

Science, eco-political agendas and beyond: The effects of global GM politics on third world nations

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Abstract. Recently, there have been two versions of publications on the relevance of Genetic Modified Foods subsequently GMF/GM food. The pro-GMOs had adopted all means such as scientific researches; media, multinational organizations etc. to encourage production and consumption of GM produce around the world. However, anti-GM foods mostly argued on the potential health threat associated to GM produce. The third world nations were caught between the pressures of the producers, promoters of GM foods and the conservative groups calling for the eradication and prevention of unforeseen and uncertain dangers that may connected to GM foods consumption. However, one of the major claims of pro-GM foods is ever increasing world populations at a hyper rate, and acute shortage of foods productions and, as well malnutrition of children across the third world countries in which 58 OIC countries inclusive. As evident, the third world nations were not producers of GMOs and as such have no “Intellectual Property Right” but they are major consumers of GM foods willingly or unwillingly. The long-run political and economic consequences of GMOs policies on the third world nations, particularly, the OIC countries to the best knowledge of the researcher have not been critically evaluated. Therefore, this research aims to evaluate the trends of GMOs and their future implications on the third world countries economically and politically. Through deductive and inductive research methods used in this research on the effect of eco-politics of GMOs on the third world nations. The result shows that, the statement of producing foods and nourishing malnutrition third world populations with GM foods is nothing more that empty claims. The findings also give insight on how hidden political agendas are achieved through economic policies. Finally, calls on the Muslim and the third world countries to stand on their feet to contribute and produce foods for the assumed growth population thereby saving this and generations to come.

Keywords: science, economic, politics, genetically modified organisms, third world countries

1. Introduction

Most world economic policies are motivated by hidden political reasons. GMOs and GM products are no exemptions to this phenomenon. The reason usually given in favor of the adoption of a new global economic policy is “benefit”. At this point one may enquire as to what sort of benefit is envisioned, whose benefit and envisioned by whom? GM products were purportedly designed and produced on a large scale to feed a rapidly growing world population of one billion people, and prevent future hunger epidemics in less developed areas of the world. The inventors, farmers, biologists, and engineers involved in the mass production of GMOs are not portrayed as financially interested benefitters but as selfless philanthropists who have dedicated their lives to the betterment of others, such as Monsanto, a leading American company advocating GMO production (Pretty 1998). For example, in 1944 the UN defended the introduction of the Bretton Woods exchange system as a way to restructure the world economy after World War II. the Bretton Woods system which fixed exchange rates at a fixed price of gold at \$35 per ounce which US President Nixon abolished in the 1970s. Who claimed it was in the interest of the nation (Redhead, 1992; Abdul Rahman 1995; Olorogun, 2010).

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It speaks against all logic that the biotech industry and allied scientists have invested valuable time, effort, resources, and expertise in the research of GMOs and their large scale production without anticipating financial gain. Frequently, whenever anti-GM groups voice their opposition to GM production, government agencies, multinational engineering companies, and multinational organizations immediately rise to its defense. These actors do not intervene without any political or economic agenda.

This research discusses the historical, institutional, and political conditions that have imposed GM products onto the global market. Although it is hard to separate between political and economic motivated policies, viable conclusions may still be drawn. The arrangement is next section history of GMos, followed by gap analysis, and lastly, WTO and the favoured countries.

2. Historical Background of GMOs

In terms of agricultural productivity, the world has advanced consistently in the development and increase of sustainable resources. Primitive cultivation methods replaced nomadic hunting and gathering. Agricultural innovations were not limited to a particular profession but cut across all works of life. Modern biologists like Gregor Mendel (1822-1884/1866) advanced human knowledge in the systematic manipulation of plant breeding which marked the foundations of the science of genetics. The discovery of DNA in 1869 by Friedrich Miescher was not followed by another revolutionary discovery for another 84 years (Halford, 2006). James Watson and Francis Crick's in 1953 breakthrough discovery of the structure of DNA complemented the work of Miescher. It serves as a landmark for the present rapid developments in the fields of biology and technology (Acharya 1999; Halford 2006). The 1970s and 1980s proceeded with the discovery of recombinant DNA (rDNA) in 1973 and the birth of genetic engineering at Stanford University. This technique has formed much of the basis of modern biotechnology research until today (Flaubert 2004).

