



**Memo n° 15 Farida AKTHER**

**GMO eggplant, Bangladesh**

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## **BIOGRAPHY**

- Executive Director of (1) UBINIG (Policy Research for Development Alternative), (2) PRABARTANA (promotes handloom fabrics and crafts) and (3) SAHASHYA PRABARTANA ( selling ecologically produced organic food)
- Organiser of Nayakrishi Andolon (New Agricultural Movement), the peasant led movement for biodiversity-based ecological agriculture of small scale farmers in Bangladesh)
- Founder of Narigrantha Prabartana (Women’s Book Store)
- Organiser of Coalition against Bt. Brinjal in Bangladesh
- Key organiser and member of South Asia Network on Food Ecology and Culture
- Member of United Women’s Front
- Convenor of Women’s Alliance against Tobacco

Farida Akhter is a women activist and runs a policy research organization and women’s book Store and a leading exponent of biodiversity-based ecological agriculture. She is campaigning against the harmful, unethical, deceptive and coercive introduction of GM crops in Bangladesh since the late 1990s both by raising awareness and demonstrating successful alternative. She writes regularly in Bangla and English language in national daily newspapers, and spend most of

her time working with farmers in the village, organizing farmer's rallies in the capital city Dhaka to draw attention of the policy makers, press conferences and briefing the journalists on the issue, and arranges workshops and trainings with researchers, NGOs, activists, women's groups and consumers groups on various issues related to health, food, agriculture and ecological lifestyles.

UBINIG is a community led and community based policy and action research organization formed in 1984 to support people's initiatives to take command over their own lives and livelihood. Dignity, diversity and joy of life are precious values we cherish and work with communities to realise them in a meaningful way in order to be free from all forms of hierarchies, violence and injustice.

UBINIG is the abbreviation of its Bengali name *Unnayan Bikalper Nitinirdharoni Gobeshona*. In English it means **Policy Research for Development Alternative**. It is a policy research organization having grass root connections with farmers, weavers, fishers, artisans and crafts persons, community health providers, rural entrepreneurs and other rural communities.

Agriculture and the agrarian livelihood, agro-ecology, seed and genetic resource conservation and relevant knowledge practices are major areas of our work. We work to defend agriculture as a way of life and do not reduce life affirming activities merely as a sector of production of 'food'. **Nayakrishi Andolon** leads activities related to agriculture and food sovereignty.

Nayakrishi Andolon, literally means New Agricultural Movement led by farming communities, is an innovative practice of biodiversity-based ecological agriculture in order to safeguard environment, ecology and rich genetic base of bangladesh agriculture. The biodiversity and genetic resources is a major area of work of Nayakrishi. The farming practice is based on ten principles adopted by farmers themselves that includes no use of pesticides, preservation of local variety seeds, conservation of plant, bird and animal genetic resources. Over 300,000 farming families in 19 districts are involved in Nayakrishi Andolon.

Agriculture as enriched by the experience of the farmers for thousands of years falls prey to the invasion of external profit-oriented technologies. It was followed by hybrids and the latest addition in the series has been the Genetic Engineering (GE) or Genetically Modified Organism (GMO) through corporate giants such as Monsanto, Syngenta and others.



# Bt Brinjal Story: Bangladesh Resisting Monsanto

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*The witness account from UBINIG*

By Farida Akhter

## **Monsanto in Bangladesh**

Monsanto is not new in Bangladesh. The company has been actively selling RoundUp Ready<sup>1</sup> in the Tea Gardens as Glyphosate herbicide for over two decades. Tea Gardens are located in remote areas in the north eastern geographic location of Bangladesh. It is only recently that Health hazards of unprotected tea garden workers are revealed only recently and linked to the unprotected use of pesticides and herbicide. However, the name of the herbicide company was never known until Monsanto representative in Bangladesh disclosed to the anti-Monsanto activists in 1999 that Monsanto has been supplying Glyphosate herbicide with their brand RoundUp Ready for over past ten years <sup>2</sup>.

Monsanto became known to the environmental activists in Bangladesh when it announced to launch with Grameen Bank the "Grameen Monsanto Center for Environment-Friendly Technologies" in Bangladesh with the declared initial aims of supplying hybrid seed technology, making the country self-sufficient in cotton, rice and maize and improving tilling techniques. This was Monsanto's desperate push to establish global business partnership with Prof. Mohammad Yunus, the then President of the Grameen Bank; Dr Yunus later received Nobel Peace Prize in the year 2006.

