
Genetically Modified (GM) Crops and Legal Protections: Bangladesh in Context

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Abstract

GM (Genetically Modified) crops are modified through genetic engineering to improve characteristics that include resistance to harmful pesticide, herbicide and resistance to some extreme environmental condition. GM crops are helpful for the environment as there are no proven data to say otherwise. But activists are saying that GM crops are making the bugs and pests more resistance to non GM crops. GM seeds industry is controlled by few massive multinational companies such as Monsanto, Bayer and they have the patent rights of their GM seeds. As a result, farmers are bound to buy new seeds from the companies and by law they can't share, reuse or reproduce seeds by using GM seeds. India doesn't allow patents on seeds. In Bangladesh mainly *The Bio-Safety Rules* deals with GMO products safety but doesn't mention patent issues which is giving the seed giant companies an opportunity to establish a seed monopoly. This paper will focus on the impacts of GM crops on the small farmers and environment and how Bangladesh government can protect the farmers' interest by regulating farmer's friendly laws related to GMO. Mostly secondary data have been used during the time of this study while the primary data sources are Acts and cases related to GMO patent issues.

Keywords: GM Seeds, BT Cotton, Environment, GM Seed Patent, Bt- Brinjal.

Introduction

The genetically modified crops or GM crops are defined as the crops that are modified through genetic engineering. The DNA of the crops is modified in order to provide new characteristics to the plant, which are not present in the species naturally.² Such improved characteristics include resistance to harmful pesticide and herbicide, resistance to some extreme environmental condition,

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² Geoffrey Barrows, Steven Sexton and David Zilberman, 'Agricultural Biotechnology: The Promise and Prospects of Genetically Modified Crops' (2014) 28 *Journal of Economic Perspectives* 99-120.

Improvement of nutrient provided by the crop, less spoilage and any others. The most common genetically modified crops include corn, soy, alfalfa, canola, zucchini and sugar beets. According to researchers, genetically modified crops have no greater harm factors than common food. It is important to examine the GM crops case-by-case prior to the introduction in the market.³ Introduction of GM crops helps to increase the productivity of the agriculture and reduces the use of harmful pesticides. However, there are some cons of using GM crops, for example, it can cause hazards to the health condition of individual such as allergies from toxicity.⁴ Due to such issue some countries restrict the access of GM crops, where as some nations allow the access of GM crops with appropriate regulations. It is notified by some experts that, in the developing countries, profit is higher due to GM crops than the developed countries. In recent years there have been some on-going issues between the farmers and the GM seed companies over patent issue. GM seed companies like Monsanto, Bayer are more of profit oriented company than a farmer and environment friendly company.

GM Crops Acceptability in Bangladesh and around the World

The genetically modified crops are spreading rapidly across the world and people are accepting the technology of genetic engineering in order to improve the traits of natural crops. It is one of the most researchable facts in the modern society and researchers are trying to improve their study in order to bring innovation regarding the GM crops. Five years ago in 2014 Bangladesh's first genetically modified crop – Bt brinjal was introduced. Bangladesh Rice Research Institute (BRRI) with Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU) introduced two types of GM Rice which are BRRI Dhan-62 is Zinc rich and BRRI Dhan-86. Now the government and the biotech industries are promoting the benefits of using genetically modified crops in order to improve economic condition.

According to the statistics, developing countries are benefited more than developed countries due to allow the access of GM crops. 38% of the global crop areas are covered by developing countries.⁵ They are allowing the cultivation of genetically modified crops in order to become competitive in the global market. However, the rate of gain is higher for the biotech industries

³ Kamle Suchitra and Sher Ali, 'Genetically Modified Crops: Detection Strategies and Biosafety Issues' (2013) 522 Gene.

⁴ Danny Hakim, 'Doubts about the Promised Bounty of Genetically Modified Crops' *The New York Times* (New York, 2016) <www.nytimes.com/2016/10/30/business/gmo-promise-falls-short.html> accessed 2 July 2019

⁵ Clive James and Norman E. Borlaug, 'Global Status of Commercialized Biotech/GM Crops: 2014' (The International Service for the Acquisition of Agri-biotech Applications (ISAAA).