The 1980s witnessed heavy corporate investments in the field of biotechnology and numerous companies invested their cash reserves (Acharya 1999). The Cohen-Boyer process for genetic engineering was patented in this time. This breakthrough gave the green light to biotechnological companies as well as the governments of industrialized and developing countries to establish policies on guidelines and frameworks. These policies were drafted to encourage investment and research and development (R&D) in biotechnology as well as to regulate potentially negative environmental and economic impacts (Acharya 1999). In Europe and Japan strong government pressure was exerted to encourage basic and applied research, through close collaborations between public and private sectors. Japan lagged behind Germany which established itself as the leading power in European biotechnology. Developing countries struggled to respond and the ensuing technology gap continued to widen, due to a lack of capital and the low levels of government funding. With the exception of the quickly industrializing countries in Southeast Asia, a shortage of skilled personnel to undertake biotechnological R&D complicated their efforts, (Acharya 1999; Flaubert 2004; Halford 2006).

In the late 1980s and early 1990s, the biotech industry underwent a series of mergers and acquisitions, with multinational firms taking over smaller biotechnological startups. Although this development was initially viewed with skepticism, it was accepted since the market could be thought to benefit from it. Later it became evident that the biotech firms also benefitted from these takeovers (Acharya 1999). The US pharmaceutical industry in particular managed to increase its share of the global market (Flaubert 2004). R & D in biotechnology was traditionally linked to the pharmaceutical industry with much scientific research on biotechnology emerging from the medical fields (Laage-Hellman, McKelvey & Rickne 2004). By 1997 Scottish researchers had created the world's first transgenic sheep (Acharya, 1999; Bergeron & Chan, 2004).

Evidently, biotechnological achievements were shared by the leading research centers. Advanced industrialized nations had created yet another competitive field of knowledge. The rest of the world, the less industrialized countries, were absent from the field and could hardly become the prime beneficiaries or drivers of the new technology. The leading industrial powers began to set policies to encourage more biotechnology research, promote their economies, and improve the health of their citizens. Our discussion revisits policies on GMOs at national and international levels to evaluate their effects on developing countries. Our analysis is factual and argumentative in nature and focused on the premises underlying the global political negotiation that relates to GMOs.

3. Gap Analysis: Evaluation of Science and Political Dimensions

In this section we evaluate the costs and benefits of globalization through the gap and inequality in science and politics today between the developing and the developed nations. We focus on the political power exercised by developed nations to impose the plantation and consumption of GM products in developing countries. We scrutinize chain of dependence and interdependence issuing from the innovating developed countries which manifests itself in terminology, intellectual property rights, the precautionary principle, and international trade organization.

3.1. Under the Shadow of Terminologies

Blindfolded by the veil of new and unknown terminologies, developing countries are caught in the hole of the powerful. Through self-serving logic and terminologies embedded in multinational programmes and organizations, the developing countries (including OIC members) were made to believe that they too needed to do their bit for “global integration”. Economically weaker and therefore politically less influential countries were renamed “emergent economies” and “developing markets” which would suggest their potential integration as equal beneficiaries of the “global village”. Yet the purpose of this language was to feed the ambitions of the leading economies. Leaders mistakenly believed that they could become equal players in the global integration scheme and assigned high offices in global organizations like the United Nations (UN). One sufficient example is Kofi Annan, who as Secretary General of the UN formulated no policy of his own and strictly followed the policies decided by the US and Great Britain. When Annan acted as official advisor in an international peace deal/agreement, his advice was not recognized. An example is his speech delivered at the Fletcher School of Law and Diplomacy, Tufts University, US on climate change in 2001, specifically the failure of Kyoto Protocol which stated

[...]The United States, as you probably know, is the world's leading emitter of greenhouse gases, largely because it is the world's largest and most successful economy....Indeed, there is concern throughout the world about the decision of the new Administration to oppose the Kyoto Protocol[...]. Developed countries are responsible for most of the world's current greenhouse gas emissions. And they are best placed, both economically and technologically, to make -- and help others make -- the necessary changes [...]. The enterprise of international cooperation itself could benefit -- or suffer. What happens in the fight against global warming will tell us what kind of international community we are building: one that can anticipate threats, and then contain or avert them; or one that is content to reel from crisis to crisis, that feels little sense of global solidarity or responsibility. Admittedly, the international community as we know it today is only in embryonic form [...] (Annan, 2001).

The peripheries of the global village are decorated with deceptive open ended policies designed by the leading world powers. Policies were sugar-coated with captivating slogans of “Food for all”, “Eradication of malnutrition” and “Human Rights”, but are nevertheless designed to ensure more profits for the advanced economies.