The announcement came on June 25, 1998 at the Microcredit Summit Meeting of Councils in New York, Shapiro and Yunus announced the partnership between Monsanto and Bangladesh's Grameen Bank. The irony was Monsanto-financed Center was to provide ["environment-friendly technologies"](#) to the poor in Bangladesh.

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<sup>1</sup> Roundup is the brand-name of a herbicide produced by Monsanto. Its active ingredient glyphosate was patented in the 1970s

<sup>2</sup> A telephonic conversation with Farida Akhter in 1999

Environmental activists, farmers and women's rights groups and individuals around the world immediately challenged Grameen's decision to team up with Monsanto. The protest came from leading networks who works with farming communities for seed and food sovereignty such as Research Foundation for Science, Technology and Ecology in India, ETC Group,<sup>3</sup> Canada and South Asia Network on Food Ecology and Culture (SANFEC). Dr. Vandana Shiva of Research Foundation for Science, Technology and Ecology wrote an open letter to Mohammed Yunus in early July, 1998<sup>4</sup> reminding him of Grameen's humble beginnings and charged that the partnership with Monsanto amounts to a reversal of his early goals and that linking the microcredit scheme to the proposed center would create markets only for Monsanto's products while local products would be wiped out, destroying livelihoods and food sovereignty and biological diversity. The imminent danger of a herbicide company intending to ride on the credit network for the poor, particularly women was obvious. There were protests in Bangladesh. UBINIG organized press conferences and urged Grameen Bank to stop the deal. At the Summit of the South Asian Association for Regional Cooperation (SAARC), the SAARC Peoples' Forum wrote letter to Prof. Yunus urging him to stop the partnership as it was a threat not only to Bangladesh but to other South Asian countries as well. Just after one month of deal Grameen Bank declared to cancel the partnership with Monsanto. On July 27, 1998 Yunus had to retreat announcing he was abandoning the project because of opposition from environmental groups that accused Monsanto of using the Grameen Bank's network of rural borrowers to market its products.

But Monsanto did not really give up its efforts to enter Bangladesh. Immediately after the falling apart of the deal with Grameen Bank, Monsanto's vice-president in charge of development, Horacio Navaretti, arrived unannounced in Dhaka on August 30, 1998 to meet with government officials, NGOs and private seed dealers. This was disclosed to UBINIG by a private seed dealer as he got an appointment with the Vice President. UBINIG organised a joint protest rally with SANFEC in front of the Pan-Pacific Sonargaon Hotel where Horacio Navaretti was staying. Protesters carried banners with slogans such as, "MR. HORACIO, PLEASE GO BACK", "WE DO NOT WANT MONSANTO", "MONSANTO IS A MONSTER" , "MONSANTO

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<sup>3</sup> The full name is Action Group on Erosion, Technology and Concentration .

<sup>4</sup> <http://www.greens.org/s-r/17/17-15.html>

IS ANTI-FARMER", etc. Police dispersed the rally after an hour on the ground that rallies are not allowed on VIP streets. This protest succeeded in making his trip controversial and the Minister for Agriculture called off the meeting with him. He however met some NGOs and seed dealers in his hotel.

Monsanto since then partnered with nongovernmental organizations (NGO's), public institutions, public-private universities and other stakeholders with diverse approaches to legitimise its actions in introducing its technologies particularly GMOs.

## **States, universities and Monsanto**

Monsanto and other Biotech companies needed a mechanism to show their business as a scientific project, developing capacities of the public institutions and the Agricultural Universities. For this the Agricultural Biotechnology Support Project was an effective institutional mechanism for the company to hide under a "project".

### **The Agricultural Biotechnology Support Project II (ABSP II)**

The Agricultural Biotechnology Support Project II (ABSP II), is funded by the United States Agency for International Development (USAID) and led by Cornell University, is introducing agricultural biotechnology to countries in East and West Africa, India, Bangladesh, Indonesia, and the Philippines. The ABSP II Southeast Asia Center is spearheading efforts to develop and commercialize biotechnology products from public research so that these can reach the Southeast Asian market.

BARI (Bangladesh Agricultural Research Institute) is the largest multi- crop research institute conducting research on a wide variety of crops, such as cereals, tubers, pulses, oilseeds, vegetables, fruits, spices, flowers, etc. The Research Wing executes and monitors all the research programmes and other research activities through 7 special crop research centers, 17 research divisions, 7 regional research stations and 28 sub-stations<sup>5</sup>.