than the farmers and consumers.⁶ The intervention of genetically modified crops in agriculture has remarkable impact on the economy of a country. Farmers who utilize the technology and cultivate GM crops have experienced higher effective productivity, revenue, and lower of pesticide. Chinese farmers were facing problem in cultivating cotton, as they had to spend a huge amount of money in the process of pest control. After the intervention of genetic engineering, 7.5 million farmers grow genetically modified cotton known as IR cotton. Such adaptation helps them to achieve higher yield, lower cost and an overall profit. In order to increase the productivity and profitability, 83% farmers in Mexico has adopted the cultivation of IR cotton.⁷ The cultivation of HT soya in Argentina has increased the productivity and profitability of the country by 10% approximately.⁸ A comparison between IR maize and non-IR maize has shown that, the farmers who aloe the GM crop has experienced higher yield and profitability that the farmers who has rejected the process. Nevertheless, there are many negative aspects of using genetically modified crops in agriculture, which can affect the economic condition of a country negatively. In order to achieve high profitability, most of the biotech companies use patent to protect their rights. Introduction of patent results in the rise of price of the seeds to an extent. Thus, farmers and the small-scale farms are facing difficulties in purchasing such high rated seeds, as they are not able to afford it. The biotech companies are forced the farmers and the small-scale farms to accept the patent.⁹ According to some farmers, the biotech companies are inserting some suicidal gene into the seeds, hence the plant sustains only for a single growing season.¹⁰ The farmers have to buy new seed in order to cultivate the same genetically modified crop. Due to purchasing seeds per year, farmers and the small-scale farms are facing enormous economic challenges. Consumer cost is another fact that could affect the economic condition of a country. Enforcement of patent leads to increasing price of the food products derived from the genetically modified crops. However, people are more health conscious in these days, thus they would prefer to spend money on organic food rather than genetically modified crops. Such incident could affect the profitability of the biotech companies,

⁶ Graham Brookes and Peter Barfoot, 'Farm Income and Production Impacts of Using GM Crop Technology 1996–2015' (2017) 8 *GM Crops & Food*.

⁷ Tassawar Hussain Malik, 'Report of The Round Table for Biotechnology in Cotton' (Conference: Report of the 'Round Table for Biotechnology in Cotton'- International Cotton Advisory Committee (ICAC) 2019) <www.researchgate.net/publication/257232668_Report_of_the_Round_Table_for_Biotechnology_in_Cotton_International_Cotton_Advisory_Committee_ICAC_Washington_DC_September_2013_49_pages_Tassawar_Hussain_etal> accessed 20 July 2019.

⁸ Amalia Leguizamón, 'Modifying Argentina: GM Soy and Socio-Environmental Change' (2014) 53 *Geoforum*.

⁹ Hossein Azadi et al, 'Genetically Modified Crops and Small-Scale Farmers: Main Opportunities and Challenges' (2016) 36 *Critical Reviews in Biotechnology* <<https://lib.ugent.be/catalog/pug01:7022459>> accessed 9 July 2019.

¹⁰ Kelsey Gibbs, 'Patenting Genes: Genetically Modified Organisms (GMOs)' (2015) <www.semanticscholar.org/paper/Patenting-Genes%3A-Genetically-Modified-Organisms-Gibbs/6a477f032a30caeebf8d9a6be2eac65f77a192c> accessed 25 July 2019.

farmers and the small-scale farms as well. The use of genetically modified crops in order to increase the net yield and improve the economic condition is a controversial issue. Although farmers are experiencing benefits in some developing countries, it is important to allow them to access innovation regarding GM crops in agriculture. The government and the biotech companies need to take effective initiatives in order to resolve such issues. It could help the nations to grow genetically modified crops efficiently. Through addressing the issues related to genetically modified crops, a country could experience economic prosperity and higher productivity.

Impact of GM Crops on Bangladesh and Global Economy

As the first country in South Asia Bangladesh introduced genetically modified (GM) food crop in the region back in 2014 later in 2019 government undertook an impact assessment study. International Food Policy Research Institute (IFPRI) carried out the study on 1200 farmers under the supervision of Ministry of Agriculture and found that the farmers using GM Versions of vegetables gained 55% higher income than their peers growing non Bt-Brinjal.¹¹ As Bt- Brinjal was a huge success now a days Bangladesh Government is field testing late blight resistant potato, Bt cotton and Golden Rice.¹² Till now there is no established evidence that shows GM crops are helping Bangladesh's economy in a massive way as GM crops have recently introduced in Bangladesh. But it can be assumed that like USA, Brazil Bangladesh's economy will be hugely influenced by GM crops production.

