LDLRAPI expression and increases plasma LDL-cholesterol

Low density lipoprotein (LDL) is the major cholesterol-carrying lipoprotein in human plasma, and is generally believed to play an essential role in pathogenesis of atherosclerosis (hardening of the arteries).

However, the connection between cholesterol and atherosclerosis is tenuous . Instead, substantial evidence has emerged that it is the oxidation of LDL triggering the inflammation response that's responsible for atherosclerosis .

The probability of oxidation increases with time of circulation in the bloodstream, which is why LDLRAPI is important for clearing it LDL from circulation.

Mice were fed with chow or fresh rice for 7 days after 12 h fasting. There was no difference in body weight although the rice-fed group ate more. The serum level of MIR168a in the chow-fed group was not significantly altered, while the rice-fed mice had

significantly increased levels of MIR168a circulating in serum over the entire period. Levels of MIR168a in the liver similarly, were increased in rice-fed mice over chow-fed controls after 1 day.

Concomitantly, LDLRPI expression decreased dramatically in the rice-fed mice after 1 day, while LDL levels in plasma were significantly elevated on days 3 and 7. Interestingly, the level of liver LDLRAPI was not related to the levels of plasma cholesterol or triglycerides.

If anything, plasma cholesterol level was decreased, while ApoA, the protein in LDL, and triglycerides were unchanged.

Profound implications for health, especially of GM food and feed

The findings of Zhang's team have profound health implications for food. Food provides not just energy, building blocks, and the usual vitamins and minerals, but also 'informational' nucleic acid molecules across kingdoms that influence the expression of our genes.

Group leader Zhang is quick to agree with me that their study says nothing about the health of rice, and definitely not that rice is bad for health. After all, healthy Chinese men and women all have plant miRNA circulating in their bloodstream.

What it does reveal is the intimate relationship between our traditional diet and our biology, which have co-evolved and co-adapted for millennia, if not longer. We are, to quite an extent, what we eat.

A staple, such as rice, is particularly important, as it forms the major part of the diet, and hence deeply embedded in our physiology.

This raises the key question on the safety of genetically modified (GM) food, which Prof. Zhang has declined to comment on.

The safety of GM food is very topical, as clear evidence has now emerged on the health hazards of GM feed.

We have previously warned of the potential dangers of circulating nucleic acids.

Most relevant to the new findings of Zhang's team is an experiment in gene therapy using a precursor of miRNA. It turned out to have so many off-target effects that it killed more than 150 of the experimental mice.

Genetic modification of plants and animals is notorious for being completely unpredictable and uncontrollable, as well as unstable.

That applies to new and unpredictable complement of miRNAs that could result, to which humans (as well as other animals) are totally unprepared. It could account for some of the illnesses and deaths observed in the field as well as in lab experiments.

The miRNA profiles of all GM food and feed need to be carefully documented now, especially if proponents are still intent on introducing them into our food chain in the face of all the damning evidence on health and environmental impacts.

http://www.isis.org.uk/How_Food_Affects_Genes.php

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New Delhi - 110091

Allowing Retail FDI in India: lies, lies and damn lies

*** Devinder Sharma**

At a time when Prime Minister Manmohan Singh is refusing to rollback the decision to open the retail sector to foreign direct investment saying it will benefit our country, the American President Obama thinks otherwise.

In a tweet on Saturday (Nov 26), President Obama wrote: "support small businesses in your community by shopping at your favourite local store."

While President Obama is talking of what is good for America, Manmohan Singh too is adamant on protecting American interests.

It is primarily for this reason that Manmohan Singh's assertion that retail FDI will benefit our country and 'improve rural infrastructure, reduce wastage of agricultural produce and enable our farmers to get better prices for their crops' is not borne on facts.

In the midst of the rhetorical contests in the TV studios, the real facts have been sacrificed for the sake of political partisanship.

A lot has been said and written about the virtues of allowing FDI in retail into India. Let me make an attempt to answer some of the bigger claims that Commerce Minister Anand Sharma as well as the Prime Minister have repeatedly made. Frankly, their arguments seem to be driven more by political expediency rather than any economic understanding, and that is more worrying.

It only shows how economic facts can be twisted, tailored and manipulated to justify the political agenda of the ruling party. There can be nothing more damaging for the future of a country.

First, the biggest argument in favour of multi-brand retail is that it will create 10 million jobs by the year 2010. There is no justification for this claim. In the United States, Wal-Mart dominates big retail. It has a turnover of US $ 400 billion, and employs 2.1 million people.

Ironically, the Indian retail sector too has a turnover of US $ 400 billion, but has 12 million shops and employs 44 million people.

It is the Indian retail which is a much-bigger employer, and any effort to allow retail FDI will only destroy millions of livelihoods.

Take the case of England. The two big retail giants are Tesco and Sainsbury. Both had committed to create 24,000 jobs between them, in the past two years.

A British government enquiry found out that instead of creating any additional job, these two big retail companies had actually thrown out 850 people from existing jobs. The big retail units which failed to create jobs in their own countries cannot be expected to create additional employment in India.

Second, Anand Sharma says that retail FDI will provide 30 per cent more income to farmers. There can be no bigger lie than this.

In the US, for instance, if Wal-Mart was able to enhance farm incomes there was no reason why the America government would dole out a massive subsidy of US $ 307 billion under the US Farm Bill 2008, which basically makes a budgetary subsidy provision for the next five years.

Most of these subsidies are clubbed in the category of Green Box under the WTO. And as per an UNCTAD-India study, if the Green Box subsidies are withdrawn, American agriculture faces a collapse.

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American agriculture faces a collapse. Agriculture in America is therefore sustained with agricultural subsidies.

In OECD countries, a group comprising 30 riches countries, the situation is no different. A latest 2010 report states explicitly that farm subsidies rose by 22 per cent in 2009, up from 21 per cent in 2008.

In just one year in 2009, these industrialised countries provided a subsidy of Rs 12.60 lakh crore to agriculture. Despite this, every minute one farmer quits agriculture in Europe.

This is happening at a time when farmer's incomes are dwindling. In France alone, farmer's income has fallen by 39 per cent in 2009.

Third, big retail helps remove the middlemen and therefore provides a better price to farmers. Again, it is a flawed argument and is not borne on any evidence.

Studies show that in America in the first half of 20th century, for every dollar worth of produce a farmer sold, 70 cents was his income. In 2005, farmer's income had fallen to 4 per cent. This is despite the presence of Wal-mart and other big retailers in America.

In other words, the middlemen are not squeezed out as is the general understanding but in reality their number actually increases.

A new battery of middlemen – quality controller, standardiser, certification agency, processor, packaging consultant etc – now operate under the same retail hub and have been walking away with farmer's income.

Moreover, due to the sheer size and buying power, big retail generally depresses producer prices. In England, Tesco for example paid 4 per cent less to producers.