A vital eye-witness testimony to our claim is Perkin’s (2004) confession of his role in providing Indonesia with a unified system of electrification. The main objective of this project was not electricity. Perkins who self-critically named himself an “economic hit man” admitted that the true objective he was to achieve was “to save Indonesia from communism”; oil and that all American companies would have their share in Indonesia’s contracts with other oil companies. I quote directly from Perkins’ narration of the project manager’s address:

An integrated electrical system is a key element. That, more than any other single factor (with the possible exception of oil), will assure that capitalism and democracy rule."Speaking of oil," he said..... "We all know how dependent our own country is on oil. Indonesia can be a powerful ally to us in that regard. So, as you develop this master plan, please do everything you can to make sure that the oil industry and all the others that serve it —ports, pipelines,

construction companies — get whatever they are likely to need in the way of electricity for the entire duration of this twenty-five-year plan.[Perkins, 2004, p. 25]

From the above quotation it is clear that US hegemony over Indonesia was planned to be achieved within a period of 25 years. In the end, as it evident, capitalism and the US form of democracy took hold in Indonesia. The odd part is that the majority of Indonesian citizens until today enjoy neither the unrestricted usage of electricity nor a significantly improved state economy. Since Perkin's visit in 1971 the Indonesian economy has deteriorated further and the country is suffering from political instability and continuously rising levels of poverty.

3.2. Intellectual Property and Intellectual Slavery

It is a historical established fact that European science and thought benefitted from the Latin translations of Arabic “Muslims” works on mathematics, medicine and other applied sciences such as Ibn Sina and Ibn Rushd and developed it further. Europe owed its own scientific development to its investment in academic minds and institutions. The Muslim world, which finds itself today among the developing countries, must establish its own scientific rigor, creativity, and determination in order to change the status quo. Admittedly, the obstacles are numerous.

The world's leading economies and powers refined the scientific technology from which GMOs arose to be used for GM food production. They followed up with patents to claim it as their ‘intellectual property’. Since the first patent, many new discoveries have been made in the advanced countries where there is sufficient human capital and financial resources to facilitate and encourage competitive research (Nicholl 2008; Acharya 1999). GMO technology is applicable to many fields, even in the development of military weaponry, and patent rights are granted to all recognized scientific producers.

A regional survey conducted by Bergeron & Chan (2004) revealed that the US was still in the lead profiting from its “brain drain” policy from which not only developing countries but also European countries suffered. Three out of four Europeans who acquired a PhD in the US decided to stay and work there because US American firms offer higher salaries and more competitive positions and working conditions than those in Europe. Developing countries with their insufficient educational infrastructures suffered even more as ninety-nine out of hundred individuals who acquired degrees in one of the developed countries, primarily the US, opted to stay.

Advanced countries place emphasis on the equality of all nations, as no nation should become a tyrant controlling and exploiting other nations (Obama 2009). In regard to the patent case of Monsanto, it led to an amicable settlement and the liquidation of the Canadian company (Lehmann 2002). Had a firm of a developing country been involved in such a case, it would have very likely not been granted an amicable settlement and instead fined billions of dollars. When Sri Lanka refused to allow the import US GM food products, the US authorities threaten the small country with sanctions based on another existing trade agreement (Anonymous 2001; Anderson & Jackson 2004).

3.3. “Precautionary” or “Political” Principle?

The ‘Precautionary Principle’ constitutes a rather ambiguous principle which requires that action should be taken to prevent damages, even if there are uncertainties about the nature of the cause of such harm (Lehmann 2002). The introduction of GM foods in EU states was followed by violent public protests during which truckloads of GM products were destroyed. Thousands of Euros of losses were recorded (Burton, James, Lindner, & Pluske 2001). These violent protests expressed a shared public concern for the long-term health risks associated with the consumption of GM products. Despite anticipated health risks, no scientific test had been carried out to test GM food's potentially negative impacts on human health.

The Precautionary Principle (henceforth referred to as ‘PP’) became a bone of contention between the US and the European Union (EU). Lehmann (2002) discusses the two different definitions given by the US and the EU and finds alternative readings. The first reading interprets PP as a strong principle which means “Take no action until you are certain that it will do no harm”. The second reading is weaker and can be worded as “The lack of full certainty is not a justification for preventing an action that might be harmful”.

The PP originated from environmental law. It was adopted by international legal institutions and multinational organizations to prevent environmental hazards. Although adopted at the 1992 Rio Earth Summit, it was omitted from Chapter 16 on “Environmentally Sound Management of Biotechnology”. In the same year, the text of the Rio Declaration demanded that “full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”. On the trans-boundary movement of GMOs, the PP was also included in the Cartagena Protocol on Bio-safety (CPB) (Lehmann 2002), as a supplementary agreement to the Convention on Biological Diversity (CBD). “Lack of scientific certainty...shall not prevent [a] Party from taking a decision, as appropriate, with regard to the import of the living modified organism in question... in order to avoid or minimize such potential adverse effects” (Lehmann, 2002))

Despite these two proclamations, the PP is not mentioned in US law or policy. However, US law does distinguish between “risk management” and “risk assessment”. The guidelines of the National Research Council (1983) include different steps in risk assessment (hazard identification, dose-response assessment, etc) which helps characterize ‘risk’. On the basis of this information the role of risk management is to help in developing regulatory options, but with some caveats regarding economic, social, and political interests. Despite many regulations however, safety testing and labeling are not required before commercialization of GM foods (ibid).