In 1994 first GM crops was planted and two years later around 1.66 million hectors of land were planted with GM crops.¹³ Since then commercialization of GM crops has continued to occur at a great pace and by cultivating GM crops farms had a total amount 116.6 billion dollar economic benefit.¹⁴ Farms from both developed and developing countries contributed to this profit equally which is 50%.¹⁵ Over the past 22 years around 17.3 million farmers has adopted GM crops and delivered important economic benefits. All around the world GM IR traits delivers higher incomes through improved yields. In developed countries farmers are making huge profit by cultivating GM crops

¹¹ Reaz Ahmed, '5-Yr After Releasing Its First GM Crop Bangladesh Says Farmers Gain By Adopting Bt Brinjal' *Dhaka Tribune* (Dhaka, 7 March 2019) <www.dhakatribune.com/business/2019/03/07/5-yr-after-releasing-its-first-gm-crop-bangladesh-says-farmers-gain-by-adopting-bt-brinjal> accessed 20 September 2019.

¹² Harun Or Rashid, 'Genetically Modified Organism (GMO): Prospect And Challenges In Bangladesh' (Bangabandhu Sheikh Mujibur Rahman Agricultural University 2018) <<http://bsmrau.edu.bd/seminar/wp-content/uploads/sites/318/2018/05/Seminar-paper-Harun-2.pdf>> accessed 22 September 2019.

¹³ Graham Brookes and Peter Barfoot, 'Economic Impact of GM Crops' (2014) 5 *GM Crops & Food*.

¹⁴ *ibid*

¹⁵ *ibid*

as they need less expenditure on insecticides. Back in the year of 2012 total global farm income benefit was \$18.8 billion only because of GM crops. In USA, farmers managed an astonishing amount of \$53.2 billion in extra income after the introduction of GM crops between 1996 and 2012.¹⁶ It is a surprise that 46.6% of the farm income benefits were earned by farmers in developing countries back in 2012 and they cultivated GM IR cotton, GM HT soybeans.¹⁷ In terms of developing countries cost to farmers for accessing GM technology was 21% of total technology gains while it was 25% in developed countries. By calculating the direct farm income benefit calculations it can be said that GM crops have increased global production of corn, cotton, canola, and soybeans since 1996.¹⁸ GM crops helped farmers to earn reasonable incomes for their work. Back in 2013 net benefit of farmers were \$18.8 billion, equal to an average increase in income of \$117/hectare.¹⁹ As the population in developing countries is growing fast they need to adopt GM crops as by 2050 the food demand will be double according to some scientific studies.²⁰

Positive Effects of GM Crops on Environment

Introduction of genetically modified crops in the agriculture has brought tremendous change in the environment. The technology has introduced a farming process, which is environment friendly and has allowed the farmers to grow improved agricultural product with the use of less resource. The DNA of the genetically modified crops is designed in such a way that they are resistant to pest and environmental conditions, hence, such modification helps to reduce the use of harmful pesticides and herbicides. In Bangladesh using harmful pesticides in the agricultural field is one of the main reason behind polluting soil and water as well. Thus, the genetically modified crops will be contributing to decrease the soil and water pollution by reducing the use of harmful pesticides and herbicides. It plays an important role in reducing the pollution of developing country such as India, where rate of pollution is higher.²¹ The technology of modifying crops plays an important role in

¹⁶ Stuart Thopson, 'How GM Crops Can Help Us to Feed a Fast-Growing World' (*The Conversation*, 2017) <<http://theconversation.com/how-gm-crops-can-help-us-to-feed-a-fast-growing-world-71112>> accessed 12 July 2019.

¹⁷ *ibid* 10.

¹⁸ *ibid*

¹⁹ 'What Are the Real Economic and Environmental Impacts of GM Crop Use? | GMO Answers' (GMO Answers, 2016) <<https://gmoanswers.com/what-are-real-economic-and-environmental-impacts-gm-crop-use>> accessed 20 July 2019.

²⁰ 'Global Economic and Environmental Benefits of GE Crops Continues to Rise – BIO' (BIO, 2015) <www.bio.org/articles/global-economic-and-environmental-benefits-ge-crops-continues-rise> accessed 25 July 2019.