Low supermarket prices in Scotland have forced irate farmers to form a coalition called 'Fair Deal Food' to seek better price for their farm produce.

Fourth, retail FDI will source 30 per cent from the small and medium enterprises and therefore will benefit Indian manufacturers. This is an afterthought, especially after a section of the media highlighted the discrepancy.

Even though Anand Sharma says 30 per cent products would be sources from within the country, the facts remains that under the WTO agreements, India cannot limit the big retail from outsourcing its products from anywhere in the world.

This is against the WTO norms, wherein no member country can apply any investment restriction that is inconsistent with the provisions of Article III or Article XI of GATT 1994.

Using the WTO provisions, multi-brand retail will flood the Indian market with cheaper Chinese manufactured goods thereby wiping out the domestic SME sector.

At the same time, the 'Indian Stamp' on multi-brand retail that Anand Sharma claims will have at least 60 per cent investment on 'back end' systems is also not based on facts.

As per the definition of 'back-end', anything that is not 'front-end' becomes 'back-end' and has to be self-certified.

Which means even the expenses on the corporate headquarter becomes 'back-end' investment. In any case, 51 per cent FDI in cold storages etc is already provided and yet no investment has come. Let us be very clear, big retail is not coming to India to provide a network of food storage silos and cold chains.

Fifth, more importantly, in an eye-opening study entitled “Wal-Mart and Poverty”,Pennsylvania State University in the United States has clearly brought out that those American states that had more Wal-Mart stores in 1987, had higher poverty rates by 1999 than the states where fewer stores were set up.

This is something that the government is not talking about but should ring an alarm bell for a country which is reeling in poverty, hunger and squalor.

http://devinder-sharma.blogspot.com/

The Issue of FDI in Retail

* Dharmendra Kumar

Proposed Conditions	Comments
(1) FDI in multi-brand retail may be permitted to the extent of 51 per cent with government approval.	**(1)** This means that foreign retailers would have commanding position in the venture. This is not adjectly in line with the 'calibrated' approach suggested by DIPP.
(2) Retail sales locations may be set up only in cities with a population of more than 10 lakh (1 million) as per 2011 Census and may also cover an area of 10 km around municipal urban agglomeration limits of such cities. Retail locations will be restricted to areas as per the master zonal plans of the cities concerned and provisions will be made for requisite facilities such as transport connectivity and parking.	**(2)** It allows them to open stores in around 53 cities. These cities generate more than half of income in India. The condition gives a free run to foreign retailers to directly compete with existing businesses in the established and natural markets with different sizes of superstores in as many numbers as they wish.
(3) Minimum amount to be brought in as FDI by a foreign investor would be around $100 million.	**(3)** It's a pittance considering that super-retail is a business of scale.
(4) At least 30 per cent of the procurement of manufactured processed products shall be sourced from small industries that have total investment in plant and machinery not exceeding $250,000 (around INR1.25 crore). This investment refers to the value at the time of installation, without providing for depreciation.	**(4)** It has potential to threaten our MSME sector by opening a floodgate of imports denying the country any opportunity to enhance its skill and base of production. It has nothing to do about protecting domestic small industry as the cap is applicable for MSMEs world wide.
(5) The government will have the first right to procurement of agriculture products.	**(5)** This is far from being sufficient and the Govt. must also keep power to buy agricultural products from superstores at pre-specified prices in case of food sortage in the country.
(6) Fresh agricultural products, including fruits, vegetables, flowers, grains, pulses, fresh poultry, fishery and meat products may be unbranded.	**(6)** It is likely that with reduced tariffs under various multilateral/regional/bilateral free trade agreements superstores would import these products.
(7) At least 50 per cent of the total FDI brought in shall be invested in back-end infrastructure. Back-end infrastructure will entail capital expenditure on all activities, excluding that on front-end units. For instance, back-end infrastructure will include investment made towards processing, manufacturing, distribution, design improvement, quality control, packaging, logistics, storage, warehouse, agriculture market produce, infrastructure, etc. Expenditure on land cost and rental, if any, will not be counted for purposes of back-end infrastructure.	**(7)** Back end infrstructure defined as any expenditure other than on front end is fallacious. Office expenditures would also be counted as investment in back end infrastructure.
(8) Self-certification will be done by the company to ensure compliance of all the conditions.	**(8)** This actually undone all the riders. There is no monitoring machanism proposed to ensure compliance of conditions.



Myths being propogated by vested interests

(A) States can deny trade licenses

(B) Corporatizing the supply chain would reduce gap between producers and consumers prices

(C) Small farmers would benefit

(D) FDI in retail would help curb inflation

(E) It will wipe out middlemen

(F) Corporatizing retail would create 10 million jobs

Fact

(A) Corporate retailers have already used court to get trade licenses. So even if an authority (state/ municipal/ panchayat) deny a trade license, corporations are likely to get court order citing trade as fundamental right.

(B) There is no such obvious evidence. Superstores squeeze both ends of the supply chain by buying cheap and selling dear. Its widely found that final product sold in the superstores are higher.

(C) Superstores generally deal only with big farmers. There is no such international precedent.

(D) It could infact lead to the opposite. Prices in India are comparatively stable.

(E) Superstores are giant middlemen and do deal through a chain of agents.

(F) The projection is baseless and meant to influence debate. The efficiency of corporations comes from being low labour intensive. According to an estimate, while one billion USD of turnover currently generates 104,821 jobs in current Indian retail, it only generates 3,241 jobs in average global retailers. The autonomus growth of Indian retail market with the projected annual compound rate of 10 to 12% is capable of generating many more jobs without FDI in retail.

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WHO GAINS FROM FDI IN RETAIL?

With the Union Cabinet deciding to allow 51 per cent foreign direct investment (FDI) in multi-brand retail on Thursday the way has been cleared for the entry of global supermarket giants in India. There are doubts and fears amid hopes for long-term gains

*** Sukhpal Singh**

One of the conditions for 51% FDI in multi-brand retail proposed is that the players will source at least 60% of their farm produce requirementsfrom small farmers. A small farmer is defined as one with up to 10 hectares. It is important to understand implications of FDI in food retail for various stakeholders.

The more important questions to be asked on the issue of FDI in retail are: Does it really help farmers or small farmers? Does it improve efficiency of food supply chains and help lower food inflation which India is grappling with? And of course, how does it impact traditional food retailers'
livelihood?

Small farmers may not gain

The operations of domestic fresh food supermarkets in India have not made any difference to the producer's share in the consumer's rupee so far (one of the arguments of the DIPP discussion paper for permitting FDI in retail) other than lowering the cost of marketing of the producers as supermarkets have collection centres in producing areas unlike the Agricultural Produce Market Committee (APMC) markets (mandis) which are in distant cities.

