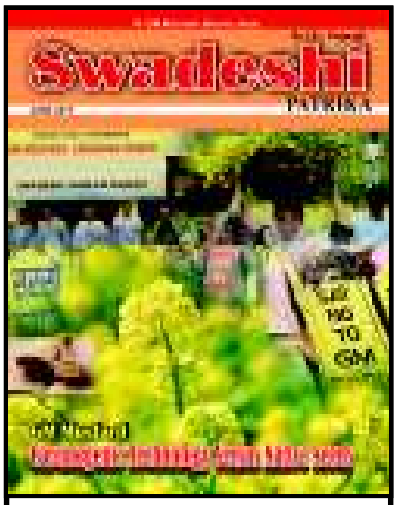

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NEWS

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Quote-Unquote

Paris or no Paris, can't snatch from our kids their right to have a clean earth, the Atharvaveda - encapsulated dedication to nature 5,000 years ago.

Narendra Modi
Prime Minister

"Wrong to presume that India cannot compete with China, rather Indian is very competitive enough in term of better quality compared to Chinese quality."

Nirmala Sitharaman
Commerce & Industry Minister

IF BEES DIE, our food supplies die: "37 Million Bees Found Dead In Canada After Large GMO Crop Planting."

Kabeer Bedi
Indian Hollywood Actor

Cancel BCCI's contract with Chinese firm Oppo with the Indian cricket team.

Swadeshi Jagran Manch

EDITORIAL

NITI Aayog and Bureaucracy Should Work in Sync with Prime Minister

It was heart warming to hear statements made by Prime Minister that poor of India should get essential medicines at reasonable and affordable prices. It's a matter of deep concern that prices of most essential medicines are too high for the majority of the people and contribute towards the impoverishment of millions each year. The pharmaceutical companies marketing these medicines are making profits in the range of 500% - 4000% and that too after imposing price controls. This is because the current formula for arriving at a ceiling price is an irrational market-based formula that legitimises profiteering and which is against the interests of the people. Until very recently, i.e., till May 2013, when the Drug Prices Control Order (DPCO) of 1995 was in force, the drug price regulation ceiling prices were calculated as the cost of production, then doubled for certain marketing expenses and profit. This was a rational formula which gave the pharmaceutical companies a reasonable profit. Unfortunately the pharmaceutical companies could influence the Department of Pharmaceuticals (DOP) then, which changed the ceiling price formula as a result of which the pharmaceutical companies were able to make super profits. So powerful has the hold of the pharmaceutical companies been that the Secretaries and Joint Secretaries of three ministries namely Health & Family Welfare, Commerce & Industry through DIPP, and Chemicals and Fertilisers through DOP, are now holding meetings along with the NITI Aayog to completely dismantle the system of price control. Of course, some kind of pretence, under the guise of pro-poor policies, will be made that they are going to introduce a better system.

The National Pharmaceutical Pricing Authority (NPPA) which was authorised by the Central Government to pass orders under the Essential Commodities Act read with the DPCO 2013, to control the retail prices of essential medicines, has been doing a rather remarkable job. The NPPA has recently done a commendable job through Prime Minister's support of bringing coronary stents under price control and capping huge trade margins to bring much needed relief to cardiac patients. It is notable that Swadeshi Jagran Manch has been long demanding for lowering of stent prices and also of other medical implants to make them affordable for masses. Previously in 2014, the NPPA, in another commendable initiative, had capped the prices of several medicines for cardiovascular disease and diabetes, using special powers vested with the Government to act in the public interest under the DPCO 2013, and thereby acting to counter prevalent uncompetitive market conditions and benefit the public. These activities have not been liked by the above mentioned ministries and secretaries, particularly the DOP, and plans are afoot to sabotage the NPPA, possibly by dismantling it altogether. It is an open secret that NITI Aayog has a history of aligning with the vested interests in the relevant ministries to dismantle the regime of price control and wind up the NPPA. In continuation of the NITI Aayog's attempts to deregulate the pharmaceutical market, it has made the following recommendation in the Three Year Action Agenda, 2017-18/2019-20, 23 April 2017:-

"21.27 A balanced approach towards regulation is needed for achieving the twin objectives of access to effective medicines and a strong pharmaceutical industry. There is a trade-off between lower prices on the one hand and quality medicine and discovery of breakthrough drugs on the other. It is therefore recommended that the Drug Price Control Order may be delinked from the National List of Essential Medicines." (pg. 144)

This is a deplorable recommendation which will increase the prices of essential medicines to further unaffordable levels and is revealing of the NITI Aaayog's apathy towards the welfare of the poor people of the country. Equally deplorable are the misleading statements that make a false link between price regulation and poor quality of medicines, lesser innovation and deterioration of the industry. All these actions are against the national interests and are fundamentally anti-poor. It is shocking to see senior officials of these three ministries and the NITI Aayog acting in such a concerted fashion to lobby for the crass commercial interests of the pharmaceutical sector. This calls for an urgent intervention from the Honourable Prime Minister to thwart the moves afoot to undermine the declared intentions of the Government to ensure affordable access to medicines for all in India. NPPA needs to be strengthened and made an autonomous body rather than left as a subordinate agency of the DOP.

Agri-Business drives the GE Treadmill

Industry claims that GE crops are needed to feed the world. But are they safe to eat in the first place? asks

G. Clare Westwood

Key to understanding genetically engineered crops is knowing who and what drives this trade –

The Second Green Revolution or Gene Revolution

The first Green Revolution was the main vehicle through which agri-corporations took control of the world's food and agricultural system. As it became increasingly apparent that the Green Revolution had failed to live up to its promises to feed the hungry and in a bid to gain even greater control over the global agricultural market, agri-transnational corporations (TNCs) ventured into biotechnology or the 'Second Green Revolution', also called the 'Gene Revolution' with 'more of the same' formula as the first Green Revolution, flying under the same banner of feeding the world. Already having a stronghold in the area of chemical inputs, they looked to expanding and consolidating their control over seeds.

Genetically engineered (GE) or genetically modified (GM) crops first entered the agricultural scene in the 1990s, starting in the U.S. As of 2016, around 18 million farmers across the world grew GE crops over 185.1 million hectares in vast monocultures with the four major biotech crops being soybean (78%), cotton (64%), maize (26%), and canola (24%).[1] USA, Canada, **Brazil, Argentina, and India are the top five countries growing 91% of the biotech crops.**[2] GE herbicide-resistant (HR) crops make up around 47% of the global acreage; insect-resistant GE crops cover 12% while stacked traits (herbicide-resistance, insect-resistance and other traits combined) comprise around 41%.[3]

Most of the GE HR crops are Monsanto's Roundup Ready (RR) varieties resistant to glyphosate (sold by Monsanto under the brand name Roundup) while most of the insect-resistant crops are Bt varieties made resistant to selected insect pests using a gene from the bacterium *Bacillus thuringiensis*.

A Second Bitter Harvest

Has agri-business delivered on its many promises related to GE crops over

the last 20 years of commercial cultivation; promises of higher production, and pesticide and pest reduction, along with assurances of safety and improved livelihoods for farmers? Far from it. The evidence speaks for itself.

Health Risks: Industry claims that GE crops are needed to feed the world. But are they safe to eat in the first place? In 2009, the American Academy of Environmental Medicine (AAEM), a U.S.-based international association of physicians, called for an immediate moratorium on GE food citing, "Genetically modified foods pose a serious health risk in the areas of toxicology, allergy and immune function, reproductive health, and metabolic, physiologic and genetic health".[4]

In October 2013, a statement released by the European Network of Scientists for Social and Environmental Responsibility (ENSSER)[5] unequivocally agreed that there was *no scientific consensus* on the safety of GE foods and crops, calling claims that these were safe for humans, animals and the environment "misleading". In fact, it stated that many cited studies showed evidence of toxic effects. The statement has been signed by more than 300 scientists and published in the journal, *Environmental Sciences Europe*.[6] In 2014, a scientific analysis called "GMO Myths and Truths" debunked 34 'myths' relating to GE, finding that claims for the safety and efficacy of GM crops were often based on dubious or non-existent evidence.[7]

GE Crop Failures: Bt cotton is grown extensively in India and China. Monsanto controls over 95% of the Indian cotton seed market. Bt cotton makes up 90% of cotton fields in some areas, but pests not previously known for cotton (e.g., mealy bugs) have spread, causing farmers significant economic losses.[8]

After 10 years of Bt cotton cultivation in the country, the Indian Parliamentary Standing Committee on Agriculture released a report in August 2012, stating that, "There have been no significant socio-economic benefits to the farmers because of the introduction of Bt cotton. On the contrary, being a capital-intensive agricultural practice, investments of farmers has increased manifold, this exposing them to far greater risks due to massive debt which a vast majority of them can ill afford. …The experience of the last decade has conclusively shown that while [GE agriculture] has extensively benefited the industry, as far as the lot of poor farmers is concerned, even a trickle down is not visible."[9]

There have been no significant socio-economic benefits to the farmers because of the introduction of Bt cotton.

Parliamentary Standing Committee on Agriculture

Health problems were also found in people handling Bt-cotton in ginning factories in Madhya Pradesh, India.[10] The symptoms found were strongly suggestive evidence that workers had allergic reactions to the Bt toxin present in the GE cotton, with symptoms ranging from skin itching, eye itching and swelling, to respiratory tract complaints.

In China, seven years after the commercialisation of (the more expensive) Bt cotton seeds, farmers' expenditure on pesticides was more or less the same as for non-GE cotton growers mainly due to the emergence of secondary pests.[11]

In October 2016, six entomologists from the Great Lakes Region in the U.S. wrote an open letter[12] to seed companies asking them to change their marketing claims and label language to reflect the widespread failure of the Cry1F (Herculex I) *trait in controlling the western bean cutworm (WBC).* The toxin, Cry1F, is used extensively as an above-ground trait in GE crops by major seed companies and across multiple brands. Dow AgroScience and DuPont Pioneer call it the Herculex I trait. Marketing literature by the companies claims it gives protection against the WBC, a serious pest to corn. However, infestation by the WBC has rapidly spread eastward across the central Corn Belt into the Great Lakes Region.

Another "bitter harvest" of GE crops is the Burkina Faso case. In 2003, Burkina Faso, in partnership with Monsanto, began the development of Bt cotton. Subsequently, Monsanto backcrossed the Bt gene onto local varietals, which were then released to farmers in 2008. By 2014, more than 140,000 smallholder farmers were cultivating Bt cotton, representing 70% of total cotton production in the country.[13] In 2016, however, Burkinabè cotton officials claimed that the Bt cotton varietals produced lint of inferior quality resulting in tens of millions of dollars in lost revenue as the Bt cotton lint fetched lower prices on the global market.[14] The Burkinabè cotton sector subsequently cut down dras-

tically on Bt cotton sowings and a complete phase-out was effected in the 2016/2017 season.

A 2016 study by *The New York Times*[15] found that GE crops in the United States and Canada showed no discernible advantage in yields nor led to an overall reduction in the use of chemical pesticides when measured against non-GE varieties in Western Europe.

Contamination by GE Crops: GE crops are also a threat to non-GE crop varieties. There have been many known cases in different countries where transgenes from GE crops have crossed with local crop varieties and wild relatives and spread beyond their areas of cultivation.[16] In 2006/2007, GE LibertyLink Rice which was field-tested by Bayer in the U.S., was found to have contaminated rice and rice products in 32 countries.[17] Greenpeace estimated the economic cost of the contamination to the U.S. rice industry to be in the region of USD 1.2 billion from food product recalls as well as actual and expected export losses.[18]

In April 2017, Enogen, a corn genetically engineered by Syngenta for ethanol production, was reported to have contaminated non-GE white corn grown in Nebraska, which is used to make flour, presenting risks of market rejection for non-GE and organic corn growers, and for the baking and milling industry.[19] The Enogen contamination is reminiscent of the StarLink scandal in the early 2000s. Starlink was a GE corn created by Adventis CropScience (now owned by Bayer), which had been approved for feed use only, but was later found in 300 food products, leading to a multi-million dollar food recall, along with multiple lawsuits.[20]

Insect Resistance: There is growing evidence of resistance by insect pests to the Bt toxins used in GE crops. A study published in December 2016[21] found that the corn earworm (called bollworm in cotton cultivation) had evolved resistance to multiple Cry toxins in a pyramided/stacked variety (see section 2.6). The study covered 20 years of observations and is the first long-term, in-field assessment of transgenic Bt corn's effectiveness against one of the most damaging pests of sweet corn, field corn, cotton and many other high-value crops.

Another 2016 study[22] evaluated the patterns of resistance and cross-resistance against all commercially available Bt toxins (Cry34/35Ab1, Cry3Bb1, mCry3A and eCry3.1Ab) in western corn rootworm populations collected from fields in Iowa, USA. The results revealed resistance to Cry3Bb1 maize, mCry3A maize, and eCry3.1Ab maize in western corn rootworm populations from fields with high levels of feeding injury to Cry3Bb1 maize, and cross-resistance among these Cry3 Bt toxins. Given this pattern of Bt resistance and cross-resistance, it appears likely that Cry3Bb1-resistant western corn rootworm populations in fields planted with pyramided maize will experience strong selection for resistance to Cry34/35Ab1 and eCry3.1Ab, which threatens to further compromise the efficacy of currently commercialized pyramided Bt maize hybrids targeting the pest.

A 2016 study by* The New York Times *found that GE crops in the United States and Canada showed no discernible advantage in yields

The study highlights that this broad-spectrum resistance illustrates the potential for insect pests to develop resistance rapidly to multiple Bt toxins when structural similarities are present among toxins, and raises concerns about the long-term durability of Bt crops for the management of some insect pests.

