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Genetically Modified Foods: The Empire Strikes Back?

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GM food has the potential, if unregulated and unchecked, of becoming a weapon of mass destruction, rather than the intended weapon of mass consumption.



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The so-called “Clash of Civilizations” is conventionally framed within political and ideological terms. Yet, it is possible to move beyond these modalities and study the relationship between East and West in ways that delineate points of commonality. The primary unifier of civilizations in this regard is food. In an ever shrinking world, it is possible for someone to visit and patronize McDonald’s in Karachi or Pizza Hut in Mecca, while it is now equally commonplace to enjoy curry in London or falafel in Detroit. However, food has often become both an unintentionally divisive and controversial issue, transcending nation, community and religious persuasion. The cause of this emergent polemic is the science of genetically modified (GM) food.

Within the area of genomics, concerns of GM foods are usually eclipsed by issues

such as cloning and stem cell research. Given the public’s fascination with the sensational – and speculation of the fruition of the darkest aspects of science fiction – GM foods assumes a proportionately subordinate priority in the collective consciousness and the media. Yet, there is a relatively low probability that these two facets of genomics will affect society, and/or certain individuals, on a quotidian basis. But unless human life develops an alternate “fuel” source for itself, then GM foods, which will constitute 90% of all food consumed in a decade, affects everyone, everyday. The feckless disregard and neglect of this matter has reached a critical stage. The current clash between the United States and the European Union over GM foods bears testament to the burgeoning nature of this issue – a matter of considerable coverage

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east of the Atlantic and relative silence to its west – but a controversy that will nonetheless reach the developing world, and with consequences far greater than mere trade disputes or differences of perspective. The gravity of the situation is reflected by its intra – and inter-civilizational scope.

As a high percentage of the developing world is rooted within an agrarian society, agro-economics plays a critical role in the viability of the various countries involved. The vast majority of food consumed today is genetically modified in some form or the other. Seeds are the elemental units for this technology, and are the device for a potentially devastating impact on already fragile economies.

The pace of technology has overtaken the ability to thoughtfully address the economic, ethical and social issues of GM food. Inhabitants in the West have an imperative, and ability, to challenge and effectuate policy to prevent both “economic colonization” of developing countries as well as adverse consequences on the domestic level.

The Fundamentals of Genetically Modified Food

The science of GM foods requires the alteration and manipulation of the genetic makeup of living organisms, be

they plants, animals or bacteria. Recombinant DNA technology, or the conflation of genes from different organisms, is the vehicle for GM food development. Although not a new phenomenon, these devices and techniques have been greatly enhanced by the recent innovations in the field of genome sequencing. Although colloquially referred to as GM food, animal and plant feeds, medicines and vaccines all come within its purview.

Ecological Impact of GM Foods

There are certainly benefits to GM technology, particularly within the realm of ecological impact. For crops, it means reduced maturation time, a higher yield per acre, especially given the dwindling amount of arable land and the effects of population encroachment. In addition, GM use can increase nutrients and improve resistance to disease and pests. To benefit domestic animals, GM technology has the potential to create higher quality feed, translating into a higher output of meat, eggs and dairy products.

GM technology has significant environmental import as well. Enhanced conservation of soil, water and energy – three critical and endangered components of the planet’s ecosystem -- is a prime effect. Greater efficiency in land use and waste

management, coupled with reduction in pollution emission, may also be anticipated.

The positive consequences of GM technology on the environment are not, however, the only results foreseeable; each benefit may be countered with an equally pernicious cost. A real danger exists with the overproduction of crops as the impetus for farmers to maximize their yield per acre becoming irresistible. The ensuing over-taxation of the land could ultimately render it useless for the very purpose sought. Although resistance of crops to disease and pests has constructive value, the disruption to the balance of the ecosystem is unclear. As a parallel to the emergence of drug resistant "super-bacteria" due to the over-prescription of antibiotics, the creation of pesticide-resistant insects is a distinct possibility.

Finally, in a post-Kyoto Treaty world, there is concern that new GM plants will become like weeds -- growing rampantly and aggressively without the ability to control them. In addition, new GM plants could transfer their genes to "wild"/unmodified plants with unforeseen consequences. It shall be difficult enough controlling those species that have been altered and modified genetically; coping with those not anticipated to be created is uncharted territory.

Food Safety with "Frankenfood"

While everyone may not be a farmer, everyone is a consumer of the end products of agriculture. GM foods will doubtless have a significant impact on human beings as they become increasingly prevalent. As with any new technology, the full consequences and impact of GM foods cannot be ascertained adequately. The safety of the food upon its consumers is an area of great interest, and concern, for researchers and the public alike. Since the introduction of GM foods in the diet is a relatively new phenomenon, several years of concerted study and analysis on individuals and populations shall need to be undertaken before enough empirical evidence can be obtained. An open question exists as to the consequences surrounding the introduction of genetically altered material upon the physiology of those consuming such items.