But these supermarkets will buy only 'A 'grade produce, that too on open market-based prices, and only a part of the output of farmers, who end up going to an APMC mandi to dispose of the remaining/rejected produce.

The chains procure from “contact” farmers without any commitment to buy regularly as they do not want to share the risk of growers. Thus, the involvement of supermarket chains with producers is low and there is no delivery of supply chain efficiency as many of them have already wound up e.g in Gujarat.

Supermarkets and malpractices

Though the move to open up Indian markets to foreign retailers is meant to benefit small farmers, the condition of having 10 hectares of land will leave most of them out. There are other problems too:

- Domestic supermarket performance so far does not give any hope that FDI - driven supermarkets will be any different in terms of benefits to small farmers

- Buying and selling power of supermarkets due to market concentration will come in the way of benefits to farmers and consumers.

- Traditional retailers will suffer a loss of livelihood due to competition from supermarkets

- Many malpractices by supermarkets will not let farmers benefit

- Supermarkets do not lead to lower food prices if we see global evidence.

Key policy initiatives

Until now only 51% FDI in single-brand retail and 100% FDI in wholesale cash and carry trade was allowed. The paper put up by the Department of Industrial Policy and Promotion (DIPP) for public discussion and comments in mid-2010 and the 2010-11 Economic Survey had argued for FDI in food retail trade in India. In mid-2011 an inter-ministerial group also recommended FDI in retail to control food inflation. The following policy initiatives can be taken to safeguard the interests of local stake-holders:

- Slow down food supermarket expansion through mechanisms like zoning, business licences and trading restrictions.

- Strengthen competition laws and regulation of supermarkets

- Give legal protection to farmers and suppliers as is done in Japan

- Permit only formal contract farming, not 'contact' farming

- Set up an independent retail commission to supervise and regulate supermarkets to protect interests of suppliers, consumers and labour and support to local retailers and farmers

- Establish multi-stakeholder initiatives in food value chains and provide support to small producers and traditional food retailers.

- Producers' organisations and the NGOs need to monitor and negotiate more equitable supply contracts with the supermarkets.

- Government should encourage producer companies and farmers' co-operatives for collective bargaining with supermarkets

The noise about benefits to small-holders in high-value crops (read fruits and vegetables) due to supermarket linkages is exaggerated as these crops account for only 2% of the gross cropped area, and the direct linkage is either absent or pretty weak. This is not likely to change even with FDI in retail.

Further, due to the sheer size and buying power of foreign supermarkets, the producer prices may be depressed. In the UK there was a negative relation between the relative market share of a supermarket and the price paid to the suppliers in relation to the average price. The UK supermarket chain Tesco paid its suppliers 4% below the average price paid by retailers.

There have been a large number of supermarket malpractices across the globe which include payments to be on the supplier list (listing fees), threats of delisting if the supplier price is not low enough, payments and discounts from suppliers for promoting/opening new stores, rebate from producers as a percentage of their supermarket sales, minus margins whereby suppliers are not allowed to supply at prices higher than the competitor price, delayed payments, lowering prices at the last minute when the supplier has no alternative, changing quantity/quality standards without notice, just-in-time systems to avoid storage/inventory costs, removing suppliers from the list without good reason, charging high interest on credit, using tough contracts and penalties for any failure to supply.

If it is not misreported, the limit of 10 hectares is laughable as there are hardly 1% farmers who have more than 10 hectares of land. Thus, putting this condition is no good as it is too broad and covers 99% of farmers and, therefore, does not differentiate among farmers at all. Even if it is assumed that it is 10 acres (4 hectares), it will be more than 94% of all farmers (2005-06). How does this conditionality help really small-holders in whose name the permission is being granted? The retail players may work with the top layer (5%) of these farmers and still meet the conditions.

Small retailers to be hit

The supermarket expansion also leads to employment loss in the value chain as compared to 18 jobs created by a street vendor, 10 by a traditional retailer and eight by a shop vendor in Vietnam, a supermarket like Big C needed just four persons for the same volume of produce handled. Metro Cash & Carry employed 1.2 workers per tonne of tomatoes sold in Vietnam compared with 2.9 persons employed by traditional wholesale channel for the same quantity sold.

The spread of supermarkets led to 14% reduction in the share of “mom and pop” stores in Thailand within four years of FDI permission. In India 33-60% of the traditional fruit and vegetable retailers reported 15-30% decline in footfalls, 10-30% decline in sales and 20-30% decline in incomes across the cities of Bangalore, Ahmedabad and Chandigarh, the largest impact being in Bangalore, which is one of the most supermarket penetrated cities in India.

Another proposed condition is that FDI in retail will be permitted in all cities with a population of more than one million. The question to be asked is: How many cites in India are really below one million population and how long?

Further, given the size of the supermarket retail stores, they may be located in one city but their coverage in terms of potential clientele will extend to neighbouring towns as well.

Impact on food inflation

So far as the role of FDI-driven food supermarkets in containing food inflation is concerned, the evidence from Latin American (Mexico, Nicaragua, Argentina), African (Kenya, Madagascar) and Asian countries (Thailand, Vietnam, India) shows that the supermarket prices for fruits and vegetables and other basic foods were higher than those in traditional markets.

Also, the lower procurement prices through direct procurement from farmers need not lead to lower consumer prices in supermarket chains as procurement prices are more about the bargaining power of buyers and suppliers.

Even if it is accepted that supermarkets are able to offer lower prices, the low-income households may face higher food prices because of reasons of distance from supermarkets, and higher prices charged by supermarkets in low-income areas.

Thus, there is no direct correspondence between modern retail and lower food prices and, thus, better food security of the poor consumers. Therefore, the inflation containment logic for FDI in food retail does not stand ground given the empirical evidence from across the globe.

Thus, supermarkets would lead to the concentration of market power, with upstream suppliers facing buyer power in terms of lower prices and consumers (buyers) facing higher prices due to lower competition, besides traditional retailers suffering a decline in their business.

Need for regulation

The biggest fear in India is not that FDI in retail per se is worse than domestic corporate investment for farmers or traditional retailers; it is that there may not be adequate institutions and effective governance mechanisms to regulate and monitor operations of the global retailers.

If the monitoring of wholesale 'cash n carry' stores so far is anything to go by, there is no regulation and the norms are flouted openly at the store level by the existing players. They are found to do retail sales in the grab of wholesale as the size of a single purchase (minimum ticket size) was just Rs. 500 or Rs. 1,000 which does not seem to be governed by any regulation.

Given the global and Indian experience of supermarkets so far, it is important to slow down food supermarket expansion by mechanisms like zoning, business licences and trading restrictions. Further, there is need to limit buying power of the supermarkets by strengthening the competition laws like the legal protection given to subcontracting industries in Japan in their relations with large firms.