²¹ Juma Ibrahim Mahabubu, Muhammad Nawaz and Hongxia Hua, 'Advances of Transgenic Bt-Crops in Insect Pest Management: An Overview' (2016) 4 *Journal of Entomology and Zoology Studies*.

decrease the rate of releasing greenhouse gas from agricultural practice. Greenhouse gas is the most harmful factor related to air pollution and methane is one of such dangerous gas, which is released from paddy field. Using genetically modified crops has reduced the occurrence of such incident effectively. Thus, the crop biotechnology is playing a remarkable role in order to reduce air pollution. Air born disease is common in most of the developing countries, by reducing the air pollution it helps to improve the air quality which in return could reduce the possibilities of air borne diseases, thus providing healthy environment in order to live healthy life. Tillage is a process that has been done before planting seeds in the agricultural field. The process results in increased carbon footprint in agriculture and also causes soil erosion. Implementation of biotechnology in agriculture has reduced the use of tillage process in farming. This innovation has decreased the carbon footprint in agriculture and it has reduced the rate of soil erosion by water, air and others environmental factors. Reduce in carbon footprint helps to reduce the amount of pollution by carbon dioxide and carbon monoxide. According to research, reducing the tillage process through cultivation of genetically modified crops has removed 27 billion kg of carbon dioxide from the atmosphere.²² The improved cultivation process helps to conserve the natural resource such as water. Most of the genetically modified crops need less water in order being mature than the common crops. Water management is relatively poor in developing countries, thus, the improved process contributes in water conservation while gives huge amount of production of crops. Air pollution, water pollution, soil erosion, emission of carbon dioxide plays critical role in changing the climate of the world. By reducing such risk factors, the process of farming genetically modified crops helps us from the drastic effects of climate change. Thus, the farmers who cultivate GM crops are combating climate change in an effective manner through incorporating efficient farming process. Mercury, lead, selenium and other organic matters are released from industrial wastes and mixed with the agricultural land, hence results in soil contamination. The genetically modified crops cultivation in bioremediation of the contaminated soil, a process through which treatment of contaminated soil is done in order to stimulate the growing organisms and remove the harmful pollutants from the soil. Biodiversity is one of the important factors of environment. Insects, pests and weeds are also a part of biodiversity. In the cultivation process of common crops, pesticides, insecticides and herbicides are used to control them in order to produce healthy crops. The introduction of genetically modified crops, which have the modified genes that can resist pests, insects and weeds as well, has reduced the use of chemical products in the agricultural land. It helps to maintain sustainable biodiversity.²³ However, there is a controversial issue regarding cultivation of genetically modified crops. Study has shown that, proteins produced by the genetically modified

²² Alan B. Bennett et al, 'Agricultural Biotechnology: Economics, Environment, Ethics, And The Future' (2013) 38 Annual Review of Environment and Resources.

²³ Sven-Erik Jacobsen et al, 'Feeding The World: Genetically Modified Crops Versus Agricultural Biodiversity' (2013) 33 Agronomy for Sustainable Development.

crops, especially the Cry protein, are easily degradable. It can contaminate the water source near to the agricultural field and can disrupt the aquatic environment. Many environmental problems can occur during the cultivation of common crops. Funding for environment is comparatively less in the developing countries, thus, cultivation of genetically modified crops will play an important role in resolving environmental problems in Bangladesh.

Negative Impact of GM Crops on Environment

Genetically Modified Organisms or GMO are the organisms that are modified in order to produce genetically modified crops, genetically modified fish, pharmaceutical purpose and others research purpose. The genetic material in these organisms is modified through the process of genetic engineering technology.²⁴ There are some threats regarding the use of genetically modified crops, especially used in making foods. For example, as the crops are genetically modified, there is a risk of undergoing mutation. Another risk is, allergy can occur for the toxicity of some products. Some researchers have mentioned that the health risk is not greater in using genetically modified crops than the common crops.

Importance of Legal Protection for Farmers over GM Seed Patent Rights

Seeds are historically has been in the public property, farmers used to grow their own seed from theirs crops since the beginning of time. But in recent time existing patent system allows the private seed companies to assert ownership though they did not create them.²⁵ But seed giants like Monsanto has sued small farmers from all around the world specially in USA over the past few years to protect its patent rights over the GM crops it produced and sells.²⁶ This types of patent stops farmers from growing their own seeds. In the developing countries the seed giant's companies are trying to create a seed monopoly where the farmers no longer use their own (Farmers) produced seeds and cannot share with other farmers. Patenting the GM crops seeds gives the power to the GM seed companies to sue a farmer even if a small amount of crops is found on other lands than the farmers who bought the seeds from the company. In the developing countries farmers always uses and share their own produced seeds and the GM crops giants like Monsanto tried

²⁴ Jose Rafael Prado et al, 'Genetically Engineered Crops: From Idea to Product' (2014) 65 Annual Review of Plant Biology.