One device used by genetic engineers is the injection of marker genes into the host organism. Marker genes are purported to be a benign strand of DNA that can be traced for research purposes. Researchers would be able to determine and plot the progress of genetic material through various organisms across the food chain. Yet, despite the presence of numerous pronouncements having been made to

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declare the innocuousness of such implements upon the host organism, the complexities of the science – examined with the lack of a sustained and measurable track record in this area – augur deep concern about how truly benign something can be that has been artificially modified at the molecular level. The diffusion of mercury into fish, for example, may have a deleterious effect on those who consume the fish, be they animals or humans. Ancillary impact of genetic manipulation is too nebulous an area given current levels of knowledge and understanding within this discipline.

Animal Welfare in GM Research and Beyond

GM foods will have serious repercussions to the ecosystems where they are introduced, including the impact upon animals. Through an intense campaign of public education and political activism, much progress has been made in the past 25 years in restoring basic animal dignity and fundamental protections. Organizations such as People for the Ethical Treatment of Animals and the Society for the Prevention of Cruelty to Animals have been particularly effective in educating, promoting and effectuating change in public and institutional perceptions of animal rights, especially in matters such as animal testing in

research and commercial animal farming. GM foods, however, may portend the resumption of unregulated animal usage in the research phase. Whether GM research shall become the 21st century's parallel to cosmetics testing is an open question. The Draize Test could very well be replaced by DNA alteration, with animal dignity once again being compromised and abused.

GM Foods in the Midst of Globalization

Beyond the weighty issues of the environment, health and safety, GM foods have the potential of creating some of the most contentious disputes in the area of international commercial transactions. A country's resistance to the importation of GM foods may be significantly affected by existing treaties of commerce and trade. It is evident that all such related trade practices will be carefully scrutinized and directed by important and powerful international bodies, such as the World Bank, the International Monetary Fund and the World Trade Organization. Due to the complexities and purported bilateralism of free trade agreements, a country's reluctance to open its borders – and food markets – to GM foods can have devastating consequences, given the financial magnitude involved.

Some nations have resorted to

unconventional methods to repel the infiltration of GM foods upon its shores. Tasmania, for example, has proposed to use quarantine laws to circumvent established trade regulations in order to ban GM foods. It is conceivable that its concerns stem from past historical precedent as well as cynical pragmatism over the implementation of various contemporary international mores. A small nation, Tasmania's fears are a function of regarding the imposition of imported GM foods as redolent of smallpox-laden blankets to the Native American population. It is unknown what action the international agencies in question will take in response, through sanctions and other punitive measures.

A country's decision to label GM foods may lead to the banning of exports institutionally or, at the very least, engender pervasive consumer reluctance to the products. Currently, the United States and the EU are embroiled in a fervent debate over whether EU imports of GM foods from the US require detailed labelling of their contents. Apprehension on the part of the EU has already evoked threats from the Americans' appeal to the WTO.

Interestingly, the concern over GM foods is not limited to the governmental level. Individual consumer reluctance to GM foods has proliferated in many parts

of the world, none more so than in Europe. While some of the consternation may be the product of hysteria and hype, these intangibles alone cannot explain the intensity and pervasiveness of the public's opposition to "Frankenfood." Even in regions where malnutrition and starvation are part of the daily realities of life, there is enough knowledge to cause apprehension to accepting GM foods.

The prospect of greater Third World dependency on the West is perhaps one of the most critical potentialities from GM technology. As the Third World (also referred to as the Developing World) is by and large composed of agrarian societies, the issue of GM food production has direct and heightened significance upon this section of the planet. Several scenarios exist as to the fate of these already fragile economies, none of which lend cause for optimism.

Beyond the skirmishes between nations of the West, the dangers facing the developing world vis-à-vis commercial matters and GM foods are amplified considerably. GM food production may have a centralizing effect, particularly, in the consolidation and concentration of such production within a select few countries. Currently, 99% of all GM food production originates in one of three countries. The rest of the world is

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understandably concerned about the tremendous imbalance and oligarchic nature developing in agro-economics. Those nations whose economies are based on agriculture – a pervasive characteristic throughout the developing worlds – will be further financially damaged as their access to markets from the supply side is adversely affected. Most developing countries simply cannot compete with the West's economies of scale and highly efficient, mechanized modes of production. The main, oftentimes, sole, exportable commodity for foreign exchange in the Third World is agricultural products. If these goods are rendered ineffective and ineligible for competition in the global market, the disparity between the "worlds" will increase even beyond the current, seemingly unbridgeable chasm.

The economic consequences of intra-national GM food production are also an area not well examined; whether increased or extreme production costs shall visit developing nations is an unanswered, open question. Despite GM food being domestically produced, it may be priced out of the reach for being domestically consumed. In India, one third of its population (320 million people) goes hungry every day, this, despite the fact that over 65 million tons of rice sits on the docks ready to be shipped across the world. It is unclear whether GM foods will further block the

poor of a country from its domestic output of a basic component for survival. What is readily apparent is the preclusion of domestic consumption by the high cost of domestic production.