These provisions are monitored by the Fair Trade Commission. If contract or “contact” farming is only another name for subcontracting prevalent in industry, then it is only logical to extend such legal provisions with necessary modifications to farming contracts.

Also, provisions for legally binding and clearly worded rules for a fair treatment of suppliers and an independent authority like a retail commission to supervise and regulate supermarkets are required.

This authority should ban the buying of products below cost and selling below cost, improve local traditional markets for small growers, delay the pace of supermarket expansion, establish multi-stakeholder initiatives in the chains and provide support to small producers and traditional food retailers.

Producers' organisations and NGOs need to monitor and negotiate more equitable contracts with supermarkets. The government should play an enabling role through legal provisions and institutional mechanisms like helping farmer co-operatives, producer companies and producer groups to facilitate the smooth functioning of supermarket linkages and avoid ill-effects.

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Environmental Conservation and Sustainable Development

*** Kumudinee Siddheshwar Ghule**

Today the human race is facing the global problem is the environmental pollution which is a serious threat to the existence and survival of human being.

As food, clothing and shelter are the basic human needs, unpolluted air, unpolluted water and nutritious food and hygienic condition to live-in are also today's basic needs of human beings.

In developing country like India, the concern for environment protection has only been raised to the status of fundamental law of the land but it is also wedded with human right approach and it is now well established that it is the basic human right of every individual "to live in pollution free environment".

Today's era is era of industrialization, urbanization; quick development take place in every field due to speedy life needs of human being goes on increasing.

Due to tremendous use of motor vehicles, large scale industrialization use radios, TV, micro phone and use of another kind of home appliance which are responsible for the emission of hazardous gases almost all metropolitan cities are facing problem of air pollution, noise pollution, water pollution and radioactive pollution.

Increasing use of fertilizers and pesticides there is alteration of soil and water PH takes place. Soil becomes unuseful for agricultural purpose.

Due to water pollution and soil pollution food gets polluted which affects human health as well as flora and fauna of the earth. To meet increasing needs huge land is used for industries and construction work.

Exploitation of natural resources, animal hunting for hobbies results into decreasing percentage of greenery on earth. Combined effect of all of this is degradation of environment. Balancing of our ecosystem gets disturbed.

So today we are facing problem of increasing global temperature, uncertain rain, desertion natural calamities like earthquake, tsunamis, cyclones, floods etc. among those most serious problem is global warming.

Which is serious threat to survival of human being and our planet, According to many scientist main causes global warming is ozone deflection. Which is caused due emission of different kinds of gases like tri fluorocarbon, Nitrogenous gases etc.

To override those problems there is need to steps towards the sustainable development through the environmental protection.

Sustainable development means development that meets the needs of the present without compromising the ability of the future generation to meet their own needs.

To be sustainable development must possess both economical and ecological sustainability. The environment and development are for people not people for environment and development. Sustainable development is balancing concept between ecology and development.

Some people, voluntary organization and governmental agencies should realize the importance of the protection and improvement of our environment.

In international sphere for first time issue of sustainable development and protection of environment are discussed at Stockholm Declaration of 1972 and given shape to this concept.

Some principles like polluter pay. Principle which means who caused the environmental pollution liable to pay not only compensation but also he must try to restore the environment at its original position and precautionary principle is also accepted.

In our dharma there are various aspects which try to protect and improve the environment.

In Kautilya's 'Arthasastra Dharma' of each individual in the society is to protect the nature, the people worshipped the objects of nature i.e. trees, water, land and animals, from ancient time the cultural and religious heritage of India show a deep concern for the protection and presentation of environment.

In Hinduism, we find that from Vedic Period, the environment was part of 'Dharma' of ancient people.

Our four Vedas-Rigveda, Yajurveda, Samveda, Atharvaveda are given much importance to Earth, water , air, fire and space. Which are nothing but comprises of our environment.

The Atharvaveda say that one can take from the atmosphere only so much as one puts back to them. In present day this is considered one of the most important principles of sustainable development.

Manusmruti also mentions about the optimum use of nature. This is another way to maintain the ecosystem. Mahabharata and Ramayana mentioned that the trees like Peepal, Bel,Ber, Neem, Tulsi etc. are places of god this is nothing but a way of conserving planting trees like Tulsi, Neem which are rich oxygen librating trees.

In Hinduism Different Gods or Goddesses and thus they are worshipped e.g. bird Garuda is considered to vehicle of Durga. This is nothing but to protection and preservation of animal's kingdom.

This is most important part of our ecosystem. From above facts reflects that various aspect Dharma try to protect and improve the environment.

Our constitution provides basic right to live to each individual who in broad view comprise right to like in healthy and pollution free environment.

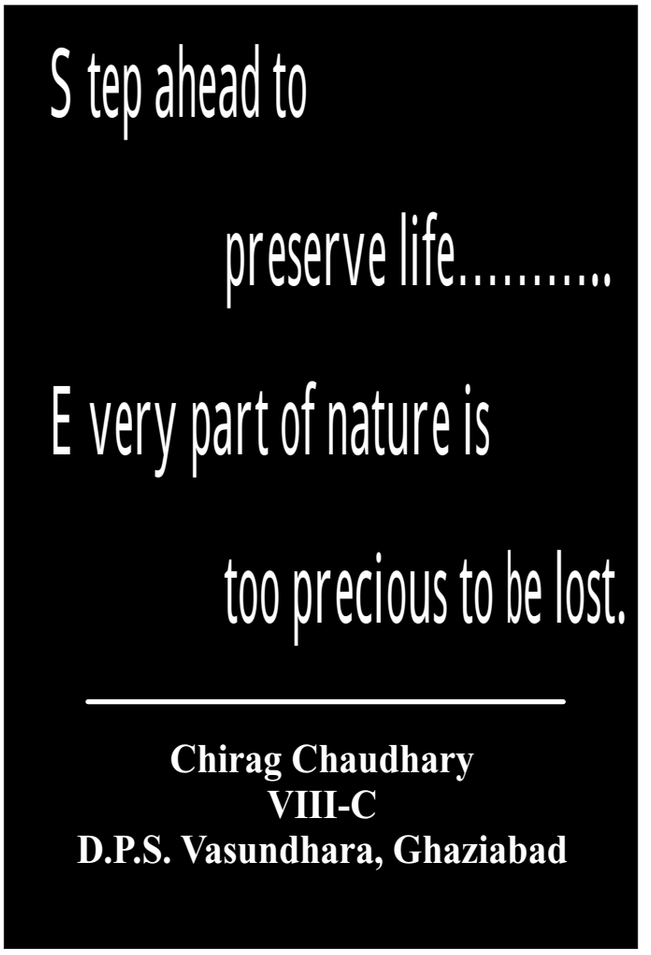
Along with this right our constitution impose some fundamental duties on the individual for the improvement of standard of living and environmental of standard of living and environment in all sphere of individual which also includes to protect the environment from any kind of pollution but also to improve the environmental quality if it has been polluted.