GE Herbicide-Resistant Crops Drive Herbicide Over-Use: In 2017, a team of researchers condensed and updated[23] a comprehensive technical report on the agronomic and environmental aspects of the cultivation of GE HR plants which was first published by the German Federal Agency for Nature Conservation, the Austrian Environment Agency, and the Swiss Federal Office for the Environment. The key findings are as follows.

Scientific data indicates that agricultural intensification and pesticide use are among the main drivers of biodiversity loss. Given the actual trends in cultivation from the 1990s, the GE HR crop system has not increased yields significantly nor reduced herbicide use. Glyphosate-based herbicides have been shown to be toxic to a range of organisms and to adversely affect soil and intestinal microflora and plant resistance to disease while glufosinate exhibits reproductive toxicity to mammals and will be phased out in the EU in 2017. The adoption of GE HR crops has also reduced crop rotation and

favoured weed management that is solely based on herbicides, increasing their use. Experience with such crop systems over several years shows that broad-spectrum herbicide application further decreases diversity and the abundance of wild plants, particularly broadleaf plants, and impacts arthropod fauna and other farmland animals. The report concludes that taken together, the adverse impacts of GE HR crops on biodiversity, when widely adopted, are very hard to avoid. From a nature protection perspective, such crops seem to be *no option* for a sustainable agriculture model which incorporates the protection of biodiversity.

A 2016 study[24] found that glyphosate is the world's most widely used herbicide in history, largely driven in the last decade by the expansion of GE HR crops which now account for 56% of global glyphosate use. It reports that the global agricultural use of glyphosate rose 14.6-fold, from 51 million kg in 1995 to 747 million kg in 2014. Total worldwide glyphosate use (agricultural plus non-agricultural) rose more than 12-fold from about 67 million kg in 1995 to 826 million kg in 2014. Over the last decade alone, 6.1 billion kg of glyphosate have been applied, 71.6 % of total worldwide use (8.56 bil. kg) from 1974–2014.

Continuous GE HR cropping and the intensive use of glyphosate over the last 20 years has led to the appearance of at least 34 glyphosate-resistant weed species infesting millions of farmland hectares worldwide.[25] By 2012, the reported acreage infested with glyphosate-resistant weeds in the US stood at 61.2 million acres, almost double from the 32.6 million acres in 2010.[26] A 2016 study by the University of Illinois Plant Clinic analysed samples from 10 states across the Midwest of the US; 593 field samples representing approximately 2,000 water hemp or palmer amaranth plants (weeds) were tested for herbicide resistance. Of these, 76.8% were found to be resistant to glyphosate.[27] Glyphosate-resistant weeds increase weed control and other production costs. In Georgia (USA), for instance, cotton growers spend USD 100 million annually to manage them.[28]

Glyphosate was classified as a "probable human carcinogen" by WHO's International Agency for Research on Cancer (IARC) in 2015.[29] Recent studies have linked glyphosate to health effects such as the degeneration of the liver and kidney and non-Hodgkin lymphoma.[30] There is also mounting evidence that the co-formulants listed as "inert ingredients" in glyphosate-based herbicides (GBHs) can be just as, if not more, toxic than glyphosate alone.[31] In 2016, 14 scientists produced a "Statement of Concern" drawing on emerging science relevant to the safety of GBHs. They concluded that: GBHs often contaminate drinking water sources, precipitation, and air, especially in agricultural regions; the half-life of glyphosate in water and soil is longer than previously recognized; glyphosate and its metabolites are widely present in the global soybean supply; human exposures to GBHs are rising; and regulatory estimates of tolerable daily intakes for glyphosate in the United States and European Union are based on outdated science.[32]

Glyphosate was classified as a "probable human carcinogen" by WHO's International Agency for Research on Cancer (IARC) in 2015.

Worse to Come–Next Generation GE HR Crops: Agri-corporations have developed and are developing crops with more than one trait, called 'stacked' or 'pyramided' crops. For instance, after the first generation of RR crops, which have been plagued by weed resistance problems, the second generation, in an attempt to counter the resistance, consists of crops genetically engineered to be resistant to both glyphosate *and* other herbicides such as 2,4-D, dicamba, glufosinate, imidazolinone, isoxaflutole, and mesotrione.[33] This has been described as the 'GE/GM treadmill' similar to the 'pesticide treadmill' that agri-business introduced with the first Green Revolution and which will only reap even more resistant weeds and more harm from increased herbicide spraying. The active ingredient in 2,4-D, for instance, is linked to embryo mal-development[34], birth defects[35] and endocrine disruption[36] while dicamba has been linked to the increased incidence of cancer among farmers and birth defects in their male offspring.[37] Non-target terrestrial plant injury has been recorded at 75 to 400 times higher for dicamba and 2,4-D, respectively, as compared with glyphosate.[38]

A 2016 study[39] found that 2,4-D and dicamba active ingredients and commercial formulations

The "Promises" of GE Crops-All Myths

of these herbicides can cause both lethal and sub-lethal effects on a lady beetle species, *Coleomegilla maculata*. The study found that commercial formulations of 2,4-D were highly lethal to lady beetle larvae. In this case, the "inactive" or "inert" ingredients were a key driver of the toxicity. So-called "inactive" or "inert" ingredients in pesticide formulations typically constitute the majority of a pesticide's volume and can sometimes be more toxic to non-target species than the active ingredients. Meanwhile, the dicamba active ingredient significantly increased lady beetle mortality and reduced their body weight. The commercial formulations of both herbicides also reduced the proportion of males in the lady beetle population.

The "Promises" of GE Crops-All Myths: A report by Greenpeace in 2015[40] effectively sums up the myths about GE crops showing that –

1. GE crops are not feeding the world, do not increase yields, can negatively affect the livelihoods of small-scale farmers, and reinforces the industrial agriculture model that has failed to feed the world so far;
2. genetic engineering lags behind conventional breeding in developing plant varieties that can help agriculture cope with climate change;
3. long-term environmental and health monitoring programmes on GE crops either do not exist or are inadequate;
4. GE crops increase pesticide use and herbicide-resistant weeds, and super-pests have emerged in response to herbicide-resistant and insect-resistant GE crops requiring additional pesticide use;
5. GE seed prices are protected by patents and their prices have soared over the last 20 years;
6 GE crops can contaminate non-GE crops; and
7. GE crops are not only an ineffective type of innovation, but they also restrict innovation due to intellectual property rights owned by a handful of multinational corporations.

In October 2015, 19 out of the 28 countries in the European Union registered as official GE-free zones.[41] They were: Austria; Belgium for the Wallonia region; Britain for Scotland, Wales and Northern Ireland; Bulgaria; Croatia; Cyprus; Denmark; France; Germany; Greece; Hungary; Italy; Latvia; Lithuania; Luxembourg; Malta; the Netherlands; Poland; and Slovenia.

Agri-TNCs: Growing Cancers in Society

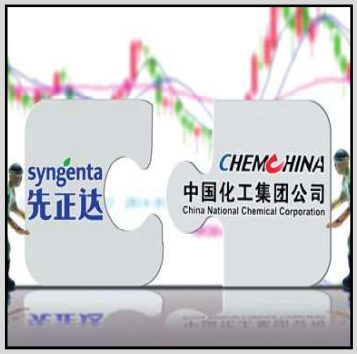
Rooted in Destruction: The Green Revolution turned agri-culture into agri-business creating a whole generation of farmers trapped in a cycle of dependency on corporate inputs and technologies. In 2013, the global pesticides market was estimated at USD 54 billion and the seed market at USD 39 billion.[42] Corporate control over agriculture is an indisputable fact evidenced by the ETC Group's report in 2015 showing that BASF, Bayer, Dow, DuPont, Monsanto and Syngenta together control 75% of the global agrochemical market, 63% of the commercial seed market and over 75% of all private sector research and development in the sector.[43] Three companies control 55% of the commercial seed market (#1 Monsanto #2 DuPont/Pioneer #3 Syngenta) and 51% of the agrochemical market (#1 Syngenta #2 Bayer Crop Science and #3 BASF).[44] How did these companies come to acquire such power?

Taking just the pesticide industry as a case in point, this business dates back to World War 2. Lethal gases were developed and manufactured by the German chemical company, I.G. Farbenindustrie AG (I.G. Farben), as a chemical weapon and used on concentration camp prisoners in Germany in WW2. I.G. Farben later split into six companies which included BASF, Bayer, and Hoechst. Bayer marketed/markets organophosphates [a] which are descendants of nerve gases like sarin (created by I.G. Farben) and are some of the most toxic chemicals used in agriculture. Bayer also manufactured the infamous endosulfan, which has been linked to birth defects, cancers, and mental retardation among other diseases[45]; and neonicotinoids, which have been linked to

the death of bees in Europe[46].

Monsanto and Dow, among others, manufactured and supplied to the U.S. government millions of litres of 'Agent Orange' for use in the Vietnam War with devastating effects on the Vietnamese people and the environment. Agent Orange was a unique combination of the herbicides 2,4-D and 2,4,5-T, contaminated by dioxin.[b] Monsanto's Agent Orange had a thousand (1,000) times higher concentration of dioxin than other formulations.[47] Monsanto is now promoting its second generation of GE HR crops resistant to 2,4-D to replace its first generation of GE RR crops. Meanwhile, Syngenta's top selling pesticide, atrazine, is a known potent endocrine disruptor[48,49] which can lead to birth defects[50], infertility[51], and cancer.[52] [c] The U.S. Department of Agriculture (USDA) reported finding atrazine in 94% of the country's drinking water tested in 2008.[53]

Corporate attempts to control seeds date back to the 1920s when the U.S. seed industry initiated a programme on hybrid maize. Hybrid seeds breed true only in the first generation, with low and unstable yields in subsequent generations, forcing farmers to buy new seeds every planting season. The extension of patents to cover living organisms from 1980, as a result of historic judicial decisions in the U.S., has enabled the biotech industry to construct systems of exclusive monopoly control over genetic resources via intellectual property rights (IPRs).[54] TNCs have patented more than 900 rice genes.[55] In the U.S. alone, by 2012, Monsanto had sued farmers and farm businesses for USD 23.5 million for alleged patent infringements.[56]



Dow Chemical and DuPont are set to merge, China National Chemical Corporation (ChemChina) is acquiring Syngenta, and Bayer is acquiring Monsanto.

Pervasive Domination; Interference with Science and Governance: Agrochemical TNCs are highly influential in their home countries.[d] In September 2014 and January 2015, the USDA approved Dow's and Monsanto's GE 2,4-D-resistant corn and soybeans, respectively. This was in spite of thousands of comments in opposition from farmers and other concerned citizens.[57] The Center for Food Safety (CFS) warned then that the deregulation "violate(s) all applicable statutes, is arbitrary and capricious, is not supported by sound science, and otherwise is not in accordance with the law….The proposed approval will likely cause significant environmental, agronomic, and socioeconomic harm".[58] Yet the authorities blithely ignored such protests along with the scientific evidence presented.

Officials from regulatory bodies or government posts are often offered high positions in agri-TNCs. The 'revolving door' practice has created a symbiotic relationship between the regulators and the regulated, minimizing the likelihood of ensuring the latter's compliance with regulations and facilitating approvals for them.[e]

In March 2017, a court in San Francisco ordered a series of internal Monsanto documents to be unsealed for more than 55 lawsuits brought by individuals from around the U.S. who alleged that exposure to Monsanto's Roundup herbicide had caused them or their loved ones to develop non-Hodgkin lymphoma.[59] The court documents included Monsanto's internal emails and email traffic between the company and federal regulators. These revealed disturbing communication which pointed to the agrochemical giant's manipulation of scientific literature and collusion with a government official to protect its flagship herbicide, Roundup, and to delegitimize the IARC's classification of glyphosate as a probable human carcinogen. For instance, there were emails about Monsanto having ghost-written research that was later attributed to academics.[60] Other communication records indicated that a senior official at the Environmental Protection Agency had allegedly worked to quash a review of glyphosate that was to have been conducted by the United States Department of Health and Human Services.[61]

Dow Chemical and DuPont are set to merge, China National Chemical Corporation (ChemChina) is acquiring Syngenta, and Bayer is acquiring Monsanto. The proposed Bayer-Monsanto merger will give control of almost 30% of the world's commercial seed

market and almost 25% of the world's commercial agrochemical market to just one company. The European Union (EU) has approved the Dow-DuPont merger. The EU and the U.S. approved the ChemChina-Syngenta deal in April 2017. The Bayer-Monsanto merger is currently being prepared for filing with the EU regulator. Should all these mergers be approved, the consolidation in the sector will reach even worse thresholds.[62]

The main concern about these mega-mergers is that they will expand and intensify an extractivist economic model.[63] These mergers will exacerbate social inequities and ecological crises caused by industrial farming. They will squeeze global productive and food systems, placing them on a narrow technological path, characterised by a dependence on proprietary seed and agrochemical inputs, and the promotion of highly processed, standardised, input-intensive staple crop varieties to the detriment of traditional foods, resulting in the loss of nutrients and diversity. Small farmers will be further marginalised in terms of input prices and even less access to land.

The statistics and cases cited above provide a clear and disturbing snapshot of how the world's food and agricultural system is dominated by a handful of powerful TNCs which have driven the industrial model of food production since the first Green Revolution. They also underscore how seriously scientific research and the U.S. regulatory system, in particular, have become infected by the influence of incredibly powerful companies like Monsanto in pushing their agenda.