Another potentially imminent situation is the encroachment of Western conglomerates, such as Monsanto, who will view the Third World as ripe and vulnerable to further exploitation. As the profit margin per acre increases and available land in the West wanes, corporations will seek perhaps the only remaining asset of the developing world: additional land. This land may be leased or purchased by the multinationals, further eroding the sovereignty of countries that have a substantial portion of their territory in the hands of non-domestic interests.

Categorical and sustained dependency upon a select group of multinational corporations is a foreseeable extension of current trends in GM food politics. The seed-producing conglomerates like Monsanto, for example, have already developed seeds that will only produce one yield of crops, rendering subsequent seeds sterile. A major consequence of this particular achievement will make farmers dependent on such companies, as they will be powerless to turn over their crops, and they will be required to purchase more seeds from their

producers. The loss of autonomy for the farmers, and in turn, these economies, will widen the gulf in financial independence for several countries. Such disparity on a global level has recently led to “resolutions” of conflicts through military and violent measures, instead of either diplomatic and/or civil approaches. A basic unit of survival such as food could affect the international landscape in ways far beyond the previously dominant battle of “ism’s.”

Importance of Regulatory Measures

In order to prevent unbridled expansion of GM technology into nebulous, uncharted territory, it is essential for the proper safeguards to be implemented. Such form of regulation needs to occur within both the public and the private sectors. Emphasis must be placed on fair trade and avoidance of exploitation. Corporations must be regulated in the areas of intellectual property matters, products liability and environmental liability. Yet, this must be achieved in a manner that protects society, but also preserves the corporation’s reasonable, legitimate business interests. Governments must ensure that the GM debate remains apolitical, especially within the international (global) arena. Maintenance of civil and human rights is a sine qua non for any action taken on a

global scale, without concern of the impact solely on one’s own population.

The Role of Engagement in the GM Debate

Although the various debates surrounding GM foods have permeated the American discourse, it is still minimal compared to the rest of the world, in particular, the European Union. Concern for proper labelling of GM foods, is already a major issue in Great Britain. In this regard, several groups have become active in legislative and political arenas.

It is imperative for the discourse to be taken to a higher level of abstraction – one encompassing a global, rather than a provincial, level, for instance. Unlike issues that seemingly only affect a certain sector of the world – thereby, causing general apathy in society – GM foods carries, by necessity, relevance that transcends community, ethnicity, nation or hemisphere.

The challenge facing the world’s peoples is to harness the energy and resources of the entire global community -- one that is directly affected, both here in the United States as well as internationally. Cooperation with established groups with interest in this field – the Union of Concerned Scientists and the Network of

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Concerned Farmers, for example – will provide the multi-faceted approach to contend with all aspects of the GM foods hydra.

Attempts have been made at the legislative level to regulate GM foods; unfortunately, these have fallen on deaf ears and idle hands. Ohio Democratic Congressman, Dennis Kucinich, at one time vying as a candidate for President, proposed two Congressional bills – one calling for regulation of the mandatory labeling of GM foods and the other demanding safety testing of all GM foods. Again, a concerted, organized effort, one that demonstrates

latent – that this field brings. The modalities involved with GM foods – legal, logistical, political, socio-economic, cultural, ecological and environmental – need critical analysis to prevent abuse and exploitation. At this juncture, time is still relatively on the side of the policy shapers to have their views and purposes heard and capable of effectuating positive change, particularly those who have you to be enfranchised in the process. The developing world, and specifically, the Developing World, needs the greatest protection in this endeavor, but the West does not enjoy the luxury of immunity from several of these issues.

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ideological, political and financial support, may shift the legislative debate from one of inertia to one of needed dynamism.

Conclusion

Although there are numerous benefits to be gained from the advent of genetically modified foods, one must be mindful of the litany of dangers – emerging and

GM food has the potential, if unregulated and unchecked, of becoming a weapon of mass destruction, rather than the intended weapon of mass consumption. This would not be the first time in the annals of human history that science has been used for illicit purposes – to subdue, suppress and conquer a people and their resources. As power dynamics have oftentimes shifted from nation to

corporation, people living in Western countries may be “colonized” in the same manner as developing nations. It is essential for those in the midst of the zeitgeist to ensure that the fields of Bhopal do not become this generation’s factories of Bhopal.

However, given the expanse of what could be correctly deemed the “Islamic World,” with the Developing population in the United States, this pursuit must be coupled with due attention also paid to confronting this challenge for the fields of Boise or Bloomington.

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The Institute for Social Policy and Understanding (ISPU) is an independent and nonprofit organization committed to solving critical social problems in the United States through education, research, training, and policy analysis. ISPU provides cutting-edge analysis and policy solutions through publications, public events, media commentary, and community outreach. Major areas of focus include domestic politics, social policy, the economy, health, education, the environment, and foreign policy. Since our inception in 2002, ISPU's research has worked to increase understanding of key public policy issues and how they impact various communities in the United States.

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