The **International Service for the Acquisition of Agri-biotech Applications** (ISAAA) is a non-profit international organization that shares agricultural biotechnology, with a special focus on

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<sup>5</sup> <http://www.bari.gov.bd/>

resource-poor farmers in developing countries. The ISAAA receives funding from both public and private donors. Some of the ISAAA's funding agencies, companies and Banks include the African Agricultural Technology Foundation (AATF), Ain Shams University, Brazil-Africa Market Place, CropLife Asia, CropLife International, Maharashtra Hybrid Seeds Pvt. Ltd (Mahyco) India, Monsanto, United Phosphorus Limited, US Department of Agriculture, US, Department of State, US Agency for International Development (USAID), [US Grains Council](#), [Monsanto](#), two banks - Fondazione Bussolera in Italy and Ibercaja in Spain, [USAID](#), [Agricultural Biotechnology Support Project II](#) and others.<sup>6</sup>The active support of USA both as explicit foreign policy and development intervention is key in uniting

## **Bt Brinjal: First GMO food crop in South Asia enters through a repressive state**

Since the news published in a newspaper The Daily Star<sup>7</sup> about the Bangladesh Agricultural Research Institute (BARI) is to apply to the National Technical Committee for Crop Biotechnology (NTCCB) for release of genetically modified brinjal in August, 2013, there have been protests by environmental and farmers groups<sup>8</sup>. Anti GMO activists demonstrated by forming human chains in capital city as well as at the district level. Articles and protest letters were published in newspaper and electronic media. The protest reached its apex by filing writ petitions in the High court appealing not to approve Bt Brinjal for commercial release.

The pro-GMO media claimed that an expert committee has termed all 'scientific findings' are sound concerning the country's first genetically modified (GM) crop – Bt Brinjal – and was preparing its review report on those for forwarding it to the agriculture ministry<sup>9</sup> [Daily Star, 17 September, 2013]. This meeting happened just two days before the High Court Hearing scheduled on 19<sup>th</sup> September on the Writ Petitions against the approval. The High Court rejected the petitions on 22<sup>nd</sup> September, 2013. The Government was in a hurry to stop all kinds of oppositions, legal and social, before it approved for field cultivation.

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<sup>6</sup> See [ISAAA](#) and entry in [wikipedia](#).

<sup>7</sup> See '[Brinjal Modified](#)' in the Daily Star 11 July 2013.

<sup>8</sup> [Modified brinjal sees opposition](#) The Daily Star, July 19, 2013

<sup>9</sup> [Modified Brinjal found okay](#), The Daily Star, September 17, 2013

The news of government initiatives for Bt Brinjal approval also raised concerns among international scientists and environmental groups. In August 2013 independent scientists wrote letters to the Prime Minister, Sheikh Hasina, Government of Bangladesh not to allow the introduction of Bt. Brinjal. Professor David Schubert, Salk Institute for Biological Studies, USA pointed out the unprecedented health hazard to the population of Bangladesh because there has not been adequate safety testing of Bt Brinjal for human consumption. It was rejected in India and the Philippines on this basis. He also warned that once the company controls the seed market of any single food plant, seed for more GM plants will follow and the company would have tremendous power over both the farmers, which constitute a major segment of the Bangladeshi population, as well as the political process.

Professor Schubert informed the Prime Minister that the individuals from Cornell University making the claim that the Bt Brinjal is safe for humans have no valid evidence to support this claim. Cornell University and many of its scientists receive large amounts of research funding from Monsanto to study and promote Monsanto products.

Along with Prof. Schubert, ten Independent International scientists from different countries in the world, have also appealed to the Prime Minister of Bangladesh. They include (1). Dr. Michael Antoniou, Professor Gene Expression and Therapy Group, King's College London School of Medicine Expertise in gene structure and function, and transgenic biotechnologies including human gene therapy; (2). Susan Bardocz, DSc. Professor Human Nutrition, GMO expert of the Ministry of Rural Development of Hungary (rtd); (3). Dr. Pushpa M. Bhargava, Former Vice Chairman, National Knowledge Commission; former Member, National Security Advisory Board and Founder Director, Centre for Cellular and Molecular Biology, Hyderabad; (4). Dr. Judy Carman, Senior Epidemiologist and an Adjunct Associate Professor at Flinders University in South Australia; (5). Professor Jack A. Heinemann, Centre for Integrated Research in Biosafety; University of Canterbury; (6). Professor Hans R Herren, World Food Prize Laureate, Co-chair of the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) and member of the US National Academy of Science; (7). Dr. Angelika Hilbeck, Senior Scientist & Lecturer, Swiss Federal Institute of Technology, Integrative Biology, Zurich, Switzerland; (8). Dr. Robert Mann, Senior Lecturer in Biochemistry, University of Auckland (rtd) and Long-serving member NZ Govt. Toxic Substances Board