Human Rights Violations: In the process of gaining control over the global food and agricultural system, TNCs have violated and continue to violate human rights with impunity. In 2011, the Permanent People's Tribunal against Agrochemical TNCs[f] found Syngenta, Bayer CropScience, BASF, Dow Agro Sciences, Monsanto and DuPont "prima facie responsible for gross, widespread and systematic violations of the right to health and life, (and) economic, social and cultural rights as well as of civil and political rights, and women and children's rights".[64] The Tribunal jury further found that the six TNCs' "systematic acts of corporate governance have caused avoidable catastrophic risks, increasing the prospects of extinction of biodiversity, including species whose continued existence is necessary for (the) reproduction of human life".[65] The jury identified both the use and presence of agrochemicals and GE crops as a threat to livelihoods, food production, and in particular, food sovereignty; and patented GE seeds also as a violation of the right to seed.[66]

The recently concluded Monsanto Tribunal was an international civil society initiative to hold Monsanto accountable for human rights violations, crimes against humanity, and ecocide.

Not only have agrochemical TNCs marketed their highly hazardous brand of agriculture with impunity, they have acquired humongous amounts of power and wealth along the way, taking advantage of legal loopholes and safe havens to evade accountability. Although the obligations of states are addressed in most current international human rights laws, international legal redress can only come into play when there are failures by states to recognize the rights of their citizens under specific human rights conventions. This does not cover violations by corporations or other legal persons. Currently, there is no platform to administer international human rights law with respect to violations committed by TNCs for actions brought directly by individual victims or groups of victims or their next of kin. The International Court of Justice has jurisdiction only over disputes between member states while the International Criminal Court has jurisdiction only over natural persons, not legal persons. Underlying this situation is the lack of political will by states and international bodies to hold TNCs accountable for their crimes and to check their unbridled greed. Thus, they are complicit in the human rights violations committed by these corporations.

The recently concluded Monsanto Tribunal was an international civil society initiative to hold Monsanto accountable for human rights violations, crimes against humanity, and ecocide. Eminent judges heard testimonies from victims, and delivered a legal opinion following procedures of the International Court of Justice on 18 April 2017 in The Hague. The Tribunal concluded that Monsanto had engaged in practices which had negatively impacted the right to a healthy environment, the right to

food, and the right to health.[67] It also concluded that Monsanto had negatively affected the right to freedom indispensable for scientific research through conduct such as intimidation, discrediting independent scientific research when it raised serious questions about the protection of the environment and public health, suborning false research reports, and putting pressure on governments.[68] The Tribunal further concluded that if such a crime of ecocide were recognized in international criminal law, the activities of Monsanto could possibly constitute such a crime.[69]

The Tribunal called for the assertion of the primacy of international human and environmental rights law, particularly by UN bodies. It warned of the risk of a widening gap between international human rights and environmental law and international trade and investment law.[70] The Tribunal was also of the view that the time was ripe to consider multinational enterprises as subjects of law that can be sued in the case of infringements of fundamental rights. It denounced the severe disparity between the rights of multinational corporations and their obligations.[71]

Agri-Business–The Real Disaster: Agri-business has proven to be not only untenable but dangerous. Not only has it failed to deliver on its many empty promises, many of which are related to GE crops, it has ruined the lives and livelihoods of millions of rural communities, poisoned people and the environment, and exacerbated hunger and poverty, all with impunity.

In addition, the global (industrial) food system driven by agri-corporations contributes some 29% to greenhouse gas (GHG) emissions.[72] Synthetic fertilizers, pesticides, heavy machinery, monocultures, land change, deforestation, refrigeration, waste and transportation are all part of a food system that contributes greatly to climate change. Industrial agricultural practices, from Concentrated Animal Feeding Operations (CAFOs) to synthetic fertilizer-intensive crop monocultures, and GE HR crops that release massive amounts of herbicides into the environment not only contribute significantly to GHGs, but also underpin an inequitable and unhealthy global food system.[73]

Industrial agriculture is a fossil fuel-based, energy-intensive industry that is aligned with biotech, trade and energy interests over farmers' and consumers' welfare.[74] The evidence is overwhelming. The world should see GE crops for what they really are % a public relations campaign to feed agri-business greed and advance its domination over the global food and agricultural system regardless of the cost to people and planet. As the ETC group aptly concludes: "*The real disaster is the corporate-controlled agro-industrial food system*".[75] The burning question now is: What are we going to do about it? ❑❑

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Therefore, it reproduces excerpts from the original paper. The author of both papers is G. Clare Westwood of Third World Network, based in Malaysia.

a) For instance, methyl parathion and monocrotophos are classified as extremely and highly hazardous (respectively) by the World Health Organisation (WHO). See: Kishi, M. 2002. Initial Summary of the Main Factors Contributing to Incidents of Acute Pesticide Poisoning. http://www.who.int/heli/risks/toxics/bibliographyikishi.pdf

b) Dioxin was a by-product of the deliberately accelerated production of the herbicide 2,4,5-T, one of the components of Agent Orange. The dioxin in Agent Orange was 2,3,7,8-Tetrachlorodibenzodioxin (TCDD) which is the most toxic of all the dioxins and dioxin-like compounds. The U.S. National Toxicology Program (NTP) and the International Agency for the Research on Cancer list TCDD as a known human carcinogen. Dioxin has been found to be an endocrine disrupter, and it can cause chloracne, certain cancers, and reproductive and developmental effects (at least in animals). http://www.agentorangerecord.com/information/what_is_dioxin/

c) For more effects of atrazine, see PAN North America (PANNA), 2011, Health Effects of Atrazine, Fact Sheet.

d) Monsanto, DuPont and Dow, USA. Bayer and BASF, Germany. Syngenta, Switzerland.

e) For example, Michael R. Taylor, former Vice-President for Public Policy in Monsanto, was appointed Deputy Commissioner for Foods at the U.S. Food and Drug Administration (FDA) in January 2010. For more information, see- *http://www.sourcewatch.org/index.php?title=Labeling_Issues,_Revolving_Doors,_rBGH,_Bribery_and_Monsanto.*

f) The Permanent People's Tribunal (PPT) is an international opinion tribunal founded in 1979, in Italy, based on the "Universal Declaration of the Rights of Peoples". It looks into complaints of human rights abuses submitted by communities facing such abuses. It uses the rigorous conventional court format. The PPT issues indictments, names relevant laws and documents findings. While its verdicts are not legally binding, they can become precedents for future legal action against, for example, as in this case, agrochemical companies.

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About the Author: Clare Westwood holds a Masters Degree in Business Administration and has had extensive experience in education, people development, facilitation, human resource management, program/campaign coordination, writing and editing. Clare was engaged, over a decade, in the areas of food, agriculture, food sovereignty, biosafety and climate change, mainly through serving poor rural communities, especially farming communities; and NGOs/CSOs working with such communities in 16 countries in Asia. In more recent years, that work was specifically to build community resilience to climate change in Asia. Clare is currently the new Head of the Justice & Peace Commission of the Catholic Church in the Diocese of Penang, which is focusing on ecological justice. She is also a writer and researcher on food, agriculture, climate change and agriculture, and biosafety for Third World Network, an international NGO which works towards greater articulation of the needs and rights of peoples in the Global South and policy changes in pursuit of just, equitable and ecologically sustainable development.

Bayer Monsanto, GM Mustard and the Patent fraud

To understand the full implications of the Genetically Modified (GM) Mustard approval it is important to remember that this is a Bayer Mustard; Bayer Monsanto have now merged globally. The Genetically Modified Organisms push is finally about collecting royalties. The country should learn from the tragic experience with Bt cotton on how Monsanto Bayer function. They enter a country illegally; corrupt government agencies which should regulate them; join with Indian partners, legally and illegally, to get approval to spread their GMOs, and exploit farmers through illegal royalty collections even when they cannot get patents on seeds as in India's case because of Article 3j of India's Patent law, which prohibits patents on plants and seeds. This protects the public interest and national interest through the courts against illegitimate patent monopolies. If 3j is dismantled, Bayer will assert its patent rights to the GM Mustard.

When the market capture is complete and alternatives have been destroyed through seed replacement, they challenge the sovereign laws of a country to have total monopoly and a deregulated market for selling hazardous products at unreasonable prices. When the government tried to use the Essential Commodities Act to introduce the Seed Price Control Order in the case of Bt Cotton, Monsanto sued the government. We had to intervene in the courts to get Monsanto's case dismissed. Monsanto Bayer have been attacking India's Essential Commodities Act in both seeds and medicines which empower government to control seed prices. The Niti Aayog is supporting them in these anti-national, anti-public interest moves.

Monsanto entered India illegally in 1998, and even signed licensing agreements to grab Indian's cotton seed market; it asserted patent rights after Indian companies had helped it to capture 95 per cent of the Indian cotton seed market.

Fight over GM mustard is today's battle of Pallasey, opines
Vandana Shiva

Bayer (now Monsanto Bayer) will allow Indian scientists to do its dirty job of taking over the mustard seed market and then all other crops, and then assert patent rights to collect royalties (Bija Lagaan). Monsanto has collected Rs 7000 crore for cotton alone. How much will Indian farmers and India loose if GMOs are allowed?

It is not a coincidence that even as GM Mustard is being pushed through a corrupted Genetic Engineering Appraisal Committee (GEAC), there is an attempt to use courts to dismantle India's Patent laws, especially Article 3j. This is today's Battle of Plassey. At stake is our seed sovereignty (Bija Swaraj), food sovereignty (Anna Swaraj), biodiversity, farmers livelihoods, and right of citizens to safe uncontaminated food. Over three lakh farmers have already committed suicide since Monsanto entered India; most suicides are in the Bt cotton belt, as 95 per cent of the cotton is controlled by Monsanto.

GM Mustard has been designed by the Poison Cartel to make profits selling more herbicides, collect royalties for basic patents once the market capture is complete, and sell patented cancer drugs when we get cancer from the carcinogenic glufosinate. GM mustard is a Bayer idea which was rejected in 2002. Prof Deepak Pental has been put forward as a desi Trojan horse to clear the way for GM Mustard and the 100 other food crops waiting in the wings.

Glufosinate being banned in Europe

In January 2017, the European Commission registered a European Citizens Initiative inviting the Commission "to propose to Member States a ban on glyphosate, to reform the pesticide approval procedure, and to set EU-wide mandatory reduction targets for pesticide use".

There is no reason why India should use such a dangerous herbicide to make hybrids through herbicide-resistance when India has produced higher yielding non-GM hybrids. Both the GMO and the herbicide are dangerous. India should ban glufosinate if there is no link between the GM crop and the sale of the herbicide.

There is no truth in the media spin that GM Mustard increases yields and will decrease edible oil imports. We were self-sufficient in oilseeds till the 1990s when global agribusiness lobbies invaded India with subsidised imports, justified by trade liberalisers whose only expertise is as intellectual serfs of the global chemical, seed, pharmaceutical and agribusiness cartel.

The Government itself admitted in the Supreme Court that increased yields are not being claimed. In its 'Reply' Affidavit, the government said:

"No such claim has been made in any of the submitted documents that DMH 11 out-performs Non-GMO hybrids. The comparison has only been made between hybrid DMH 11, NC (National Check) Varuna and the appropriate ZC (zonal checks) — MSY of 2670 Kg/ha has been recorded over three years of BRL trials which is 28 per cent and 37 per cent more than the NC & ZC respectively" (At 88, pg.56).

In 1998, the year Monsanto sneaked in BT cotton, the MNCs engineered a crisis, got indigenous oilseeds banned and dumped GMO soya oil on India by manipulating a drop in import duties. India had bound its import duties at 300 per cent in the WTO, but US lobbies had soya oil duties reduced to 45 per cent. In the manipulated crisis of 1998, duties were dropped to 0 per cent. Worse, soya bean was subsidised by $190/tonne by the US government and Rs 15/kg by India.

Women of the slums of Delhi called me to say their children could not eat food cooked in soya oil, and wanted mustard oil back. So we organised the "Sarson Satyagraha" in 1998 & saved our mustard.

But the imports kept increasing through dumping and manipulating of policy. Compared to 1.02 million tonnes (mt) edible oil imports in 1996-97, India's imports doubled to 2.98 mt in 1998-99, and then jumped to 5 mt in 1999-2000. Today we are importing over 60 per cent of our domestic requirements and destroying our coconut, sesame, groundnut, safflower, niger,

There is no truth in the media spin that GM Mustard increases yields and will decrease edible oil imports.

mustard, linseed diversity and healthy food economy for GM Soya which is destroying the Amazon and Palm Oil which is destroying the Indonesian rainforests.

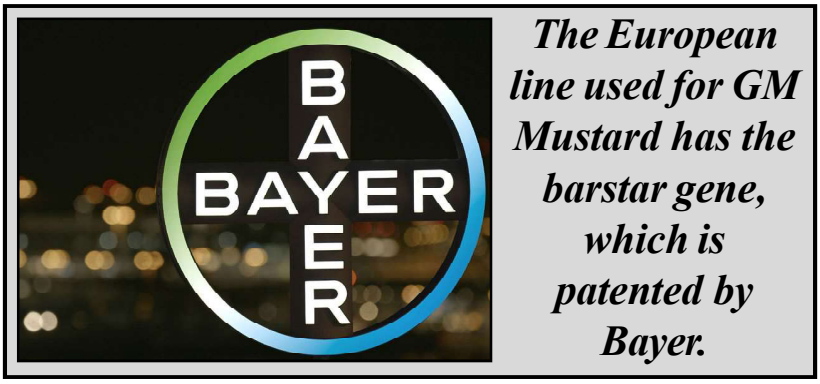
We produce enough mustard for India. Only 2 per cent of imports are canola (not mustard). A 2 per cent replacement with GM Mustard grown in India will not decrease the import bill of Rs 68,000 crore. For imports to decrease, we must introduce import duties, for oilseeds and even pulses, instead of letting zero duty imports destroy our agriculture and using the agrarian crisis created by dumping of subsidised edible oil to destroy what remains through forcing GMOs on India farmers and consumers.