In European countries the PP has formed the basis of all environmental laws since the creation of the European Union in 1992. The only obstacle to its proper application is the rather ambiguous definition of the PP which allows too much flexibility of interpretation. Responding to the public outrage over GMO food, the EU commission tried to further limit the application of the PP. In the first context the commission found the PP to be a useful risk management tool for decision-makers but concluded that the decision to act or not to act upon it rested was at discretion of the politicians. Regulation (EC) 178/2002 of the European Parliament and Council that entered into force on 21 February 2002 defined, for its very first time, the PP in EU food legislation. Article 7 states that in cases where the possibility of harmful effects on health have been identified “but scientific uncertainty persists, risk management measures ... may be adopted. At the same time, the commission established a European Union Food Safety Authority which provided scientific and technical support to EU policy makers regarding GMOs (Lehmann 2002).

Developing countries have been buying and consuming GM food without knowing they were GM food and maybe even not knowing what GM food actually is. The Sri Lankan government banned the importation of GM foods from the US after learning of the strong opposition it had caused in Europe. In response, US representatives threatened it with sanctions (Anonymous 2001; Anderson & Jackson 2004). If, however, Sri Lanka could scientifically prove the harms of GM food, according to US law, it would be allowed to prohibit GM imports. Lehmann (2002) argues that the EU only managed to settle its row with the US over the GM food issue through diplomacy backed up by its own economic and political strength, a leverage the developing countries find difficult to muster.

Another issue has become rice enriched with excessive amounts of Vitamin A. Warwick (2000) affirmed that the claim that the invented Pro-Vitamin A rice was promoted without any short-term profit was a political hoax. Pro-Vitamin A rice is mainly produced in the US and Europe and was certainly designed to undermine livelihoods in many rice dependant nations, and place them under the control of the inventors and farmers of vitamin A embedded rice.

4. The WTO and the World’s favoured Countries

In 1971, the representatives of the developing countries proposed a ‘New International Economic Order (NIEO) to the United Nations (UN). A major tenet was that the trade restrictions imposed by advanced nations which limited the proper participation of developing countries in the global market were to be discarded and that policy making would no longer be the privilege of a few (Abdul Rahman 1995). In response, the World WTO was established.

The success of the “global village” notion encouraged the creation of multinational organizations all over the world. The World Trade Organization (WTO) was created to direct the corporations of different

countries across the globe and support global policies beneficial for all its membership. In this way the developing countries were led to believe they would be granted equal say in decisions over economic policies which affected the development of their respective economies.

The relation between GMOs and the WTO is that the latter is in charge of trade-related agreements between countries based on the mechanism of non-tariff barriers. The WTO requested sound factual evidence on whether GMOs benefitted or financially damaged the economies of developing countries. Lehmann (2002) analyzed the WTO agreement on 'Trade-Related Aspects of Intellectual Property Rights' (TRIPS) and the WTO agreement on 'Technical Barriers to Trade' (TBT). Both agreements focus on trade-related international regulations in relation to the PP.

Two agreements relevant to this discussion are the agreement on 'Sanitary and Phytosanitary Measures' (SPS) and, as well as the 'Codex Alimentarius Commission'. The SPS agreement is explicitly based on science and is intended to prevent different national sanitary and phytosanitary standards from becoming non-tariff trade barriers. It further provides that a country is allowed to protect itself where there is possibility of harm based on available information, and that the country is required to produce scientific evidence within a reasonable period of time. This clause led to a great dispute between China, the US, Canada, and Australia. The US and its allies accused China of failing to notify of all the taken sanitary and phytosanitary measures after China had banned the production and importation of GM foods in 2002, immediately after the Sri Lankan action (Anderson & Jackson 2004).