There are some major issues like Bhopal gas leak case, TajMahal case, Ganga pollution case which are well known to us which are best and most serious example of degradation of environment.

Global warming is most threatening worldwide problem which causes the the serious threat to survival of human being.

So it is duty of all of us to protect and preserve the environment for our future generation and achieve all goals trough the sustainable development we have to minimize our needs.

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UPDATE 2-US to push on trade to fuel economic growth-USTR

***Doug Palmer**

Kirk says trade one of few tools left to spur growth * Working with Congress on "trade promotion authority" * Stresses importance of Congress vote on Russia trade * Says current approach to Doha round not working

WASHINGTON, Nov 30 (Reuters) - The White House plans a "robust" trade agenda for the coming year to help fuel economic growth, including legislation to pursue a Trans-Pacific trade pact and to grant permanent normal trade relations to Russia, the top U.S. trade official said. "We're not going to leave any jobs on the table," U.S. Trade Representative Ron Kirk said in a wide-ranging speech at the U.S. Chamber of Commerce on the benefits of negotiating new trade agreements and enforcing old pacts.

With public coffers drained by previous stimulus packages and constrained by mountains of national debt, "it's no secret that governments around the world have embraced a robust trade policy as one the few tools open ... to help spur economic growth and create jobs," Kirk said. "That's one of the reasons that President (Barack) Obama has featured trade as a critical part of our overall economic strategy going forward." Kirk said the United States and eight other countries in the Asia Pacific were determined to reach agreement on a regional trade pact by the end of 2012, and were looking at ways to incorporate Japan, Mexico and Canada into the talks without jeopardizing that goal.

He also told reporters after the speech that the Obama administration has begun quiet discussions with congressional leaders to get "trade promotion authority" for the Trans-Pacific Partnership talks. That legislation, which expired in mid-2007, is considered essential for U.S. trade talks because it allows the White House to negotiate agreements that can be submitted to Congress for a straight yes or no vote, without any amendments. "We're confident that we're going to be able to get it, but we want to make sure it's a thoughtful process and that we can get it in an expedited way," Kirk said.

US-EU TALKS, PLANE SPAT

The United States and the European Union agreed this week to explore ways to expand what is already the world's largest trade and investment relationship. "Everything is on the table," said Kirk, who is co-chairing a high-level working group with EU Trade Commissioner Karel De Gucht to examine options for cutting tariffs and regulatory barriers that could include a bilateral free-trade agreement.

Meanwhile, the EU faces a deadline on Thursday to tell the United States how it plans to comply with a World Trade Organization ruling against European "launch aid" loans for Airbus in the biggest dispute ever before the trade body. The EU also has successfully challenged some U.S. support for Boeing at the WTO. But that case is still in the appeals stage so Washington is not yet obligated to put forward a plan to comply. The Obama administration is determined its case against Airbus not become just a "paper victory" and wants to negotiate a deal with the EU to get rid of all "WTO-inconsistent" measures in the aerospace sector, Kirk said.

RUSSIA TRADE RELATIONS

Kirk also stressed the importance of Congress quickly approving permanent normal trade relations for Russia. The United States must take that step to ensure its exporters share in the benefits of Russia's WTO entry, which is expecte soon, he said. That is expected to be a difficult vote because of concerns in Congress about Russia's commitment to democracy and human rights, as well as other national security matters. WTO rules would allow Russia to discriminate against U.S. companies if the United States does not repeal a Cold War measure known as the Jackson-Vanik amendment that tied trade relations to the rights of Jews to emigrate freely. "We just have to find a way to make that happen," Kirk told the business group.

In regard to the biggest set of ongoing trade negotiations, Kirk repeated the U.S. view that the current approach to the 10-year-old Doha round of world trade talks is not working. He said the United States was "leading conversations about how to turn the page toward fresh, credible approaches to the negotiations," but did not outline any new ideas. Kirk pledged tough enforcement of existing trade agreements and said the United States would continue to hold China's feet to the fire in that area. However, he did not signal any new cases to be filed at the WTO. Kirk also did not directly address the U.S. Chamber of Commerce's call for free-trade negotiations with Brazil, India and Egypt, but said the United States wanted to work with those countries to expand trade.

http://www.reuters.com/article/2011/11/30/usa-trade-idUSN1E7AT0Y820111130

The Worst Drug Fraud in History? Do You Still Trust Them with Your Life?

*** Dr. Mercola**

December 01 2011- Drugmaker Glaxo SmithKline has preliminarily agreed to a $3 billion settlement over the sales and marketing practices of several of its drugs, including the diabetes drug Avandia. This represents the largest federal drug-company settlement to date, surpassing the $2.3 billion paid by Pfizer in 2009 for illegally promoting off-label uses of four of its drugs.

This massive financial clout essentially allows them to engage in criminal behavior that they can later buy their way out of – not unlike the way you might pay for a speeding ticket.

As Sidney M. Wolfe, director of Public Citizen's health research group, told the Washington Post:



The sum, though extraordinarily large by most people's standards, represents only a slap on the wrist to the drug giant, which assured investors the payments would be funded by "existing cash resources."

To put things into perspective, GlaxoSmithKline has a market value of more than $110 billion, according to the New York Times.

"The size of the penalties, although large, are not as large as the money [the drug companies] make and so they keep doing it over again …

The only way this is going to stop, or get reversed, is to greatly increase the size of the penalties or to start sending some of the executives to jail, if appropriate."

The Culmination of a Seven-Year Investigation

Glaxo SmithKline's $3-billion settlement is intended to bring a nearly decade-long legal saga to a close.

It started in 2004, when federal prosecutors began investigating the drug maker for marketing a handful of its drugs for unapproved uses, as well as the suspect techniques their reps used to influence doctors.

The settlement also includes a U.S. Justice Department probe into potential Medicaid reimbursement fraud, as well as an investigation into the company's development and marketing of the Avandia diabetes drug.

After hitting the market in 1999, a 2007 study in the New England Journal of Medicine linked Avandia to a 43 percent increased risk of heart attack, and a 64 percent higher risk of cardiovascular death, compared to patients treated with other methods!

There were many articles and reviews published about Avandia following the New England Journal of Medicine study, but research from the Mayo Clinic revealed that 90 percent of scientists who wrote favorable articles about the drug had financial ties to Glaxo SmithKline.

Unfortunately, a committee of independent experts still recommended that Avandia remain on the market, despite its many risks, and a U.S. Food and Drug Administration (FDA) oversight board voted 8 to 7 to accept the advice.

Avandia works by making diabetic patients more sensitive to their own insulin, resulting in lower blood sugar levels. The problem is that despite clinically measurable improvement in blood sugar control following the use of this drug, hard outcomes associated with diabetes such as endothelial dysfunction and heart attack risk may actually worsen.