Some farmers organisations wrote to the Environment Minister, late Anil Dave: "Oil seed production has taken a hit due to bad pricing/procurement support from the government, and inappropriate anti-farmer import policies adopted by the government. It is not because we are unable to produce enough or do not have the seeds or know how. If the pricing, procurement and import policies are made farmer friendly we assure you that we can produce all the mustard and other oil seeds the country needs."

The unscientific and corrupt approval for GM Mustard is de facto an approval to 100 other crops undergoing trial. We stopped Bt Baigan in 2010. There was a democratic consensus in India that we would not become victims of GMO foods.

Patent Fraud: From Bt Cotton to GM Mustard

GM Mustard is a Bayer mustard whether one looks at the herbicide Glufosinate to which it has been made resistant, or at the basic patents. As the assessment report admits, "Creating male sterile (MS) lines through genetic engineering was developed by scientists in Belgium in early 1990s using two genes – barnase and barstar – isolated from a common soil bacterium Bacillus amyloliquefaciens. The other parent called restorer of fertility (RF) line, contains the barstar gene.



The European line used for GM Mustard has the barstar gene, which is patented by Bayer.

The European line used for GM Mustard has the barstar gene, which is patented by Bayer. All RTI enquiries on the licensing agreements and material transfer agreements related to the import and use of the barstar-containing-mustard line drew a blank. Delhi University where Prof Pental worked has no record of any agreements. Can one then assume that it is a private agreement between Bayer and Pental, with Pental given the job of getting the approvals so that Bayer can harvest the profits when the approvals are granted?

The bar, barnase, barstar system is now owned and controlled by Bayer. Currently patents claiming the bar gene are mainly in the hands of Bayer Crop Science. When using the bar gene, the gene itself and several IP protected materials and processes may be involved, such as processes for plant transformation, use of genetic regulatory elements, use of antibiotic resistance genes as selectable markers, etc.

The bar gene patents owned by Bayer Crop Science are divided into three main families. The first patent family is the dominant family and was originally assigned to Plant Genetic Systems (PGS) and Biogen NV. It claims the use of the bar gene in plants and plant products. More specifically, this patent family claims the use of the gene in creating herbicide resistant crops and also its use as a selectable marker.

The other two patent families in the Bayer portfolio (assigned originally to Hoechst AG) strengthen the corporate position on the bar gene by claiming additional bar genes from other organisms and uses, e.g. isolating the gene from gram-negative bacteria, the gene itself, its use as a selectable marker in bacteria, codon-optimized versions for expression in plant cells, and treatment of sewage contaminated with phosphinothricin.

Dominant bar gene patents

The first and most dominant patent family has been divided into three individual key patents in the United States. The three key patents cover:

a. Use of the bar gene in a plant cell (US 5561236);

b. a process for the production of a plant cell tolerant or resistant to glufosinate (PPT) or any compound containing the PPT moiety, by nuclear integration of a compound-specific acetyl transferase gene (US 5646024); and
c. a plant transformation vector carrying such a gene (US 5648477).

The other patent in this dominant family is European Patent 242236. These patents have extremely broad claims, particularly European Patent 242236 and the United States patent 5561236.

Deepak Pental does have a few derived patents such as making hybrids and preventing the leakiness of "lethal" promoter gene. But Bayer has the basic patents.

Unscientific Blindness to scientifically established hazards of GMOs

The FAQ's on GM Mustard put out by government are full of scientific inaccuracies. For e.g. it is said there is no evidence of transfer of transgenes to our bodies. "Will the transgene get transferred to humans or animals when GM Food is consumed? The transgenes would not get transferred to humans or animals through consumption of GE mustard. So far, there is no evidence suggesting that the transgenes could be transferred to humans or animals through consumption of GE food." This is patently untrue.

The fact is that Barnase is an enzyme that breaks down RNA indiscriminately, and is known to be an extremely potent cell poison. Traces of barnase are toxic to the rat kidney and to human cell lines. Barnase is actually being exploited as a conditional 'suicide gene' to cause cell death in mammalian and human cells when it is induced. It is also toxic to insect cells as well as plant cells in which it is expressed. In the transgenic mustard, the toxic gene is placed under the control of a promoter only active in tapetal cells that give rise to pollen. However, when the plant is ingested, the gene (present in all plant cells) can transfer horizontally to the animal/insect cells and become expressed, with potentially fatal consequences. There have been no studies on horizontal transfer of the transgene, which is a distinct possibility based on recent evidence, according to scientists.

One particular route for horizontal gene transfer to microorganisms in the soil and on the surfaces of plants is via the Agrobacterium and binary vector system used in creating transgenic plants, including the Indian transgenic mustard discussed here. It appears that the Agrobacterium and binary vector can remain in the transgenic plant even after treatment with high concentrations of antibiotics, greatly facilitating horizontal gene transfer. Who knows what new pathogens would be created from the transfer of the barnase gene. Further, new research shows that DNA fragments derived from meals, large enough to carry complete genes, can escape digestion in the gut and enter the blood stream to be taken up by cells, and so can RNA. The uptake of the barnase gene and/or its RNA transcript to produce a potent cell poison is a distinct possibility.

The FAQ's on GM Mustard put out by government are full of scientific inaccuracies.

Not only is there total blindness to the scientific literature that establishes the reality of horizontal gene transfer, an inappropriate reductionist mechanistic paradigm is being used to assess safety when we need gene ecology to assess impacts. Compositional equivalence within statistical ranges does not guarantee safety. After all the prion that caused the Mad Cow Disease was substantially and compositionally equivalent to the normal protein, but its spatial arrangement had got distorted. That is why in Indian science we define space as the 5th element, and 4-dimensional space time processes determinate safety and lack of safety of changes in living systems, not reductionist compositional analysis.

The Bar-barnase-barstar ends are not the only genes used in GM Mustard. It is based on multiple genetic trans-formations, and introduction of genes from un-related organisms. These include the barnase gene for male sterility, bar-star gene, bar gene for herbicide resistance to Glufosinate (Basta, Bayer's herbicide analogous to Monsanto's Glyphosate), TA29 for regulator, CaMV 35S, Cauliflower Mosaic Virus (as viral promoter), AMV, Alfa-alfa Mosaic Virus (as viral promoter), and Agrobacterium tumefacians as Terminators. This gene construct, with all its components, has not been assessed. Therefore, the assessment is a non-assessment.

The assessment is not a Food Safety or Environmental Safety study of GM mustard. It is a non-study which avoids any real assessment of safety. Mustard is a food

for humans and animals. Yet no feeding trials were done. On Page 70, it is clearly stated that "No feeding studies are required for granting environmental release". And even though oilcake is fed to cows, the assessment states, "No livestock feeding studies are recommended" (P 66). Without feeding trials, there is no assessment of safety. Without feeding trials, the assessment concludes – without any scientific basis – that GM Mustard does "not pose any risk of causing any adverse effects on human and animal health and safety" (P 74).

The Assessment admits that the barstar protein is found in leaves, stem and roots of the GM Mustard. Barnase is found in vegetative tissues of GM mustard. The Bar protein is found in leaves, oil and oil-seeds of GM mustard (P 63). These proteins are not present in the traditional mustard varieties. The assessment tests surrogate proteins expressed in E Coli Bacteria. Isolated proteins expressed in bacteria are not equivalent to transgenes expressed in plants, which are much more complex organisms. Instead of testing for difference, a false assertion is dictated – that the two are equivalent.

The statement casually states on P 63. "The data showed that the Barnase expression levels are below the detection level and yet the expression level is sufficient to create male sterility trait". It is expression of the trait that makes the difference in living systems, and it is this trait that needs to be assessed in transgenic mustard as food.

Unscientific claim that GM Mustard will not genetically contaminate non-GM mustard

Genetic contamination by GM Canola is very widespread. After contaminating farmers' crops, Monsanto sues them (case of Percy Schmeiser in Canada and Steve Marsh in Australia). Genetic contamination of Native Mustard by GM Mustard is inevitable (if allowed), given our small farms.

Mustard is cultivated everywhere in North India. It is unscientific to claim that "Escape of strains of GE mustard to related Brassica sp may occur only if conventional crop is present in receiving environment where GE mustard is cultivated" (P 82). Native Mustard is already grown wherever mustard can grow, cultivation of Pental-Mustard will contaminate Native Mustard anywhere it is released.

Further, the Assessment falsely claims that pollen cannot travel more than 20 feet, when mustard pollination studies shows that pollination by herbicide resistant brassica contaminated 67% farms up to 3 km!

Further, the Assessment falsely claims that pollen cannot travel more than 20 feet, when mustard pollination studies shows that pollination by herbicide resistant brassica contaminated 67 per cent farms up to 3 km! Equally unscientific are claims that GM Mustard has no impact on soil biodiversity and soil organisms and our gut bacteria.

The assumption that because the genes are taken from soil organisms they are safe for soil is false because in the soil bacteria barnase and barstar are in a bound state, in GM Mustard they are not. Then, the assumption that genes taken from soil organisms, and introduced into unrelated species (GMOs) means that GMOs have no impact on soils is proven false by studies of Bt-Cotton. In Vidarbha, Bt Cotton decimated the population of beneficial soil organisms.

A detailed survey was carried out in five Vidarbha districts (Akola, Bhandara, Buldhana, Chandrapur and Gadchiroli) from 10 different villages of each district of Bt cotton growing areas for the last 10-12 years. A comparison was made with samples from other cultivar (non- Bt) and control plots of the same areas. The results of the parameters studied so far were presented below:

- Acid Phosphatase enzymes decreased by up to 40 per cent
- Alkaline Phosphatase enzymes decreased 44 per cent
- Total microbial population decreased by 53 per cent
- Total actinomycetes bacterial (actinobacteria) activity in the soil decreased by 53 per cent
- Fungi population decreased by 49 per cent
- Bacterial population decreased by 54 per cent

Barnase is inhibited by barstar. Both are produced by a soil bacterium Bacillus amyloliquefaciens (Bt = Bacillus thuringiensis). In soil bacteria, they are bound, so barnase can do no harm. In the plant, when it is secreted from the cell, it is no longer bound and is thus harmful to other cells. This harm has not been scientifically assessed.

Our gut has trillions of microorganisms. Impact on gut mi-

cro biome is not assessed in this study. There is an epidemic of intestinal disease in the West, including leaky gut syndrome after GMOs were introduced in the US over the last two decades. This disease epidemic cannot be discounted.

The Poison Cartel have removed Environment Ministers who implement India's Biosafety laws and impede their capturing India's market. After Jairam Ramesh announced a moratorium on Bt Baigan, having listened to the voices of the Indian people and scientists across the country during seven public hearings in different parts of India, he was removed. When Jayanti Natarajan refused to sign an affidavit to the Supreme Court of India stating that GMOs are safe, she was abruptly removed.

If the government wants to convince the public that they are acting in the public interest and national interest, it needs to take four clear steps:

1. Ban Glufosinate, a known carcinogen, made by Bayer.
2. Don't dilute India's strong IPR and patent system. The lawyer hired by Monsanto to try to dismantle Article 3j was appointed as an expert by the Government to work on the New IPR policy.

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3. Implement the recommendations of the Technical Expert Committee appointed by the Supreme Court, which consisted of leading Indian scientists with no conflict of interest and no collusion with industry. The TEC is the truly independent Indian scientific opinion. The GEAC has been corrupted and its members have strong conflict of interests.

4). Institutionalise strong liability laws for GMOs. It is not enough to say there will be no genetic contamination and pollution of biodiversity. Canadian farmer, Percy Schmeiser, had his crop contaminated. Monsanto used the contamination through Roundup-Ready genes to claim $200000 as fine. The Supreme Court of Canada accepted that Percy had not bought Roundup-Ready Canola seeds, that his crop was contaminated, and struck down the fine. Yet because genes are patentable in Canada, their existence in a plant even through contamination is treated as Intellectual Property infringement.

India needs a strict liability law in the area of GMOs before any approvals are granted. In the absence of a liability law, and with continued attempts to dismantle Article 3j, approvals become a recipe for Bayer Monsanto contaminating our rich biodiversity and claiming royalties and imposing fines as in the case of Percy Schmeiser. Patents on genes and seeds, combined with the inevitability of genetic pollution, leads to "polluters gets paid" instead of "polluter pays".

This battle is not about the narrow issue of a technology. It is about the larger issue of which food and farming system we want – a toxic system which is destroying our biodiversity, people's health, pushing farmers into debt and suicide, and creating a system for wealth drain through Bija Lagaan or a system based on biodiversity, agro-ecology, better nutrition and higher net incomes for farmers. This is a battle for India's sovereignty and survival. If the Poison Cartel wins approval for GM Mustard and succeeds in dismantling Article 3j of our patent law, India will not only be enslaved but as a living civilisation will wither and die.

GM Mustard must be stopped. It is a battle for Life versus Death. ❑❑

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GM Mustard:

Carcinogenic technology versus native seeds

The fight for native seeds versus Genetically Modified food crops has reached a critical stage in India with the Genetic Engineering Appraisal Committee (GEAC) approving GM Mustard for commercial cultivation (May 11, 2017) and opposition leaders joining the fray with demands to be heard before the Government of India gives final approval. As the petition by Indian environmentalists has been before the Supreme Court since 2005, some respite may come from documents in an American court that reveal that, as far back as the 1980s, Monsanto has been actively covering up information regarding the carcinogenic potential of Glyphosate.

Glyphosate is the main ingredient in herbicide-tolerant (HT) genetically engineered (or modified) crops, a billion dollar industry that seeks to control the agriculture and food supply of nations, particularly in the developing world.