(rtd.); (9). Professor Arpad Pusztai F.R.S.E. (Fellow of the Royal Society, Edinburgh), Protein Chemist and Biochemist (rtd.) and (10). Professor Gilles-Eric Seralini, Head of Risk Group (MRSÓ-CNRS), Lab Biochemistry & Molecular Biology, University of Caen, France, international expert on GMOs and pesticides.<sup>10</sup>

The scientists apprehended that Bt Brinjal would present an enormous hazard to human health. It would be profound disservice to Bangladesh if Bt Brinjal were allowed to enter her food supply. Similarly the South Asia Network of Women (SWAN) at the 5th Annual SWAN Conference held during 23 – 24 August, 2013 in Colombo, Sri Lanka expressed deep concern over the news that Bt. Brinjal is going to be approved for commercial release in Bangladesh. Statement signed on 23 August, 2013 by 42 eminent women professionals, academicians, lawyers, activists.

In the midst of concerns and protests by national and international scientists and environmental groups, the government of Bangladesh took a very quick step to go through the approval process. The National Committee on Biosafety (NCB) under the Ministry of Environment passed the approval on 30<sup>th</sup> October, 2013. The timing was very crucial. The government went ahead with the approval at a time when its moral, political and legal legitimacy had already been questioned both domestically and internationally. This was also the last day in the Parliament for the government before the next election to be held in January, 2014. The government could not wait as it was not sure whether the approval will go through if they were not re-elected. Political violence erupted due to the movement for a free and fair election under a neutral Caretaker government. Repressions by the government on the opposition forces and dissident voices intensified and uncertainties among the civil society intensified. Extrajudicial killings and enforced disappearance increased. GMO promoters picked up such politically troubled time to introduce Bt Brinjal. Police forces were used for dispersing the peaceful protestors against Bt. Brinjal.

Bt brinjal, is the first GM food crop in South Asia and is an example of the public-private partnership model and North-South cooperation advocated by the promoters of GMOs. The project was designed by the US government through a programme funded by USAID and led

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<sup>10</sup> See [Bangladesh to become guinea pig for Bt Brinjal](#) by Farida Akhter.

by Cornell University, called ABSP II. The partners involved include Monsanto's Indian avatar, MAHYCO, [5](#) which has licensed Monsanto's patented *Bt* genes to the project, India's Tamil Nadu Agriculture University (TNAU), the University of Agricultural Sciences (UAS) in Dharwad, and the Indian Institute of Vegetable Research in Varanasi. The project was extended to Bangladesh, where the Bangladesh Agricultural Research Institute and the University of the Philippines-Los Baños have already been conducting field trials of *Bt Brinjal* under memoranda of understanding (MOUs) with MAHYCO.

Bangladesh is a 'target' country for the *Bt Brinjal* under the ABSP II and the 'Monsanto technology' - a joint venture with Maharashtra Hybrid Seed Company (MAHYCO) of India and its collaboration with the private seed company East West Seeds, Bangladesh. MAHYCO is transferring the technology and basic breeding material of *Bt. Brinjal* to two Indian public sector institutions (PSIs), the Tamil Nadu Agricultural University, Coimbatore (TNAU) and the University of Agricultural Sciences, Dharwad (UASD), though the ownership of the GE event EE-1 still rests with MAHYCO. The *Bt. Brinjal* contains a gene construct of Cry 1 Ac from Monsanto, the American multinational corporation, which has a 26 per cent stake in MAHYCO-Monsanto Biotech (MMB). The public sector institutions in India and Bangladesh will use the MAHYCO material to backcross with their own brinjal varieties to incorporate the genetic event into them so that the plant become poisonous to the fruit and stem borers.

It is important to know that introgression of *Bt* gene into 9 Bangladeshi local variety brinjals were done at MAHYCO, the Indian company, using their lab facility. MAHYCO has received the application rights of the *Bt cry1Ac* gene technology from US company Monsanto. The Bangladeshi varieties were backcrossed at MAHYCO with transgenic brinjal containing Cry1AC (Chowdhury no date). This means that there was hardly any scope for knowledge and technology transfer from MAHYCO's proprietary technology to the scientists working in public research institutions of Bangladesh.