Why?

Because Avandia, like all pharmaceutical drugs, are synthetic chemicals and do not obey the same laws that natural substances do in your body (Remember: our body is composed of the natural things we have eaten and not chemicals). A simple change in the geometry of a molecule's "handedness" – i.e. whether it turns a beam of polarized light to the "left hand" or "right hand" -- can make the difference between endocrine correction and disruption; therapeutic activity and toxicity.

Although Avandia may correct a blood sugar imbalance by locking into the insulin receptors in a superficially beneficial way, it may also block out and/or disrupt many other processes in the body that can result in great harm.

Nature actually does the job much better anyway. In a 2009 study published in the Journal of Phytomedicine the herb and traditional food known as Bitter Melon was found to be superior to Avandia in the management of diabetes and its related complications.

It is also important to remember that type 2 diabetes is not caused by a lack of any drug, and that nutrition and lifestyle changes, as well as regular exercise holds the key to improving the health and well being of diabetics in a sustainable manner.

Despite the availability of alternative approaches, millions of people have been told to take Avandia and have been exposed to these unacceptably high-risk side effects.

The statistics show that more than 80,000 diabetics have suffered from strokes, heart failure or other complications including lethal heart attacks from this dangerous drug. It took nearly 10 years of the drug being on the market for the FDA to finally take action and restrict access to this dangerous drug, whereas the European Medicines Agency banned it altogether.

Glaxo SmithKline Covered up Negative Trial Data for 11 Years

As it turns out, GlaxoSmithKline spent 11 years covering up trial data that showed Avandia was a risky drug for the heart.

In 1999, drugmaker SmithKline Beecham began a study to compare Avandia with another diabetes drug, Actos.

The results showed that Avandia worked no better than Actos and had greater risks to the heart.

The study results were buried at the request of GlaxoSmithKline executives and were not reported to federal regulators, as is typically required by law.

In documents uncovered by the New York Times, the company stated they could lose $600 million from 2002 to 2004 if Avandia's heart risks were made public.

The New York Times also obtained a sealed deposition that included testimony from Dr. Rosemary Johann-Liang, a former supervisor in the FDA's drug safety office who "left the FDA after she was disciplined for recommending that Avandia's heart warnings be strengthened."

GlaxoSmithKline not only hid negative study data, they also manipulated study data to fit their agenda.

According to the Times:

"An F.D.A. reviewer who closely examined a landmark Avandia clinical trial called "Record," found at least a dozen instances in which patients taking Avandia suffered serious heart problems that were not counted in the trial's tally of adverse events, mistakes that further obscured Avandia's heart risks."

Incidentally, a two-year long Senate investigation released in 2010 also found Avandia causes about 500 more heart attacks and 300 more cases of heart failure than Actos (Actos may also damage your heart -- just "not as much").

Drug Companies are the Thugs of the Medical World

No less than 19 drug companies made AllBusiness.com's Top 100 Corporate Criminals List for the 1990s -- which is par for the course when it comes to the drug giants.

Fraud, bribery, illegal kick-backs and criminal activity are not at all unusual, and the fines and legal fees they eventually end up paying for their "get out of jail free card" are widely regarded as merely the cost of doing business.

Once you've been exposed to the seedy underbelly of the drug business—the LEGAL drug business—you can't but realize that we're dealing with a very large group of criminals and felons -- the thugs of the medical world. There's really no nicer way to put it.

What will really get your blood boiling, however, is how easily these companies are able to manipulate the system and get off scot-free for crimes that "ordinary" Americans would be sentenced to life in prison for committing.

For instance, Pfizer, which was found guilty of fraud many times over in 2009, should have been banned from dealing with Medicare and Medicaid again, as is automatically required for any company found guilty of fraudulent activity.

But Pfizer is still doing business with these government programs because federal prosecutors allowed the drug giant to avoid being sentenced for massive fraud and deception by letting them form a sham company to take the fall.

So, in the end, Pfizer's "imaginary friend" Pharmacia & Upjohn shouldered the conviction, even though it had never sold any drugs. As CNN found, "the subsidiary is nothing more than a shell company whose only function is to plead guilty."

Glaxo SmithKline Whistleblower Reveals Company Knowingly Put Patients' Lives at Risk

In a 60 Minutes interview, whistleblower Cheryl Eckard reveals the gross negligence that occurred at the Cidra pharmaceutical plant, which is run by one of GlaxoSmithKline's subsidiaries.

Eckard's quality assurance team uncovered numerous production problems, including failures on production lines that led to inconsistent dosages and employees contaminating products by not following procedures.

Worse yet, potent and potentially dangerous drugs were literally ending up in the wrong bottles! The antidepressant Paxil was mixed into bottles of Avandia.

And Avandia was found in packages of the over-the-counter antacid Tagamet. All in all, Eckard identified nine different mix-ups of various drugs.

She urged the vice president of quality assurance for North America to stop the trucks from leaving the dock the day she discovered the mix-ups, and to shut down the factory and contact the FDA.

But nothing happened… And, when one such mix-up was later discovered by a patient, GSK denied it ever happened. But "we all knew, they all knew it was real," said Eckard.

Finally, after eight months of reporting problems at the plant, Eckard sent a summary to seven executives detailing the numerous quality problems, warning that if the FDA knew of these issues, the plant would likely be seized.

Just weeks later, Eckard was out of a job. Concerned for the welfare of patients taking the affected drugs, she blew the whistle and notified the FDA.

Federal agents searched the plant and seized hundreds of millions of dollars' worth of defective drugs. In the end, GlaxoSmithKline pleaded guilty to a felony: knowingly manufacturing and selling adulterated drugs, manufactured between 2001 and 2005.

But incredulously, their punishment amounted to only $150 million in criminal fines and $600 million in civil penalties -- not one single person in charge of the debacle went to jail!

Likewise with the current settlement, none of the actual people involved in this fraud and criminal activity -- which has taken the lives of innocent people -- are being held accountable. Companies can simply set aside billions of dollars to "deal with" their "legal issues" and continue on with their felonious behavior completely unfazed.

Of course, it certainly doesn't hurt that drug companies run the BIGGEST political lobby, and political lobbying is one of the primary reasons why the drug companies are controlling nearly the entire health industry, as well as many facets of the U.S. government.

In the CBS News video below, crooked lobbyist Jack Abramoff explains how he influenced Congress for years, and how this kind of corruption still continues.

Drug Companies Cannot be Trusted: How to Take Control of Your Health

One thing should be crystal clear at this point: the drug industry simply cannot be trusted. And they have the criminal history to prove it.

Drug companies have accumulated so much wealth, power and government influence that they have been able to profit from permanently disabling, crippling and even killing their consumers, without suffering any serious consequences to themselves.