In March 2015, the magazine, *Sustainable Pulse*, discovered a 30-year cover up by Monsanto and the US Environmental Protection Agency (EPA) regarding the probable carcinogenicity of the world's most extensively used herbicide – glyphosate. This has now been confirmed by documents released by the US District Court in San Francisco, where over 50 lawsuits against Monsanto have been filed by people alleging that exposure to *Roundup*, a glyphosate-based herbicide, caused them or their loved ones to develop non-Hodgkin lymphoma, and that Monsanto covered up the risks.

On March 13, 2017 US District Judge Vince Chhabria dismissed Monsanto's objections and ordered the unsealing of documents obtained by plaintiffs through discovery. These reveal that Monsanto influenced the EPA to change the March 4, 1985 classification of glyphosate as a Class C Carcinogen (showing suggestive potential of carcinogenic potential) to a Class E category which sug-

GMOs have long been associated with the explosion of superweeds, superbugs, and environmental pollution. warns
Sandhya Jain

gests "evidence of non-carcinogenicity for humans" in 1991. This change in glyphosate classification coincided with Monsanto developing its first Roundup-Ready (glyphosate-resistant) GM Crops.

On May 15, 2017 the chairperson of the Parliamentary Standing Committee on Science and Technology, Environment and Forests, Mrs Renuka Chowdhury, joined the national debate with a letter to Prime Minister Narendra Modi and Minister of State for Environment and Forests Anil Madhav Dave (since deceased), expressing concern over the GEAC approving commercial cultivation of GM Dhara Mustard Hybrid 11 (DMH 11) despite the concerns of environmental groups and agricultural bodies.

Chowdhury urged the Government to "wait till the panel completes its examination and finalises its report on GM products". A member of the panel told the media, "We will call representatives of the GEAC and the ministry… to come and answer what kind of studies they have conducted". Some members reportedly believe that GM Mustard is "not good" for the country: "This is a very serious issue. We have to be very careful about our citizens' health".

Sentiments against GM have been rising over the years. Amidst growing reservations of farmers and independent scientists regarding the science behind genetically modified crops, the World Health Organisation's International Agency for Research on Cancer (IARC) in March 2015 confirmed that glyphosate probably causes cancer. The IARC scientists found 'mechanistic evidence' such as DNA damage to human cells exposed to glyphosate; the report was published in the prestigious *The Lancet Oncology*. Following this announcement, Switzerland, Germany, Colombia, Sri Lanka and other nations banned glyphosate due to its alleged links with cancer, birth defects, kidney failure, celiac disease, colitis and autism. Denmark officially declared glyphosate a human carcinogen.

Moreover, the World Bank's International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) undertook an exhaustive four-year study with 400 experts from all regions to examine the scientific understanding of biotechnology, particularly transgenics (GMOs). The Executive Summary of the Synthesis Report was approved by all Governments attending the Intergovernmental Plenary in Johannesburg, South Africa in April 2008, barring Australia, Canada, and the United States. India approved the Report and participated in the Writing team.

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The IAASTD took its definition of biotechnology from the Convention on Biological Diversity and Cartagena Protocol on Biosafety, which covers the manipulation of living organisms. The Synthesis Report noted that GM crops are contentious, the evidence to date is variable, many risks are still unknown, and there are concerns regarding intellectual property, restriction on seed saving and exchange, and liabilities for farmers.

For instance, GM farmers could cause accidental presence of GM material in neighbouring fields which could cause organic farmers to lose market certification; yet conventional farmers could be sued by GM seed producers if transgenes are detected in their crops via wind pollution (a bitter experience Western farmers have had with Monsanto). The Summary for Decision Makers recommended strengthening focus on agro-ecological sciences rather than GMOs for food security and agricultural sustainability.

India's environmentalists approached the Supreme Court in 2005 (the case is continuing) amidst mounting evidence of the risks from GM crops; their significantly lower yields as compared to non-GM crops; and escalating use of pesticides. The first Bt Cotton crop was harvested in Andhra Pradesh and Maharashtra in 2003. On finding that GM seeds do not increase yields, Gene Campaign joined the litigation, backed by 6.5 lakh farmers through their respective associations.

In this interregnum, the Union Ministry of Agriculture provided Monsanto access to premier public agri-research institutions such as the Indian Council of Agricultural Research and enabled the biotechnology industry to influence national agri-policy. Monsanto began to

decide which Bt cotton hybrids were planted and where, and came to own over 90 per cent of planted cotton seed, until the disaster of 2015. The return to native seeds is not enough, for if a GMO is unsafe it is irreversibly unsafe and lingers in the environment forever.

Experts opine that GM crops should not be allowed for crops in which India is a centre of origin, such as rice, brinjal and mustard. Yet, open field trials have been held in these very crops, obviously to gain control of the entire production through seed patents. After a huge public outcry, then environment minister Jairam Ramesh imposed an indefinite moratorium on Bt Brinjal in February 2010, and cancelled the approval to commercialise it. In August 2012, the Sopory Committee Report and the Parliamentary Standing Committee Report on GM crops said GM seeds and foods are dangerous to human, animal & environmental health.

But the pro-GM lobby has a tireless resilience. In July 2014, the GEAC recommended field trials for 13 GM crops including rice, brinjal, chickpea, mustard and cotton. In January 2015, Maharashtra granted no-objection certificates for open field trials of GM rice, chickpea, maize, brinjal and cotton, at the recommendation of a state-level committee headed by Anil Kakodkar, former chairman, Atomic Energy Commission. Kakodkar's expertise in agriculture and biotechnology is a mystery. The committee was vehemently opposed by the Coalition for a GM-Free India, Swadeshi Jagran Manch, and others. As a result, Maharashtra quietly withdrew permission and asked the Kakodkar committee to revisit the issue on grounds of impact on India's agricultural export trade, farmers' livelihood, and seed diversity.

However, the NITI Aayog vice chairman Arvind Panagariya set up a task force comprising staunch votaries of GM crops, viz., Ashok Gulati, former chairman, Commission for Agricultural Costs and Prices; C.D. Mayee, former chairman, Agricultural Scientists Recruitment Board; P. Chengal Reddy, president of the Hyderabad-based Federation of Farmers' Associations; Ajay Vir Jakhar, chairman, Bharat Krishak Samaj.

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Niti Aayog remains deeply committed to GM crops. On the opposite side are Bharatiya Krishak Samaj (national level apex body of farmers), BJP Kisan Morcha and Swadeshi Jagran Manch.

On May 13, 2017, Prashant Bhushan, lawyer for the environmentalists in the Supreme Court, wrote to minister Anil Dave questioning the GEAC approval for cultivation of Bayer's GM mustard on grounds of legality and the "opaque and unscientific regulatory oversight" that resulted in the clearance. Pointing out that this GM mustard is herbicide-tolerant (HT), he urged withholding approval on three grounds.

First, the Chief Justice of India, on the basis of assurances given by Attorney General Mukul Rohatgi that the Union of India will not release DMH 11 "without the prior approval of the Supreme Court", gave a verbal Order of interim injunction till the case is heard comprehensively and the issue of HT mustard in substance.

The second is the independence, surety and rigour of the oversight of the biosafety of HT DMH 11 which is critical for India's agriculture in mustard, its food safety (both as a vegetable and seed oil), and the certain contamination that will occur to India's mustard germplasm.

The third is the lessons of history of GMO regulation in India, which is embedded in serious conflicts of interest and lack of expertise, and has become farcical. This is why self-assessed safety dossiers by crop developers are kept secret by our Regulators and governing Ministries. Four official reports attest to the utterly dismal state of regulation.

The Bt. brinjal Biosafety-Dossier remained unpublished for 16 months despite a Supreme Court order. When the Regulators were forced to comply with its full publication (with the raw data), independent scientists of international stature discovered its fraudulence. As many as 36 of 37 environmental studies claimed to be done were not done, leave aside other risk assessment protocols. The moratorium which followed was largely due to the fact that India is the world's centre of brinjal diversity with 2500 varieties and wild spe-

cies, which would certainly be contaminated.

The 37th Parliamentary Standing Committee of 2012 observed "collusion of a worst kind" regarding Bt brinjal and regulation, and "recommended a thorough probe into the Bt. Brinjal matter from the beginning up to the imposing of moratorium on its commercialization by the then Minister of Environment and Forests (I/C) on 9 February, 2010 by a team of independent scientists and environmentalists". (Recommendation – Para No. 2.79)

On critically analysing the evidence and gross inadequacy of the regulatory mechanism, the Committee noted the absence of chronic toxicology studies and long term environment impact assessment of transgenic agricultural crops. Worse was the virtual non-existence of oversight bodies like National Biodiversity Authority, Protection of Plant Varieties and Farmers' Right Authority, Food Safety and Standards Authority of India, etc. It recommended that till all concerns voiced in their Report were fully addressed - to put in place all regulatory, monitoring, oversight, surveillance and other structures, further research and development on transgenics in agricultural crops should only be done in strict containment and field trials under any garb should be discontinued forthwith". (Recommendation – Para Nos. 8.116, 8.121 & 8.125)

The Parliamentary Committee also found serious conflict of interest of various stakeholders involved in the regulatory mechanism. In the circumstances, the Committee felt that what the Country needs is not a bio-technology regulatory legislation but all-encompassing umbrella legislation on bio-safety. (Recommendation – Para No. 3.47 & 3.48)

Prashant Bhushan has observed that till date, the GM Mustard dossier has not been published in willful Contempt of Court. He points out that Prof Deepak Pental, alleged inventor of GM Mustard, DMH-11, is Chair of the Department of Biotechnology's Agricultural Biotechnology Task Force. Prof S.R. Rao, Member, GEAC, is overall in-charge of the DBTs Agri Biotech programmes. The DBT funds Pental's GM Mustard. This cozy arrangement has dangerous implications for Regulatory oversight of HT DMH 11 and GMOs in general.

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More pertinently, this HT DMH 11 and its two HT variants are doubly barred by the unanimous recommendations of the 5-member Technical Experts Committee on grounds that it is an HT crop and a crop in a centre of genetic diversity.

The issue of loss of natural biodiversity and GM has never been adequately addressed. That America has lost over 30 varieties of soybeans as a consequence of GM soybean, a pattern that will repeat in all crops exposed to GM varieties, has grim consequences for mankind's food nutrition and food security.

As for GM Mustard, the data wilts on scrutiny. The Directorate of Mustard, Union Ministry of Agriculture, independently interrogated Deepak Pental on the methodology of his field trial, pointedly asking if the transgenic mustard was tested with the prescribed 50 meter (empty) border on all sides, to prevent cross-pollination and contamination of other crops. The team was asked if they had systematically tested the effect of transgenic pollen on the population of honey bees, predators and other farm-friendly insects.

As every part of the mustard plant is used for one or other food purposes, including for cattle, Pental was questioned about his data for safe use; data pertaining to socio-economic issues, including cost of cultivation; and if India would end up promoting the carcinogenic MNC herbicide through GM technology. Also, as Mustard is an oil crop, there is danger of mixing / contamination of oils from GM and non-GM crops. Critical policy issues of labelling, extraction and traceability need fixing well in advance of commercialisation.

Under the Protection of Plant Varieties and Farmers' Rights Authority Act, no registration of a variety can be made in cases where prevention of commercial exploitation of such variety is necessary to protect public order or public morality or human, animal and plant life and health, or to avoid serious prejudice to the environment. No variety of any genera or species which involves any technology (including genetic use restriction technology and terminator

technology) injurious to the life or health of human beings, animals or plants can be registered under the Act. It remains to be seen how Pental and his hidden mentors dodge these issues.

Yet it must be admitted that illegality has long been the modus operandi of the seed MNCs. In 2002, Tamil Nadu women farmers joined the Coalition for a GM Free India and exposed a university in Coimbatore for experimenting with BT Corn; many companies were found engaging in GM rice field trials. Greenpeace activists raided a village near Hyderabad where trials were in progress and farmers were being coaxed to buy herbicide Glufosinate that is banned in Europe for causing birth defects. Glufosinate is toxic to beneficial soil micro-organisms, wild plant communities, and aquatic organisms. It can increase nitrogen leaching from arable fields, rendering them barren, and impact underground acquifers.

In 2006, an agriculture university in West Bengal reported that GM Bhindi (okra) had been planted illegally. The same year, poor farmers in Jhansi were asked to plant "special seeds" of many vegetables, including green chilly.

In March 2011, Bihar Chief Minister Nitish Kumar accused a multinational seed corporation, the Indian Council of Agricultural Research and the Union Environment Ministry's GEAC of conniving to conduct field trials of GM Maize in Bihar without clearance from the Ministry or informing the State Government. He said ICAR's experimental farms did not keep the 'isolation distance' required to prevent spread of contamination; Jairam Ramesh directed the GEAC to immediately withdraw permission for the trials.

Under international norms, GM seeds cannot be introduced for crops originating in a particular country or region, to protect the genetic stock. India is a centre of origin of rice and has over one lakh native varieties, of which 86,330 accessions have been officially recorded. It is the world's second largest producer and exporter of rice. The Economic Survey attests that there is no shortage of rice, food staples, cereals or vegetables in India. Despite this, 11 varieties of rice and 41 food crops have been genetically modified and prepared for open air trials.

Under international norms, GM seeds cannot be introduced for crops originating in a particular country or region, to protect the genetic stock.

GMOs have long been associated with the explosion of superweeds, superbugs, and environmental pollution. Argentina in August 2014 reported doubling of cancer deaths in GMO agribusiness areas. In January 2014, *Natural Society* magazine reported a Danish farmer warning livestock farmers to stop giving their animals GMO feed as it was causing serious deformities.