The Codex of the Alimentarius Commission was a joint effort of the UN World Health Organization (WHO) and the FAO in 1963. Initially a voluntary initiative, it was changed into a proper institution with the aim of "protecting the health of consumers and ensuring fair practices in the food trade". The SPS just outlined now recognizes the Codex as an international organization responsible for standard setting related to food safety and harmonization of food safety measures affecting trade. It was anticipated that the Codex would not recognize the PP which would allow WTO members to base their food safety measures solely on the commission's standards, regulations, or recommendations. The commission stipulated that in case there was insufficient data or scientific evidence available to prove the harm of a trade article, it would not finalize a standard but consider a related text supported by scientific evidence (Lehmann 2002). The kind of related text intended by the commission and where developing countries should procure scientific evidence was not further specified.

Overnight it was transformed into world recognized trade relation law which carried penalties when violated. The SPS measures were then and are now in the favor of the GMO exporting countries. The developing countries, which constituted the market or 'dumping ground' for GMOs, were effectively prevented from rejecting the large-scale import of unwanted products or the imposition of heavy fines and other forms of punishment for the violation of the said agreement (Raghavan 2002). Neither the private nor the public sectors of the developing countries which receive GMO imports have the financial, technological, and institutional capacity to produce GM food stuffs or organisms. They are at present equally incapable of producing scientific evidence of the potentially harmful effects of GMOs in the form of sophisticated research projects and long-term studies.

According to numerous WTO agreements, governments should reduce subsidies and interventions. Bergeron & Chan (2004) completed a comprehensive survey to study the level of commitment of governments in regard to regulations on GMO invention, uses, and applications. It showed that the US regulatory framework on agricultural GMOs was insufficient and its standards considerably far below that of other countries. On the other hand, in the area where governments were required to reduce intervention such as subsidies, the US scored the highest.

The level of investment of the US governments in GMOs is high, specifically when related to military weaponry (Bergeron & Chan 2004). If ensuring its military superiority and political hegemony as the world's leading power is its ultimate motive and aim of the US, then the US ever too readily assumed role as the "defender of the weak" must be seriously questioned. US governments have at many times entered into unnecessary military conflicts (previously simply called 'wars') in other parts of the world, especially those with oil resources. At the same time the US donates and sells GM foods to the UN to be exported to these

affected countries which may, unwillingly and unknowingly, serve as test fields for the potentially adverse effects of these artificially manipulated foods by selling these products to the UN which makes the US the acclaimed champion of aid and relief programs worldwide.

Ho (2002) who researched the monetary policies of global trade organizations draws a realistic if pessimistic conclusion:

[...] In fact, there is every chance to see changes in the activities of these multilateral monetary organizations, be they minor or major [...] Moreover, laws only outline the way a currency board is to be organized and how it is to operate; the legal consequences of not playing by the rules are usually not explicitly stated anywhere [Ho, 2002, p.20]

In the light of above analysis, as it evident, it is high time developing nations stood to their right. One major clue is to ignore the existence of an abstract global village and concentrate in developing strong political policies preferably internal policies to protect their home industries in all sectors. Specific policies protecting the import, uses, and adoption of GM technology should be paramount. Additionally, WTO and trade like agreements critically evaluate and best option that would benefit their citizens is ratify.

5. Conclusion

Food Aid is no longer merely an instrument of foreign policy. It has now become a cynically crafted tool of exploitation which ensures the ‘donating’ party a sporadic or constant profit from famine and starvation (Sharma 2002). Critical scientists and observers have identified the motivations behind the aggressive promotion of GMOs and GM foods as a contest between the highly competitive rival biotech companies. The British *Gene Watch* (2000) concluded that innovative functional food like ‘golden rice’ only served the purpose of a) creating more profits for food manufacturers and retailers and b) making their products distinguishable from others. All GMO promoting campaigns, whether technological, agricultural or commercial in nature, are aimed at entrenching the hegemony of the stronger industrialized economies over the developing countries. Similarly, GMO related research in medical and pharmaceutical products were not exemption. The patenting of GMOs cannot but be considered as another form of economic exploitation and oppression where developing countries have to admit their inferiority before the patent holders before being allowed to enjoy their daily bread. Since the ‘First World’ still has the most powerful say in economic policies and trade agreements, it is privileged to use its power to open even more avenues for itself and generate even higher profits. The world’s leading economies have the power to impose unfavorable policies on weaker developing economies under the pretext of “integration into the global village”, with the help of powerful global trade organizations led by the WTO. Reflecting on the powerful political backing that GMO corporations, farmers, and retailers enjoy, we expect the imposition of GMO food imports to continue and probably even intensify. The potentially harmful effects of GMO foods on the millions of consumers at other ends of the world, still remains unknown. What is already known is that before scientific proof will be produced, GMO foods will eventually be banned from global markets, probably after a long legal struggle and many public protestations of innocence and denial on behalf of the manufacturers. By this time GMO investors will already have made millions of dollars of profit.

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