Unfortunately, the people who stand to lose in this equation are you, your family and millions of others who use drug company products without realizing that oftentimes those products have been found to cause far more harm than good.. But there is an alternative, and that is to take control of your health.

Many diseases of modern society -- heart disease, type 2 diabetes, high blood pressure, obesity – can be prevented or cured using lifestyle changes. We'll never know how many people's lives could have been saved if those taking Glaxo Smith Kline's Avandia had opted for diet and exercise changes instead -- but what we can do is try to prevent this scenario from happening again in the future by not falling prey to the next blockbuster drug to hit the market.

In the case of type 2 diabetes, the following steps will work well to manage and reverse the condition in many. Plus, these tips can be applied by anyone seeking to live a healthier life, naturally, whether you have diabetes or not.

· Ideally eliminate grains and sugar entirely from your diet, especially fructose, which is far more detrimental than any other type of sugar. This is extremely important! Drinking just one sweetened drink a day can raise your diabetes risk by 25 percent compared to drinking one sugary drink per month, so you really need to evaluate your diet and look for hidden sources of sugar and fructose. Artificially sweetened food and drinks should be avoided as well.

This also means avoiding most processed foods, as they are loaded with fructose. You may even need to avoid fruits (especially pasteurized fruit juices) until your diabetes is under control.

Following my nutrition plan will help you do this without much fuss. It's important to realize that nearly all type 2 diabetics need to swap out their grains for other foods, such as healthy sources of protein or vegetable-only carbohydrates. It would also be wise to avoid white potatoes and all legumes (beans).

· Exercise is an absolutely essential factor, without which you're highly unlikely to get this devastating disease under control. It is clearly one of the most potent ways to lower your insulin and leptin resistance. Make sure to incorporate high-intensity Peak Fitness exercises. These types of exercises boost fat loss, promote muscle building, and help your body produce human growth hormone (HGH) naturally. Typically, you'll need to exercise regularly and with some intensity until you get your blood sugar levels under control.

· Avoid trans fats as they will profoundly worsen insulin resistance.

· Consume natural saturated fats, such as grass-fed organic meat, raw dairy products, avocados, and coconut oil. These saturated fats provide a concentrated source of energy along with the building blocks for cell membranes and a variety of hormones and hormone-like substances. When you eat healthy fats as part of your meal, they slow down absorption so that you can go longer without feeling hungry. In addition, they act as carriers for important fat-soluble vitamins A, D, E and K.

There are more than a dozen different types of saturated fat, but you predominantly consume only three: stearic acid, palmitic acid and lauric acid. It's already been well established that stearic acid (found in cocoa and animal fat) has no effect on your cholesterol levels at all, and actually gets converted in your liver into the monounsaturated fat called oleic acid. It also has potentialanti-cancer properties.

The other two, palmitic and lauric acid, do raise total cholesterol. However, since they raise “good” cholesterol as much or more than “bad” cholesterol, by consuming them you're still lowering your risk of heart disease.

· Get plenty of omega-3 fats from a high quality, animal-based source such as krill oil. And consider incorporating other nutrients, spices and supplements with proven value for type 2 diabetes, such as l-arginine, cinnamon and stevia.

· Monitor your fasting insulin level. This is every bit as important as your fasting blood sugar. You'll want your fasting insulin level to be between 2 to 4. The higher your level, the worse your insulin receptor sensitivity is. The recommendations mentioned above are the key steps you need to achieve this reduction.

· Get enough high-quality sleep every night.

· Optimize your vitamin D levels. Maintaining your vitamin D levels around 60-80 ng/ml can significantly help control your blood sugar. In addition, recent studies have revealed that getting enough vitamin D can also have a powerful effect on normalizing your blood pressure, and reduces your risk of heart disease.

Attaining optimal vitamin D levels can also prevent type 1 diabetes in your children if you are pregnant. It's also vital for infants to receive the appropriate amounts of vitamin D in their early years for the same reasons. Ideally, you'll want to do this by exposing a large amount of your skin to appropriate amounts of sunshine (or a safe tanning bed) on a regular basis, year-round.

Your body can safely create up to 20,000 units of vitamin D a day this way. As a last resort, a vitamin D3 supplement can be used, and new research suggests most adults need 8,000 IU a day to keep their levels optimized.

Just remember to get your levels tested regularly by a proficient lab to make sure you're staying within the therapeutic range.

· Address any underlying emotional issues and/or stress. Non-invasive tools like prayer, journaling and meditation can be extremely helpful and effective.

http://articles.mercola.com/sites/articles/archive/2011/12/01/glaxosmithkline-to-pay-damages-for-avandia.aspx?e_cid=20111201_DNL_art_1

Do we need GM? Introduction

Does mention of allergen-free peanuts, striga-resistant cowpeas, salt-resistant wheat, beta-carotene rich sweet potatoes, and virus-resistant cassavas make you think of GM?

If so, you've missed the great unpublished story – all the non-GM breakthroughs solving precisely the kind of problems (drought-resistance, salt-resistance, biofortification etc.) that GM proponents claim only genetic modification can provide the answer to.

While often speculative claims of potential GM "miracles" win vast amounts of column inches, the non-GM success stories generally get minimal if any reporting in the popular media. Without GM's often exaggerated crisis narratives and claimed silver bullet solutions, it seems there is no story!

The biotechnology industry and its PR people are keen to keep it that way, particularly because the non-GM solutions are often way ahead of the work on GM. They also bring none of the uncertainties that surround GM.

All of this makes keeping track of the many non-GM success stories especially important.

The GM breakthroughs that never were

Another reason it's important is because - thanks to the lack of success with GM "solutions" - non-GM success stories can end up being claimed as GM breakthroughs!

A classic instance is provided by the UK Government's former chief scientist, Professor Sir David King, who has repeatedly used non-GM breakthroughs as evidence of why we need to embrace GM.

In one case, King claimed a big crop yield increase in Africa was due to GM, when it did not involve the use of any GM technology at all.

On another occasion, King claimed a big success for GM flood resistant rice when what he was referring to was in reality a non-GM crop!

In both cases King was under pressure to provide compelling examples of why GM crops were needed.

But far from King's examples showing why we need to embrace GM, they show the exact opposite, i.e. that we need to stop being distracted by GM and to get the funding and support behind the non-GM solutions to the problems we so badly need to address.

If you look at the menu above it gives links to just some of the many non-GM successes we have come across.

It's worth noting, incidentally, that some of this progress is being made with the help of biotechnological approaches, like marker assisted selection, that do not involve the same kind of risks and uncertainties as GM, and which are in fact making GM obsolete. You can read more about this here.

What the biotech industry doesn't want you to know about GM "improved" crops

There's another way in which crops touted as GM breakthroughs are not always what they seem – and it's the best-kept secret of the biotech industry.