Monsanto has already taken control over the nine local variety brinjals through the Tripartite Agreement signed by Mahyco, Sathguru Management Consultants Private Ltd. (India) and Bangladesh Agriculture Research Institute (BARI) on March 14, 2005 for the development and release of cultivable *Bt Brinjal* varieties in Bangladesh. It states that Monsanto-Mahyco preserves all the intellectual property rights (IPR) of the technology. Mahyco is a subsidiary of

US-based multinational seed company Monsanto and Sathguru Management Consultants Private Ltd. is the regional coordinator of the South Asian region for Agricultural Biotechnology Support Project II (ABSP II) of USAID.

Section 1.19 of the tripartite agreement, said all Bt Gene is a Monsanto or Mahyco technology and the intellectual property rights of the concerned will be infringed by unauthorised distribution of products containing Bt Gene.

Sub-section (c) of Section 9.2 of the deal noted that it can be terminated by the sub-licensor or Mahyco if the laws and regulations in Bangladesh do not provide assurance of protection for commercial and intellectual property rights<sup>11</sup>.

The Ministry of Agriculture (MoA) confirmed to the national media<sup>12</sup> that IP (intellectual property) right of the Bt Brinjal is surely of Monsanto-Mahyco's. "The most striking point of the agreement is that it has given an indemnity or BARI has given indemnity to Monsanto-Mahyco and Sathguru for any kind of disaster concerning Bt Brinjal research." BARI has no right to even infuse Bt gene into a new variety<sup>13</sup>.

The revealed agreement between Mahyco, Sathguru and BARI shows that the Bt Brinjal is a gross violation of peoples' sovereignty over natural resources.

### **Bangladesh does not have the Regulatory mechanism to safeguard biodiversity**

Bangladesh does not have law and legally stipulated regulatory authorities to adequately safeguard ecology, biodiversity and human health. In the absence of laws and regulatory regimes for biodiversity and biosafety of GM crops and food the decision of introducing genetically modified eggplants depends on the whim of the Government. The prerogative to safeguard the interest and safety of the citizens in the areas of agriculture, medicine, food, import, trade, and environment related to biotechnology and genetic engineering lies with the executive organ of the state. After NTCCB, the second decision making body, the National Executive Committee on Biotechnology of Bangladesh (NECBB) is also functioning under the Principal Secretary to the Prime Minister. Five National Technical Committees (NTC) on

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<sup>11</sup> <http://unbconnect.com/bt-brinjal/#&panel1-1>

<sup>12</sup> [Monsanto's Indian affiliate to win IP right of Bt Brinjal](#), The Financial Express 23 February, 2014

<sup>13</sup> <http://www.thefinancialexpress-bd.com/2014/02/23/20090>

Biodiversity, Biosafety, Plant Biotechnology, Animal and Fisheries Biotechnology and Medical Biotechnology are also operating under the secretaries of the respective ministries. The Task Force approved all guidelines and policies developed by the concerned ministries and NTCs in 2006, during the military backed Care-Taker Government.

Lack of law and legally stipulated regulatory authority on GMOs notwithstanding, it is the responsibility of the state to protect the citizens from harmful activities of any person, organization and agency that can threaten health, life, environment, ecology or the lifestyles and the associated livelihood and knowledge practices of local and farming communities. These are natural rights and they not only predates the formation of the state but also constitutes the state's binding obligations to the international community stipulated through signing international covenants such as Ramsar Convention, Convention on Biological Diversity, Cartagena Protocol on Biosafety and various other covenants related to human rights.

There is an apex body referred to as the National Task Force Committee on Biotechnology of Bangladesh (NTCBB) under the prime Minister as Chairperson. Biosafety policy guidelines and related aspects of biotechnology issues have been approved mainly by committees represented by the interest of the scientists and commercial companies but hardly ensuring any representation from and participation by the farmers and consumers groups in order to safeguard the interest of the people at large. There is no law to protect people from the potential hazards of Biotechnology. Despite Bangladesh being a party to the Cartagena Protocol on Biosafety, there has always been resistance to enact proper biosafety law and regulatory regime that could function independently without manipulation from political and commercial interests. People's interests and safety concerns are frequently compromised.