²⁵ Paul Harris, 'This Article Is More Than 6 Years Old Monsanto Sued Small Famers to Protect Seed Patents, Report Says' *The Guardian* (2013) <www.theguardian.com/environment/2013/feb/12/monsanto-sues-farmers-seed-patents> accessed 14 July 2019.

²⁶ ibid

to stop them (Farmers) doing so.²⁷ In India Monsanto claimed that the company patented BT Cotton seed in India but the Supreme Court said that seeds cannot be patented. This is a landmark judgment for India as well as developing countries where farmers are sharing and producing their own crops seed for a very long time. Patent of seed will cause a hike in the seed price in poor and developing countries and most of all the farmers of those developing and poor countries are mostly uneducated and unaware of complicated patent related laws thus they might face various suits from the GM seed giants.

GMO related Regulations around the World: Pros and Cons

Some nations restricted the use of genetically modified organisms and access of genetically modified crops but most of the nations have allowed the technology in agriculture with some regulations. Such regulations are adopted by the nations in order to manage the risk factors related to the use of genetically modified crops. The regulations are implemented by the government organizations such as Food and Drug Administration, Environmental Protection Agency and others.²⁸ Mostly the developing countries have accepted the intervention of technology in agriculture with effective regulations. The purpose of implementation of such regulation is to ensure the safety related to the health of individual and the environment as well. According to some regulation act, the biotech companies must assess the risk factors of the modified organisms before using that in order to produce genetically modified seeds. The companies have to introduce a classification system which is based on the risk factors of the modified organisms to understand the nature and level of risks. It is required to inform about the premises used in the technology to the health and environment safety department.²⁹ The first Asian country that has accepted the cultivation of genetically modified crops is Philippine.³⁰ Regulations related to the use of genetically modified organisms to introduce new traits are different according to the different countries. For example, in Brazil, court rulings have banned the cultivation of genetically modified crops, but the farmers still cultivated the GM soya anyway, thus, the cultivation of GM soya is legalized in Brazil. In Mexico, cultivation of genetically modified cotton is allowed, whereas, the cultivation of genetically modified corn is banned. China has accepted the cultivation of genetically modified crops widely and the nation is trying to

²⁷ Vandana Shiva, 'Seed Freedom Is Our Right. Monsanto Doesn't and Can't Patent Seeds in India – Lifegate' (*Life Gate*, 2019) <www.lifegate.com/people/lifestyle/monsanto-india-seed-patent-vandana> accessed 20 July 2019.

²⁸ Vigani, Mauro and Alessandro Olper, 'GMO standards, endogenous policy and the market for information' (2013) 43 Food Policy 32-43.

²⁹ Huw D Jones, 'Regulatory Uncertainty Over Genome Editing' (2015) *Nature Plants* <www.nature.com/articles/nplants201411> accessed 25 July 2019.

³⁰ Tomas Larsson, 'Who Catches the Biotech Train? Understanding Diverging Political Responses to Gmos in Southeast Asia' (2016) 43 *The Journal of Peasant Studies*.

introduce genetically modified crops with their own variety. The Indian government has approved the genetically modified cotton and the country is trying to develop the research regarding the genetically modified local crops such as masterd, potato and rice.³¹ In contrast, in South Africa, cultivation of genetically modified crops is allowed only in the developed commercial sectors.³² There are some developing countries where cultivation of genetically modified crops is banned but the import of such crops is allowed, for example, Bulgaria, Ecuador, Poland, Belize, Turkey, Hungary and Saudi Arabia.³³ In many developing countries, both the cultivation and the import of genetically modified crops has been banned by the government, for example, Algeria, Madagascar, Bhutan, Venezuela, Zimbabwe and Russia.³⁴ Such regulations play an important role in order to ensure the health of individual and protect the environmental condition.

GMO related Regulations in Bangladesh

Bangladesh had ratified the Cartagena Protocol on Biosafety on February 2004 which seeks to protect biological diversity from the potential risks posed by genetically modified organisms resulting from modern biotechnology. This protocol makes provisions to ensure safe transfer and use of GMO products. Eight years later in 2012 Bangladesh government has passed 'the Bio-Safety Rules' by exercising Rules making power which is delegated under Section 20 of the Bangladesh Environment Conservation Act 1995.