Most of the crops that are touted as GM breakthroughs are nothing of the sort.

In summer 2010 Monsanto bought out part of a West Australian cereal breeding company, Intergrain. An Intergrain spokesman explained Monsanto's interest like this: "A really important concept is that biotech traits by themselves are absolutely useless unless they can be put into the very best germplasm."

The process operates like this. The biotech company raids the germplasm of natural crop varieties that have been developed by farmers and breeders over centuries for the desired traits.

It uses conventional breeding and sometimes marker assisted selection – not GM – to get the plant it wants. Its own proprietary genes are added primarily so that it can patent and own the seed and resulting crop.

This GM tweak often adds nothing to the agronomic performance of the crop but is usually either a Bt toxin to kill insects or a herbicide-resistance gene that allows it to be drenched in herbicide. But it has one magical effect – on the biotech company's profit margins.

This process is never disclosed in the industry's hyping of its new crop varieties to the media. The questions we should all be asking are these: which natural parent variety or varieties did the company pirate for its GM variety?

How much improvement was made in the parent variety by conventional breeding and marker assisted breeding, aside from the GM tweak?

How do the natural parent variety, the non-GM improved variety, and the final GM variety compare with each other with regard to the desired trait in side-by-side field trials?

In other words, how much value was added by the GM manipulation?

The answers would be educational. But we won't usually get to hear them because the information is commercially confidential.

And so the biotech companies are able to maintain their seductive lie that GM is necessary for the future of plant breeding.

One instance where do know how the trick was pulled is Vistive soya, which has been described as the first GM product with direct benefits for consumers.

These supposedly healthier low linolenic acid soya beans, designed to produce oil that would reduce or eliminate unhealthy trans fats in processed food made from the oil, were created by non-GM means.

But Monsanto deliberately turned them into a GM crop by adding a GM trait - resistance to its Roundup herbicide - that has absolutely nothing to do with consumer benefits. Interestingly, Iowa State University conventionally bred an even lower linolenic acid soybean variety than the Monsanto one and did not add any GM traits to it.

Unsurprisingly, very little has been heard about it, compared to Monsanto's Vistive.

In late 2010 came news of an important breakthrough, this time regarding a drought-tolerant variety of corn/maize. Syngenta, we were told, "is leading the charge on a new generation of corn designed by its scientists to withstand drought".

Syngenta's Agrisure Artesian drought resistant corn will be a GM corn, but not because GM led to the breakthrough - it didn't. The drought resistance was obtained via conventional plant breeding and masker assisted selection.

But unrelated herbicide tolerant and pesticidal transgenes were subsequently added to turn it into a GM variety. As one critic noted, "They could have released the non-GM variety without the added transgenes...

This could have benefited many farmers in countries which are suffering from droughts but which do not allow GM crop production. So much for trying to solve global food security."

Although there has been a massive amount of hype about how GM is the way to deliver drought-resistant crops, non-GM plant breeding has been much more succesful. To date there is not a single GM-bred drought-tolerant variety on the market.

http://www.gmwatch.org/need-gm-articles/12348-do-we-need-gm-introduction



The Dark Side of Science

Scientists are responsible for the foreseeable consequences of their research-good and bad.

* By Heather E. Douglas

November 16, 2011 - Within the burgeoning field of synthetic biology, teams of biologists and engineers are making great strides in understanding the cell and its functioning. However, there is more that should be discussed than the triumphs. There are also the dark purposes to which science (and synthetic biology in particular) can be put. Worries range from the development of pathogenic bio-weapons to the potential contamination of native gene pools in our environment. The question is, are scientists responsible for the potentially negative impacts of their work?

Some have argued that the answer to this question is no—that it is not researchers' responsibility how science gets used in society. But that is sophistry. Scientists are responsible for both the impacts they intend and some of the impacts they do not intend, if they are readily foreseeable in specific detail. These are the standards to which we are all held as moral agents. If I were to negligently throw a used match into a dry field (merely because I wanted to dispose of it), for example, I would be responsible for the resulting wild fire. In contrast, Einstein was not responsible for the use of his E=mc2 equation to build an atomic bomb and its use in wartime, though the scientists at Los Alamos were.

Of course, impacts (whether harmful or beneficial) are not solely scientists' responsibility—others involved will also bear responsibility for their actions. If scientific knowledge is used in a biological attack, the terrorists are first and foremost responsible for their heinous act. But the researchers who generated the knowledge may be also partly responsible. Consider, for example, the knowledge of how to build a virus like smallpox from the ground up or how to create other pathogenic, tailored organisms—targeted either to humans or the foods on which we depend. If it is readily foreseeable that such knowledge could be used for nefarious purposes, the scientists who introduce such new technological capacities are partially responsible for an attack that could ultimately cause millions of deaths.

Scientists can no longer hope naively that people will only use science for the public good. The world will always have the mentally unbalanced, the delusional, the vicious, and the sociopathic members of society, some of whom will also be intelligent enough to use the results of science. Recognizing this should be part of the everyday backdrop of science, the assessment of its potential, and the desirability of the pursuit of a particular project.

As scientists plumb the depths of the cell, they must be particularly cognizant of the potentially harmful uses of their work, in addition to all its intended benefits. For example, knowledge of how to generate specific strings of nucleotides with high precision greatly aids research by providing particular and accurate DNA sequences with which scientists can assess cell functioning and design new living systems. But such knowledge can also produce the raw materials for building known pathogens from scratch, as has already been done (for research purposes) with the polio virus and the Spanish flu virus. As scientists develop ways to generate sequences of base-pairs ever more cheaply and efficiently, the opportunity for the malicious or the simply unreflective to play with pathogens to see what kind of traits arise looms larger. And it is not just technological know-how that can be problematic. The detailed knowledge of cellular or genetic functioning can have worrisome implications as well. Knowledge of what makes a virus more transmissible can assist us in detecting when a virus might be more prone to producing an epidemic, but it could also be used to make viruses more virulent.

In sum, scientists are responsible for both what they intend to achieve and that which is readily foreseeable, as we all are. There is nothing inherent in becoming a scientist that removes this burden of responsibility. The burden can be shared—scientists can come together to decide how to proceed, or ask for input from ethicists, social scientists, even the broader public. Alternatively, scientists could decide (and it has been proposed) that some forms of regulation—either in the selection of projects or in the control and dissemination of results—be imposed on the field of synthetic biology, to reduce the risks. The more oversight scientists submit to, the less responsibility they bear, but it comes at the cost of the freedom to choose the type of work they can do and how they do it. This is the essential tension: as long as there is freedom of research, there is the responsibility that comes with it.

http://the-scientist.com/2011/11/16/opinion-the-dark-side-of-science/

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Dr. Krishan Bir Chaudhary, Visiting Students Marchpast



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