GMO is a pseudo-science: a gene from one species (a bacterium) is taken and inserted in the DNA of another species (a plant), a violation of the natural barriers that have separated species for millions of years and which can have lethal effects on soil, animal and human health. For Jains and Vegans this raises ethical questions about whether the product is vegetarian or meat, which is why the GMO industry strenuously opposes product labelling.

The mood in India is of cautious optimism. On May 15, 2017 a newspaper reported that the Ministry of Environment had put out a detailed note on its website on May 12, hinting at support to GM mustard hybrid DMH-11, when it suddenly withdrew the note on the pretext of fixing minor errors. Analysts said the move was linked to opposition from BJP-ruled Madhya Pradesh and Rajasthan, which are the country's largest mustard producers. The impugned note had claimed that "The transgenes would not be transferred to humans or animals through consumption of GE mustard," though the developers admit that feeding trials have not been conducted at all. ❑❑

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How 5-star GM 'science' misled and mistook India

For the last decade, the reckoning of what agriculture is to India has been based on three kinds of measures. The one that has always taken precedence is the physical output. Whether or not in a crop year the country has produced about 100 million tonnes (mt) of rice, 90 mt of wheat, 40 mt of other cereals (labelled since the colonial era as 'coarse' although they are anything but, and these include ragi, jowar, bajra and maize), 20 mt of pulses, 30 mt of oilseeds, and that mountain of biomass we call sugarcane, about 350 mt, therewith about 35 million bales of cotton, and about 12 million bales of jute and mesta.

The second measure is that of the macro-economic interpretation of these enormous aggregates. This is described in terms of gross value added in the agriculture (and allied) sector, the contribution of this sector to the country's gross domestic product, gross capital formation in the sector, the budgetary outlays and expenditures (both central and state) for the sector, public and private investment in the sector. These drab equations are of no use whatsoever to the kisans of our country but are the only dialect that the financial, business, trading and commodity industries take primary note of, both in India and outside, and so these ratios are scrutinised at the start and end of every sowing season for every major crop.

The third measure has to do mostly with the materials, which when applied by cultivating households (156 million rural households, of which 90 million are considered to be agricultural only) to the 138 million farm holdings that they till and nurture, maintains the second measure and delivers the first. This third measure consists of labour and loans, the costs and prices of what are called 'inputs' by which is meant commercial seed, fertiliser, pesticide, fuel, the use of machinery, and labour. It also includes the credit advanced to the farming households, the alacrity and good use to which this credit is put, insurance, and the myriad fees and payments that accompany the transformation of a kisan's crop to assessed and assayed produce in a mandi.

It is the distilling of these three kinds of measures into what is now well known as 'food security' that has occupied central planners and with them the Ministries of Agriculture, Rural Development, Food and Consumer Affairs (which runs the public distribution system), and Food Processing Industries. More recently, two new concerns have emerged. One is called 'nutritional security' and while it evokes in the consumer the idea which three generations ago was known

Rahul Goswami exposes lies and misrepresentations of pro-grow lobby.

as 'the balanced diet', has grave implications on the manner in which food crops are treated. The other is climate change and how it threatens to affect the average yields of our major food crops, pushing them down and bearing the potential to turn the fertile river valley of today into a barren tract tomorrow.

These two new concerns, when added to the ever-present consideration about whether India has enough foodgrain to feed our 257 million (2017) households, are today exploited to give currency to the technological school of industrial agriculture and its most menacing method: genetically modified (GM) or engineered seed and crop. The proprietors of this method are foreign, overwhelmingly from USA and western Europe and the western bio-technology (or 'synbio', as it is now being called, a truncation of synthetic biology, which includes not only GM and GE but also the far more sinister gene editing and gene 'drives') network is held in place by the biggest seed- and biotech conglomerates, supported by research laboratories (both academic and private) that are amply funded through their governments, attended to by a constellation of high-technology equipment suppliers, endorsed by intergovernmental groupings such as the UN Food and Agriculture Organisation (FAO) and the Consultative Group on International Agricultural Research (CGIAR), taken in partnership by the world's largest commodities trading firms and grain dealers (and their associates in the commodities trading exchanges), and amplified by quasi-professional voices booming from hundreds of trade and news media outlets.

This huge and deep network generates scientific and faux-scientific material in lorry-loads, all of it being designed to bolster the claims of the GM seed and crop corporations and flood the academic journals (far too many of which are directly supported by or entirely compromised to the biotech MNCs) with 'peer-reviewed evidence'. When the 'science' cudgel is wielded by the MNCs through their negotiators in New Delhi and state capitals, a twin cudgel is raised by the MNC's host country: that of trade, trade tariffs, trade sanctions and trade barriers. This we have witnessed that every time India and the group of 'developing nations' attends a council, working group, or dispute settlement meeting of the World Trade Organisation (WTO). The scientific veneer is sophisticated and well broadcast to the public (and to our industry), but the threats are medieval in manner and are scarcely reported.

India grows food enough to feed its population ten years hence.

The facade of sophisticated science carries with it an appeal to the technocrats within our central government and major ministries, and to those in industry circles, with the apparently boundless production and yield vistas of biotechnology seeming to complement our successes in space applications, in information technology, in nuclear power and complementing the vision of GDP growth. Framed by such science, the messages delivered by the biotech MNC negotiators and their compradors in local industry appear to be able to help us fulfil the most pressing national agendas: ensure that food production keeps pace with the needs of a growing and more demanding population, provide more crop per drop, deliver substantially higher yield per acre, certified and high-performing seeds will give farmers twice their income, consumers will benefit from standardised produce at low rates, crops will perform even in more arid conditions, the use of inputs will decrease, and the litany of promised marvels goes on.

Yet it is an all-round ignorance that has allowed such messages to take root and allowed their messengers to thrive in a country that has, in its National Gene Bank over 157,000 accessions of cereals (including 95,000 of paddy and 40,000 of wheat), over 56,000 accessions of millets (the true pearls of our semi-arid zones), over 58,000 accessions (an accession is a location-specific variety of a crop species) of pulses, over 57,000 of oilseeds (more than 10,000 of mustard), and over 25,000 of vegetables.

And even so, the National Bureau of Plant Genetic Resources reminds us that while the number of cultivated plant species is "relatively small and seemingly insignificant", nature in India has evolved an extraordinary genetic diversity in crop plants and their wild relatives which is responsible for every agro-ecological sub-region, and every climatic variation and soil type that may be found in such a sub-region, being well supplied with food.

With such a cornucopia, every single 'framed by great science' claim about a GM crop made by the biotech MNCs must fall immediately flat because we possess the crop diversity that can already deliver it. Without the crippling monopolies that underlie the science claim, for these monopolies and licensing traps are what not only drove *desi* cotton out when Bt cotton was introduced, but it did so while destroying farming households. Without the deadly risk of genetic contamination and genetic pollution of a native crop (such as, GM mustard's risk to the many varieties of native '*sarson*'). Without the flooding of soil with a poison, glufosinate, that is the herbicide Bayer-Monsanto will force the sale of together with its GM seed ('Basta' is Bayer's herbicide that is analogous to Monsanto's fatal Glyphosate, which is carcinogenic to humans and destroys other plant life - our farmers routinely intercrop up to three crop species, for example mustard with *chana* and wheat, as doing so stabilises income).

Whereas the veil of ignorance is slowly lifting, the immediate questions that should be asked by food grower and consumer alike - how safe is it for plants, soil, humans, animals, pollinating insects and birds? What are the intended consequences? What unintended consequences are being studied? - are still uncommon when the subject is crop and food.

This is what has formed an ethical and social vacuum around food, which has been cunningly exploited by the biotech MNCs and indeed which India's retail, processed and packaged foods industry have profited from too. When in October 2016 our National Academy of Agricultural Sciences shamefully and brazenly assured the Ministry of Environment, Forests and Climate Change on the safety of GM mustard, it did so specifically "To allay the general public concerns". What followed were outright lies, such as "herbicide is used in the process only in hybrid production plot", "The normal activity of bees is not affected", "GE Mustard provides yield advantage", "no adverse effect on environment or human and animal health". None of these statements was based on study.

India grows food enough to feed its population ten years hence. What affects such security - crop choices made at the level of a tehsil and balancing the demands on land in our 60 agro-ecological subzones and 94 river sub-basins - is still influenced by political position, the grip of the agricultural 'inputs' industry on farmers, economic pressures at the household level, and the seasonal cycle. In dealing with these influences, ethics, safety and social considerations are rarely if ever in the foreground.

Yet India is a signatory to the UN Convention on Biological Diversity and its Cartagena Protocol on Biosafety, whose Article 17 requires countries to prevent or minimise the risks of unintentional transboundary movements of genetically engineered organisms. Neither the Genetic Engineering Approval Committee (GEAC), in the case of GM mustard, nor the Department of Biotechnology, the Department of Science and Technology (whose Technology Information, Forecasting and Assessment Council in a 2016 report saw great promise in genetic engineering for India), the Ministries of Environment and Agriculture, the Indian Council of Agricultural Research (ICAR, with its 64 specialised institutions, 15 national research centres, 13 directorates, six national bureaux and four deemed universities), the Council for Scientific and Industrial Research (CSIR) have mentioned ethics, consumer and environment safety, or social considerations when cheering GM.

This group of agencies and institutions which too often takes its cue from the west, particularly the USA (which has since the 1950s dangled visiting professorships and research partnerships before the dazzled eyes of our scientific community) may find it instructive to note that caution is expressed even by the proponents of genetic engineering technologies in the country that so inspires them. In 2016, a report on 'Past Experience and Future Prospects' by the Committee on Genetically Engineered Crops, National Academies of Sciences, Engineering, and Medicine of the USA, recognised that the public is sceptical about GE crops "because of concerns that many experiments and results have been conducted or influenced by the industries that are profiting from these crops" and recommended that "ultimately, however, decisions about how to govern new crops need to be made by societies". Practices and regulations need to be informed by accurate scientific information, but recent history makes clear that what is held up as unassailable 'science' is unfortunately rarely untainted by interests for whom neither environment nor human health matter. ❑❑

About the Author: The author is a UNESCO expert on intangible cultural heritage in the Asia region, and is adviser to the Centre for Environment Education Himalaya

HT Dhara Mustard Hybrid 11: High yield claims fabricated

The Union of India in their 'REPLY' in the Supreme Court stated: "No such claim has been made in any of the submitted documents that DMH 11 out-performs Non-GMO hybrids. The comparison has only been made between hybrid DMH 11, NC (national Check) Varuna and the appropriate zonal checks — MSY of 2670 Kg/ha has been recorded over three years of BRL trials which is 28 per cent and 37 per cent more than the NC & ZC respectively" (page 55, point 86-88). "Heterosis is due to the careful selection of parents and not due to the three transgenes" – "The developers have nowhere claimed that the yield increase is due to the three transgenes"(At 65, page 45)

These statements on YIELD effectively bury any justification for this mustard, and mean:– Deepak Pental's Dhara Mustard Hybrid, DMH 11, has failed the first criteria of a risk assessment protocol of a Genetically Modified crop: 'Is the GM Crop required in the first place'? The answer is "No".

Despite this, it was approved for further testing in a chicanery process of regulation over a period of more than 10 years, and in different EVENTs. It has survived in this fashion during its history of testing, one stage to the next, in a much hyped step-by-step process of profoundly flawed regulatory oversight, amounting to fraud that has everything to do with copious rules on paper, but nothing to do with substance.

The whole truth uncovered is that no valid comparators were used and the field trials themselves stand voided on the basis of serious anomalies and violations in field testing, inconclusive results and even statistical fraud. Yet, conclusions were drawn and disseminated to mean that DMH 11 is a superior hybrid-making technology that will out-yield India's best Non-GMO hybrids and varieties. The fact is that Non-GMO hybrids and varieties out-yield HT DMH 11 hands down.

In India, Bt Cotton has failed on the Central Government's own admission in the Delhi High Court (2016). states

Aruna Rodrigues

Yet, and strangely, the opposite story is widespread in the media.

The stand of the Niti Aayog is particularly curious. The Niti Aayog also believes that GMOs provide superior yield, even though not a single GMO at present has any trait for yield and the two technologies of both HT and BT, currently 99 per cent of plantings world-wide, have proven to be unsustainable (official data USDA & Government of India).

In India, Bt Cotton has failed on the Central Government's own admission in the Delhi High Court (2016). The claim of superior yield is the basis of the Niti Aayog's endorsement of GMOs in their National Agriculture Policy for India's food security! Therefore, that this is also the advice that has been received by the PM/PMO would be the natural conclusion. It is very troubling that the Niti Aayog has failed to do some basic homework. Where is the science, where is the truth? The fact is that Attorney General Mukul Rohatgi actually stated in the Supreme Court that HT DMH 11 would substantially reduce our import bill of edible oil. If there is no superior yield, this logic is ludicrous. It gains further stupefaction when we consider also that the nearest equivalent to mustard oil is rape seed oil; and that import, in the form of mainly GM Canola from Canada, is less than 2 per cent of our total oil-seeds imports of Rs 68,000 crore.

Intended Deregulation of HT Hybrid DMH 11

"Once the GE Mustard events Varuna bn 3.6 and EH2 modbs 2.99 are approved and deregulated, these would be immediately used by the National network programme" – "Once a robust pollination control mechanism is in place, yield of hybrids can be further improved by breeding better parental lines" (at 63, pg. 43).

The statement is pure spin, dissimulation. Unless deconstructed, it conveys that: Herbicide Tolerant (HT) DMH 11 is a superior hybrid-making technology (which it is not); that will (alone) provide 25 to 30 per cent higher yield and even better, (not true, as admitted), because on the contrary, India's best Non-GMO hybrids and varieties are already significantly outperforming HT DMH 11.