Rule no 3 of 'the Bio-Safety Rules' prohibits the import and export and selling or making of GMO products without the permission of Ministry of Environment and Forest. Rule no 5 makes it mandatory to write the nature and details of the GMO products on the label of every GMO product. If any of the conditions mentioned on Rule 2 and 5 is breached, offender will be punished up to two years' imprisonment with fine which might go up to ten thousand Taka.

In 2007 Bangladesh has developed a Biosafety Guidelines in respect of Biosafety related to GMOs, which has been recently revised in 2018. GMO related regulations in Bangladesh are all about safety and protection of biodiversity but not for the protection of seed freedom of the farmers.

³¹ Sanjay Kumar, 'India Eases Stance On GM Crop Trials [India Relaxes Position On Field Trials of GM Crops]' (2015) 521 (7551) Articles <<https://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=Id:%22library/jmart/3927328%22>> accessed 15 July 2019.

³² Okigbo R N, Iwube J. C and Ramesh Putheti, 'An extensive review on genetically modified (GM) foods for sustainable development in Africa' (2015).

³³ Maria Lee, 'Gmos In The Internal Market: New Legislation On National Flexibility' (2016) 79 The Modern Law Review.

³⁴ Joseph E. Huesing et al, 'Global Adoption of Genetically Modified (GM) Crops: Challenges for The Public Sector' (2016) 64 Journal of Agricultural and Food Chemistry.

Lacking of GMO related Regulations in Bangladesh

The population of Bangladesh is growing rapidly and researchers have found that cultivable land is decreasing by 1% per year and change of the climate is also effecting the food production. To solve the food production problem, it is necessary to use high yielding GMOs (e.g. Golden Rice, Bt. Brinjal and GM Banana) seeds and 6 years ago Bangladesh government have approved the cultivation of Bt. Brinjal on October 2013.³⁵ Big seeds giants like are trying to create their seed monopoly in Bangladesh by replacing her rich variety of agricultural crops with their GM seeds.³⁶ It is scientifically proven that GM seeds have higher output but GM crop's long time effect on human health and environment are yet to be established. It is a traditional practice of Bangladeshi farmers to produce their own seeds, share their seeds with fellow farmers but if the seeds market is dominated by GMO seed companies' farmers will lose their seed freedom and farmers will face several patent related suits from the seed giants like USA farmers are facing. Bangladesh government must make regulations that uphold farmers' right to have seed freedom despite using GMO seeds.

Conclusion

From the above research paper, it can be concluded that, genetically modified crops have many beneficial characteristics such as, resistance to the insects, pests and many environmental factors, improved nutrition profile and many others. The cultivation process is cost effective as there is no need to use any pesticide or herbicide and it gives higher productivity and profitability. Study has shown that, the developing countries are more benefited than the developed countries by GM crops in terms of productivity and financial gains. In the developing countries, economy sector is highly influenced by the intervention of genetically modified crops. Biotech companies, small-scale farms and the farmers are accepting the modern technology in agriculture. However, it has been proved that, rate of benefit is greater for the biotech companies than the farmers and small-scale farms. There are some difficulties regarding the patent enforced by the companies. Implementation of patent leads to the increase of price of the seeds, thus, the farmers and small-scale farms are facing problems in affording the purchase. Thus, the impact of genetically modified crops on the economy of developing countries is controversial. On the other hand, GM crops have positive impact on the environment of developing countries, as they help to reduce the use of harmful insecticides and herbicides, thus, helps to reduce pollution. Bangladesh can also be benefited by using GMO products (seeds) if the government can

³⁵ Imtiaz Ahmed Sajal, 'Genetically Modified Organisms (Gmos): Examples, Debate' (BDLD - Bangladesh Law Digest, 2015) <<http://bdlawdigest.org/laws-regulating-genetically-modified-organisms-gmos-in-bangladesh.html>> accessed 31 August 2019.

³⁶ ibid

impose farmer friendly GMO seed patent related laws. Current Bangladeshi regulations related to GMO products only talks about safety of the biodiversity and environment but the main focus should be saving the interest of our farmers. If Bangladesh government can impose laws that farmers can use GMO seeds without losing their seeds freedom and can restrain the giant seed companies from creating a seed monopoly business Bangladesh's model toward GMO crops will be an example to the other developing countries.

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