Unfortunately and regrettably, the plain truth is that decades of good work already being done by our agricultural institutions and the Directorate of Rape-seed Mustard in superior Non-GM hybrid technology and also superior-yielding varieties will be laid waste in this dangerous plan for the country via HT Hybrid DMH 11 and its variants. We believe that there is substantial US pressure to do so (this is not new). It will destroy, contaminate and convert India's mustard agriculture, in a massive and dangerous experiment, to (GM) HT hybrid mustard, (through variants of DMH 11). It happened in Bt cotton.

Conclusion/Fact 1: HT Mustard DMH 11 is disqualified as a GMO on the recommendations of the Technical Experts Committee because it is: (a) An Herbicide Tolerant Crop; (b) a crop in a 'Centre' of genetic diversity (like Brinjal). The official ruse was to deny both facts. It didn't succeed. There are 9720 Accessions in our gene banks (National Bureau of Plant Genetic Resources). There is no question but that on commercialisation, we will be contaminated, as happened in Canada in Rape Seed (same technology). GMO contamination is neither remediable nor reversible and is the outstanding concern. The genes in HT hybrid DMH 11 are toxic genes: being an HT crop also means that DMH 11 is a pesticidal crop.

Conclusion/Fact 2: Even if *swadeshi* which is *NOT*, its nationality doesn't change the science. It stays this way whether foreign or Indian! How do we get carried away on such a bandwagon?

Conclusion/Fact 3: This HT mustard DMH 11 will make no impact on domestic production of mustard oil, leave alone the import oil bill. So will our government forcibly change the preference of over 1 billion Indians for pure mustard oil to HT Mustard DMH 11?

Conclusion/Fact 4: Given the certain GMO contamination (of Non-GM Mustard) which will occur, our mustard will be changed at the molecular level. Any toxicity will remain in perpetuity. Is the Government prepared for such a monumental risk to put India and its people in jeopardy without any recourse and remedy?

Conclusion/Fact 5: Till date, the GM mustard dossier remains unpublished in willful Contempt of Court. Prof Deepak Pental is the chair of the Department of Biotechnology's Agricultural Biotechnology Task Force. Dr S.R. Rao, Member, Genetic Engineering Appraisal Committee (GEAC) is overall in-charge of the DBTs Agri Biotech Programme. The DBT also funds Pental's GM Mustard. This cozy arrangement says it all. ❑❑

About the Author: Aruna Rodrigues is the Lead Petitioner in the public interest litigation on GMOs filed in the Supreme Court of India

The make-believe wonderland of GM Mustard

India is on the cusp of making its biggest agricultural miscalculation. The intent and consequences of this action, should it proceed, are far more sinister, with its impacts more irreversible than even those of the Green Revolution. Genetically Modified mustard is reportedly close to being approved for commercial cultivation by the Government of India and it is not without reason that voices against it are growing. If GM technology is as wondrous as its supporters claim, and is the answer for improved yield and lower costs, why has it not been embraced more widely? Why do we have farmer groups protesting the introduction of GM crops and, more recently, why have state governments opposed GM mustard? Quite simply, because the good sense of farmers has halted its spread.

So far, India has officially approved only GM cotton (Bt cotton) for commercial cultivation, while several GM food crop trials have been under way for many years now (these are fundamentally illegal, as biosafety and ethical guidelines have been flouted). But that may change if the current government, for the first time in India, gives approval for commercial cultivation of genetically modified food crops, starting with mustard.

Desperate to corner the Indian market, which is seen by international agribusiness as vital for the long-term profitability of the food bio-technology companies, the GM seed companies have pulled every likely trick out of their well-funded hats to try and make their arguments about GM crops convincing. The latest attempt by those favouring GM mustard is to claim that India needs to lower its edible oil import bill and GM mustard is the answer.

This is cleverly using a mistake of our own making - in calendar 2016 India imported 8.2 million tonnes of palm oil and for financial year 2016-17 edible oil imports cost us Rs.73,000 crore - to argue in favour of what is presented as a 'desi' high-tech answer. The reason India imports such vast quantities of edible oil is not because of low yields of our traditional mustard but because absurdly low import duties has made the import of palm oil (a substance in which Indian foods

The current government with its Made in India initiative must recognise that India is the home of oilseed diversity reminds
Viva Kermani

should never be cooked) much cheaper than 'desi' oil.

This policy has forced the oilseed farmer out of contention. Instead, the government should offer farmers a support price for indigenous oilseeds (there is none) in order to reverse the import dependence on edible oils such as soy bean oil and palm oil whose entry into our country was engineered in 1998 by the same interests that are now using the same import dependence argument in an attempt to promote GM mustard.

Then there is the issue of yield. There is no evidence that GM crops have higher yields than non-GM crops. The 'evidence' that is rolled out comes from the industrial farming systems of the west, none of which has studied yield curves, input costs and environmental degradation over several growing seasons, let alone over even ten years. In fact after almost two decades of Bt cotton, the central government's own admission in the Delhi High Court in 2016 stated that Bt cotton indeed was a failure in India. Official data and analysis shows that pesticide usage increased in the case of Bt Cotton. Studies also link farmer suicides to that of Bt cotton with exposure to highly hazardous chemical fertiliser being as likely a factor as chronic indebtedness. There is now a growing demand by cotton farmers to switch to 'desi' cotton.

This technology is facing stiff opposition both in India and outside. The fact that 16 countries of the European Union have banned GM food, Russia has outright banned GM cultivation on its soil, and even in China there is growing consumer demand for GM-free food, all show that this so-called wondrous technology has no substance. Russian Prime Minister Vladimir Putin has gone on record to describe GMOs as a form of biological warfare weapon.

If one asks, 'do we have enough evidence that unequivocally proves that genetically modified foods are safe for human consumption', the answer is a clear no. With plans afoot to allow GM mustard to be introduced in India, we must get answers regarding its safety. The regulator in India, Genetic Engineering Appraisal Committee (GEAC), that has approved clearance of GM mustard, has not put biosafety information related to this GMO in the public domain. Even RTI applications have been repeatedly turned down. If the safety trials that were conducted were indeed satisfactory, as claimed, why the secrecy?

If one asks, 'do we have enough evidence that unequivocally proves that genetically modified foods are safe for human consumption', the answer is a clear no.

Since this kind of genetically engineered food is new, we still do not know what the full consequences on human health are, particularly the potential of gene transfer, as is the case with all GM crops, to similar and other species. Hence, much more research and evidence is required to confirm that there is no health impact on the consumption of GM food. Recently, the World Health Organisation linked the high rates of cancer to the presence of herbicides used on GM crops. GM mustard, therefore, is not just about edible oil.

Mustard is an important medicine in ayurveda, which is relied on by crores of Indians. It is used for therapeutic massages, muscular and joint pains. Mustard and its uses are extensively documented in ayurvedic literature like Caraka Samhita, Sushruta Samhita, Bhela Samhita and Kashyapa Samhita. If the genetic make-up of this oil changes, its efficacy in treatment will not remain the same.

Further, ayurveda, which has survived through the ages, advocates eating food that is as close to its natural form as possible. The current health crisis and the rise in incidents of cancer in the west have been brought on by an over-reliance on food that is loaded with chemicals, mechanical and artificial treatments. In line with this, in an interview with *The Times of India*, P.C. Kesavan, a radiation biologist and distinguished fellow at M S Swaminathan Research Foundation, warns against dangers of fiddling with nature and the hazards of genetically modified food.

Spices have been an important part of our ancient history, culture, trade and agriculture; as a crop, mustard originated in India. In Sanskrit it is called '*Sarsapa'* or '*Rajika'*. Mustard is a food crop, too, in India and is eaten extensively in north India. *Sarson ka saag* (mustard leaf) is the best known food linked to Punjab. Mustard, known in north India as '*sarson'*, is central to our culture. It is the symbol of spring and renewal. The yellow of the mustard flower is the colour of spring, '*basant'* and is an integral

part of Punjabi folk culture and its oil the heart of Bengali cuisine.

While there is slow return to natural farming as well as an organic mission by the Ministry of Agriculture, state governments must be aware of the inability of genetically modified crops and natural crop varieties to coexist, without the risk of contamination of the latter. This is particularly relevant in the case of mustard. Mustard is a tiny seed that is easily carried away by wind. A GM seed therefore can contaminate large areas very easily, so if an organic field exists adjacent to a GM crop growing field, contamination is certain.

Health hazards apart, food growing countries, states, districts and farmers understand fully well that GM technology is also about patents and control. Letting GM in means exposing the farmer, the consumer, and the nation, to unacceptable risk. Our seed sovereignty is dear to us. That is why the Bharatiya Kisan Union (BKU), India's largest farmer union, since 21 July 2014 has repeatedly stated that GMOs in India are not needed and are unsafe. Mustard seeds are as old as our civilization. How then can we possibly allow this seed to be tampered with and give way control to a seed company?

The current government with its Made in India initiative must recognise that India is the home of oilseed diversity and one of the largest producers of oilseeds in the world, ranking first in the production of groundnut and sesame, and second in mustard. Consumption preferences for different oil seeds vary across different regions, and between rural and urban from mustard to sesame to groundnut, to coconut to peanut. Given the range of indigenous oils in India, the production of these must be encouraged and enhanced. There is no case for importing edible oil if right steps are taken by the government.

The steadfast opposition to this technology is grounded in the recognition that our country's immense biodiversity of seeds, plants and life forms is our collective heritage, which has evolved through the cumulative innovations, adaptations and selections of many generations of indigenous farming communities, for whom these seeds and life forms are sacred. Giving this away, is giving away our heritage. ❑❑

About the Authro: Viva Kermani has a post-graduation certificate in Environmental Management from the School of Oriental and African Studies (SOAS), London, UK. Her areas of study for this qualification were ecology, environment economics & policy, climate change and development. Based in Bangalore, she runs a non-profit that works to create more environmentally and culturally sustainable societies and undertakes activities for promoting ethical and sustainable business practices of small and marginal farmers in India. She writes regularly on issues around environment, sustainability and GM crops.

Swadeshi Jagran Manch opposes GM mustard

Swadeshi Jagran Manch, an affiliate of the Sangh Parivar, has asked Prime Minister Narendra Modi to withdraw the permission given in "undue haste" to cultivate GM Mustard crop, insisting that it is "unscientific, toxic and anti-biodiversity" and challenged claims that it will improve yield of edible oil. SJM co-convenor Dr. Ashwani Mahajan has written a letter to Modi expressing 'deep anguish' over the recommendation made by Genetic Engineering Appraisal Committee (GEAC) for approval to GM Mustard cultivation on the grounds that it is safe and nutritious.

He has also countered the claim that this step will increase production of edible oil and reduce the country's import bill. "We would like to emphatically state that, this presumption is based on manipulated data, false conclusions and lobbying by vested interests," he said in his letter. Mahajan has also maintained that GM Mustard is not swadeshi (indigenous) as a subsidiary of a foreign company holds the product patent for it. SJM maintains that GM Mustard has no yield advantage over Indian hybrids.

"Data from Rapeseed Mustard Research (DRMR), Bharatpur clearly show that the claim that GM mustard would increase yield by 26% is deceptive and misleading as there are several existing hybrid varieties that outperform the transgenic variety DMH-11," Mahajan said. SJM has questioned the claim that GM Mustard would get valuable foreign exchange and made the point that the royalty payment by the developer to the company holding the patent has not been factored in. SJM has also alleged that no long-term or feeding tests have been conducted on the crop to ascertain its effect on humans and animals.

"Swadeshi Jagran Manch sincerely appeals to you to intervene in the matter and ensure that no permission is given to GM mustard," Mahajan said.

http://economictimes.indiatimes.com/

Australia first to eliminate farm export subsidies from its WTO schedule of commitments

Australia has become the first WTO member with export subsidies entitlements to eliminate them from its WTO schedule of commitments, in line with the landmark 2015 commitment by WTO members to eliminate farm export subsidies.

At the 2015 Nairobi Ministerial Conference, WTO members agreed to abolish agricultural export subsidies and set disciplines on export measures with equivalent effect, levelling the playing field for farmers around the world. By eliminating export subsidies, WTO members have made a collective and historic contribution to delivering on a key target of the United Nations' Sustainable Development Goal to end all forms of hunger and malnutrition.

Australia is the first WTO member among the 16 members with export subsidy entitlements in their schedules of commitments to take the step of modifying their schedules. Australia's modified schedule is effective as of 22 May 2017, three months after the document outlining the changes was circulated to WTO members. *(https://www.wto.org/)*

DG Azevedo welcomes Japan's leadership to strengthen global trade

Director-General Roberto Azevêdo praised Japan's leadership in the multilateral trading system during his visit to Tokyo on 22 May, where he discussed the WTO's future work with Prime Minister Shinzo Abe, high-level government officials and private sector representatives.

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Abe, high-level government officials and private sector representatives.

On the occasion of their meeting, Prime Minister Abe and Director-General Azevêdo stressed the importance of global trade to promote economic growth, prosperity and development in Japan and around the world, and discussed how Japan and the WTO could continue to work together to strengthen the multilateral trading system. Following their meeting, PM Abe and DG Azevêdo issued a joint statement, which is available here.

The Director-General said: "Japan is a founding member of the WTO – and has always played a very active role in our work in a variety of ways. I am encouraged by Japan's continued leadership to work with the WTO and strengthen the multilateral trading system, so it can deliver more for jobs, growth and development in Japan, and around the globe. I look forward to working with Japan to achieve this and more."

The Director-General also held meetings with Minister for Foreign Affairs Fumio Kishida, Minister of Agriculture, Forestry and Fisheries Yuji Yamamoto and State Minister of Economy, Trade and Industry Yosuke Takagi. As part of his visit, DG Azevêdo delivered a speech at JETRO (Japan External Trade Organization). *(https://www.wto.org/)*

WTO opens online registration for 2017 Public Forum

Online registration for the 2017 Public Forum is now open. Entitled "Trade: Behind the Headlines", the Forum will provide an opportunity for participants to go beyond the rhetoric and examine the opportunities trade can offer and the challenges it can bring. The Forum will be held at the WTO headquarters in Geneva from 26 to 28 September.

Those interested in attending the Forum should submit an online application form no later than 12 September 2017. For more information please visit the Public Forum webpage www.wto.org/pf17

Participation at the Forum is free of charge. Travel and accommodation costs are to be borne by participants. For nationals of least-developed countries, the Geneva Welcome Centre (CAGI) provides support to individuals requiring a grant for accommodation during the Public Forum. Please follow the link to verify your eligibility and consult the procedure to be followed in order to apply for a grant.

The Public Forum is the WTO's largest annual outreach event. It provides a unique platform for heads of states, parliamentarians, leading global business people, students, academics and non-governmental organizations to come together and debate on a wide range of WTO issues and on some of the major trade and development topics of the day. Over 1,500 participants attend the Forum each year. *(https://www.wto.org/)*

Swadeshi Jagran Manch hails India's OBOR stand, urges Centre to bar Chinese firms

Hailing the Narendra Modi government's tough stand on 'One Belt one Road (OBOR)' issue, RSS' economic wing Swadeshi Jagran Manch (SJM) on Sunday exhorted the Centre to bar all Chinese companies from government tendering processes, restrict imports from the neighbouring country and keep Chinese firms off investments in India.

In a resolution passed by its National Council on Sunda in Guwahati, SJM has welcomed the recent government moves to boost indigenisation in government procurement by way of the amended Rule 153 of General Financial Rules 2017 and called for a full-fledged legislation on the lines of Buy America Act, 1933 for preferential treatment to Indian companies.

"This act of the government would definitely free the government's procurement of Chinese and other foreign goods. Swadeshi Jagran Manch demands that the government should extend this preferential policy to the indigenous services also and no foreign consultants and foreign service providers should be hired in the government departments. Apart from saving valuable foreign exchange this would go a long way to reduce foreign influence on our policy making", the SJM resolution said.

"We further urge upon the central government to persuade state governments to follow the suit for preferential treatment to the ingenious goods," the resolution adds. *(http://economictimes.indiatimes.com/)*

CPEC may lead to increased tensions between India and Pakistan, says UN report

Addressing India's concerns regarding the China-Pakistan Economic Corridor (CPEC) passing through Pakistan occupied Kashmir (PoK), a United Nations report has said that the project might further ignite tensions between India and Pakistan. According to the report released by the UN's Economic and Social Commission for Asia and the Pacific (ESCAP), the $50 billion project could "fuel separatist movement" in Pakistan's Balochistan due to opposition there.

"The dispute over Kashmir is also of concern, since the crossing of the CPEC in the region might create geo-political tension with India and ignite further political instability," the report said with regards to China's Belt and Road Initiative (BRI). According to the report, which was prepared at the request of China, the instability in Afghanistan could affect the "viability of the CPEC", over which India has already raised protests with China. India had also boycotted the last week's BRI summit in Beijing.

"Afghanistan's political instability could also limit the potential benefits of transit corridors to population centres near Kabul or Kandahar, as those routes traverse southern and eastern Afghanistan where the Taliban are most active," the report said. Other economic corridors of the BRI such as the Bangladesh-China-India-Myanmar Economic Corridor (BCIM) were also covered in the report. The report also said that the CPEC could prove to be a "driver for trade and economic integration" between China, Pakistan, Iran, India, Afghanistan and the Central Asian states.

"However, social and environmental safeguards are a concern. The CPEC could lead to widespread displacement of local communities. In Balochistan, there are concerns that migrants from other regions of Pakistan will render ethnic Baloch a minority in the province," the report said.

Among other concerns, the report mentioned that farmlands and orchards in western Pakistan could be destroyed as the CPEC will pass from the already narrow strip of cultivable land in the region. It added that the "resulting resettlements would reduce local population into an economically subservient minority".

"Marginalisation of local population groups could reignite separatist movements and toughen military response from the Government," it said. (http://indianexpress.com/)

Not Ready For GM Mustard Seeds: Prabhulal Saini

Rajasthan's Agriculture Minister Prabhulal Saini on Wednesday said the state was not ready to introduce genetically modified (GM) mustard and was doing well with normal seeds.

"There is a debate going on over this issue at the international level. We will wait for the results," he said on the sidelines of a three-day Global Rajasthan Agritech Meet in Kota. Mr Saini said GM mustard research will not be happening anytime soon in Rajasthan. He said while the productivity of GM mustard is said to be 16 quintals per hectare, Rajasthan is already producing 28-30 quintals with normal seeds.

"So why should we do away with our traditional seeds? The oil content in our mustard is 40-42 per cent, the highest in the country," he said. On the central government push for the GM crop, he said agriculture is a state subject under the Constitution.

"It is up to the Rajasthan government to decide which crop should be grown here and which shouldn't be," the Minister said. "Even if the central government takes a call to introduce GM mustard, we will protest and tell them we are not in a hurry to introduce it." Mr Saini said many countries had rejected the GM crops. "Currently, our stand is that we will never have trial runs for GM crops in Rajasthan unless there is a global consensus on its safety," he said.

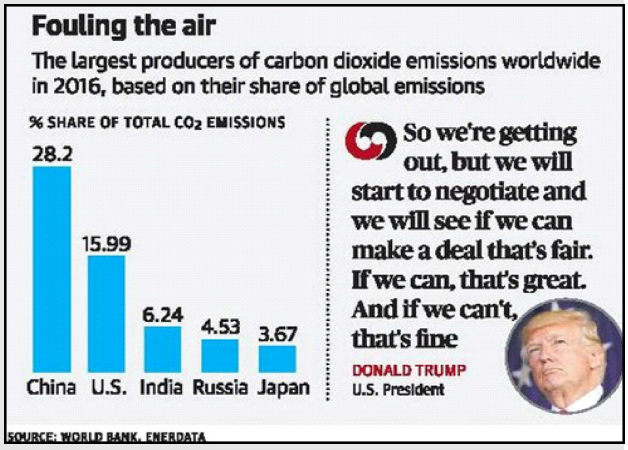
"We will wait and see what decision is taken at the national and international levels." The Minister said his views were not that of an expert but of a farmer.

"If we play with nature, we won't benefit from it," he said. On May 11, the Union Environment Ministry's Genetic Engineering Appraisal Committee (GEAC) gave a positive recommendation to GM mustard. However those opposed to it urged the Union Environment Minister against the crop, claiming tests were rigged. The approval is now with the Environment Minister and if approved, GM Mustard could be the first genetically modified food crop to be cultivated in India. *(http://www.ndtv.com/)*

SJM asks Centre to review India's global trade ties

RSS-affiliate Swadeshi Jagran Manch (SJM) has said India should comprehensively review its present and proposed international trade agreements as "days

Trump targets India, China as U.S. exits climate pact



The U.S. has stopped implementation of its commitments under the Paris climate agreement signed by 195 countries in 2015, President Donald Trump announced on Thursday, ignoring pleas from international allies and a significant section of U.S. political and business leaders. The accord "would undermine our economy, hamstring our workers, weaken our sovereignty…," Mr. Trump, who had campaigned in the 2016 election promising to pull out from it, said. The Paris agreement gives undue advantage to India and China, "the world's leading polluters", at the cost of U.S. interests, Mr. Trump said, unravelling a critical area of mutual interest and cooperation between New Delhi and Washington in recent years. India ratified the agreement last year, and former President Barack Obama considered it as a defining legacy of his tenure.

Mr. Trump's tirade against India, whose per capita carbon emission is one-tenth of the U.S., comes ahead of a likely visit by Prime Minister Narendra Modi to Washington later this month. "China will be allowed to build hundreds of additional coal plants… India will be allowed to double its coal production by 2020. Think of it: India can double their coal production. We're supposed to get rid of ours," the President said, adding that the agreement "is less about the climate and more about other countries gaining a financial advantage over the U.S." "India makes its participation contingent on receiving billions and billions and billions of dollars in foreign aid from developed countries," Mr. Trump said, of the financing commitments by developed countries under the pact that is widely considered inadequate to deal with the challenges of climate change.

The President's decision was immediately challenged by the Democrats and business leaders. "Disappointed with today's decision. Google will keep working hard for a cleaner, more prosperous future for all," CEO Sundar Pichai posted on Twitter. Tesla CEO Elon Musk and Disney CEO Robert Iger resigned from the President's economic advisory council in protest. GM said it considered clean energy technologies as a good business opportunity. *(http://www.thehindu.com/)*

of globalisation are over."

The Narendra Modi-led government has crossed its mid-term and now it is time for them to evaluate the current national and international economic situation, SJM co-convener Ashwani Mahajan said. Trump's victory on the plank of 'America first' and Britain's exit from the European Union point out that after 25 years of aggressive globalisation, de-globalisation has started, he said. "It is high time the Centre reviews the trade agreements of India with other countries and instead of relying on international trade growth, the government should focus on domestic demand-led growth," he said. The RSS forum also appreciated the Centre's stand on One Belt one Road (OBOR) issue, and demanded a ban on all Chinese companies from tender processes in government-related projects. India has expressed reservations over the China-Pakistan Economic Corridor (CPEC), a flagship project of China's prestigious One Belt and Road (OBOR, citing violation of its sovereignty and territorial integrity. *(http://www.business-standard.com/)*

China Nearly Doubles Tax on Some Sugar Imports to 95%

Beijing is nearly doubling its tax on some imported sugar—further weighing on one of the worst-performing commodities of 2017. Saying that an investigation had found that imports have seriously damaged China's sugar industry, the Ministry of Commerce said the tax on imports beyond the first 1.95 million tons a year will be raised to 95% from the current 50%, effective immediately. After a year, the rate will fall to 90%; after two years, to 85%. The tax on the first 1.95 million tons will remain 15%.

China is the world's largest sugar importer. Combined official and illegal imports rose 60% in the three years through Sept. 30, the U.S. Department of Agri-

culture estimates. Official imports for the current crop year, ending Sept. 30, were projected to reach 3.5 million tons. Sugar prices in China, whose production is barely half of consumption, are more than double the global price—making it profitable to import even with a 50% tariff. But the tax increase "is going to disincentivize imports," said Charles Clack, a sugar analyst at Rabobank, making importing sugar a lot less competitive compared with growing domestically. Sugar production in China is less mechanized, and hence more expensive, than in much of the world.

Chinese imports of the animal feed dried distillers grains fell by half in 2016, after Beijing imposed new tariffs following a dumping investigation. It is a testy time for international trade. China's announcement of a sugar investigation last September came barely a week after the U.S. challenged China at the World Trade Organization over its support program for wheat, rice and corn growers. There is a longstanding dispute between the U.S. and Mexico over whether Mexico dumps subsidized sugar in the U.S. market. *(https://www.wsj.com/)*

China faces heat due to boycott of goods in India: Manmohan Vaidya

Akhil Bhartiya Prachar Pramukh of Rashtriya Swayamsevak Sangh (RSS), Dr. Manmohan Vaidya, asserted that China has suffered a major loss of Rs 1000 crore due to boycott of its goods in India. "The RSS and Swadeshi Jagran Manch is continuously trying to campaign to boycott the goods made in china or any other foreign country. Moreover the workers of the party is trying to make people aware of the China's conspiracy against India which it has been doing by supporting Pakistan in its terror activity. Due to this China has to face a loss of Rs 1000 crore," said Vaidya.

He said that the major agenda of the Swadeshi Jagran Manch is to encourage the Small and Cottage industry in India and for which the workers of the Sangh is visiting various places of India for spreading awareness. Kerala opposes commercialisation of Genetically Modified mustard in the country

Kerala assembly passed a resolution, demanding that the Centre withdraw the decision to grant permission for production and cultivation of Genetically Modified Mustard seed for commercial purposes. Moving the resolution, Agriculture Minister V S Sunil Kumar said it was unfortunate that the Centre's Genet-

ic Engineering Approval Committee (GEAC) had accorded sanction for production and cultivation of GM mustard. GM crops would be cultivated in the country if it was also approved by the Environment Ministry and 'it is a very serious issue', he said.

He demanded that the Centre not implement GEAC's decision as GM seeds would adversely affect farmers and the agriculture sector. It would destroy traditional seeds and farmers would have to depend on multinationals for their cultivation. He said most states are also against GM crops. Kumar said it has not yet been proved if GM crops would result in more yields, and claimed that it has been found that GM seeds attracts new insects. Powerful pesticides would have to be used to safeguard crops from attacks of these insects, which in turn would harm human health, he pointed out. *(http://www.sify.com/)*

Job loss overstated: Infosys

IT services major Infosys today said it will hire 20,000 people this year as against only 400 people being asked to leave on performance grounds and termed reports of large-scale job losses as "overstated". Infosys COO U.B. Pravin Rao said the technology-driven transformation presents new opportunities for companies like Infosys. "With respect to all the talks of layoffs, it's regular performance based things that we do every year. The number is really 300-400, which is consistent with what we have seen every year," Mr. Rao told reporters after a 30-minute meeting with IT Minister Ravi Shankar Prasad. He said the country's second largest software exporter is "creating more jobs, adding more people and letting go of only [a] minuscule number of people, purely from performance related perspective".

Mr. Rao met the minister along with Infosys co-chairman Ravi Venkatesan. He declined, however, to comment on views of Infosys co-founder N.R. Narayana Murthy that jobs can be protected if the senior executives of companies take salary cuts and invest in employee re-skilling. *(http://www.thehindubusinessline.com/)*