#### **The Biosafety Guidelines of Bangladesh**

The Biosafety Guidelines for Bangladesh was first formulated by the Ministry of Science and Technology in 1999 under government led by Bangladesh Awami League. Cartagena Protocol on Biosafety to the Convention on Biological Diversity was not in place at that time. Considering the obligation of the said protocol, the guidelines have been updated by the initiative of the Ministry of Environment and Forest, in accordance with the latest information. During updating of Guidelines, MOEF has also taken National Policy on Biotechnology into

consideration and recasted various aspects of Risk Assessment and Risk Management in the light of Cartagena Protocol.

In 2005, the Ministry of Environment and Forest, GOB formulated the Biosafety Guidelines of Bangladesh to address the precautionary approach contained in Principle 15 of the Rio Declaration on Environment and Development, the objective of this Guideline is to contribute to ensuring an adequate level of protection in the laboratory, field trial, safe transfer, handling, use and transboundary movement of GMOs/LMOs as part of modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human and animal health. On the basis of the precautionary principle, the Guidelines provide a framework for the following aspects:

(a) Develop acts, rules, standards and scientific database, codes of practice and monitoring capabilities and enforcement manuals for assessing risk in the research and development and release of GMOs/LMOs into the environment ( GOB 2005)

#### **The National Biotechnology Policy 2006**

According to the Bangladesh Sangbad Sangstha (BSS) report, as published in New Age on July 20, The National Biotechnology Policy 2006 was formulated during the last year of the BNP led government and aimed at 'increasing food production', 'alleviating poverty' and ensuring 'health and nutrition development (Bangladesh Sangbad Sangstha (BSS) report, as published in New Age on July 20, 2006)'. The prime minister (Begum Khaleda Zia) stressed on formulating a 20-year national road map on biotechnology on a priority basis for the development and flourishing of biotechnology in the country and she claimed 'proper use of biotechnology could help the country produce (a) huge (amount of) food grains' (MAZHAR 2006).

#### **National Institute of Biotechnology Bill-2010**

On 10th February, 2010 the State Minister for Science Yeafesh Osman of the Awami League led government tabled the "[National Institute of Biotechnology Bill-2010](#)" in the National Parliament in Bangladesh<sup>14</sup>. . The National Institute of Biotechnology is going to be an authority to set standards for highly controversial genetically modified (GM) foods and crops in

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<sup>14</sup> See (<http://bdnews24.com/details.php?id=153348&cid=2>).

Bangladesh. Four other bills seeking to enact laws for growth and development of hi-tech based industries in a "planned way and innovation of sustainable and environment-friendly technologies in agriculture, environment, medicine and industries", as described by the State Minister, were sent to the parliamentary standing committee on science and ICT ministry for scrutiny and to submit reports. The parliamentary body has only 21 days to finalize its recommendations on the five bills.

A democratically elected government setting table with such a controversial Bill is unexpected, particularly in the absence of the opposition. More alarming is to see that there is no consultation held outside the Parliament with the relevant environmental groups and, most importantly, with any representative from farming communities. Having two-third majority in the Parliament, the grand Alliance government will have no difficulty in passing the bill but only prove that a brute majority in parliament may prove disastrous for a country; Bangladesh is already vulnerable to environmental and ecological disasters, and threats of climate change is already looming. The democratic attitude of the government is conspicuously lacking here, particularly towards the farmers. It is not known whether the Parliamentary standing committee will hold any public consultation within the 21 days to finalize its recommendations. So far, no such effort is visible for public consultation.

The feasibility paper for National Institute of Biotechnology was recommended by a committee of experts under the leadership of Desh Pal Verma, Professor of Molecular Genetics at the Ohio State University, USA, and was submitted to the Ministry of Science and Technology. Since its inception in 1996, NIB was administered by Bangladesh Atomic Energy Commission of Science and the Ministry of Science Information and Communication Technology (ICT) under a development project. If the is passed the NIB will be an independent and autonomous institute under the Science & ICT Ministry, and will receive budget from the government revenue directly. The NIB will have its own Director General and will act as the national focal point for Biotech activities in Bangladesh.

Bangladesh Parliament tabled the Bill to introduce GM crops in the country on the same day that India's Bt. Brinjal verdict was to be originally announced, on 10 February 2010. Indian government declared its verdict one day before following severe opposition from states, farmers and environmental groups, and halted its plans to allow the first genetically modified

eggplant or Bt. Brinjal to be grown commercially. Indian Environment Minister, Jairam Ramesh, announced imposition of the "moratorium on the release" of Bt. Brinjal till the time when "independent scientific studies establish, to the satisfaction of both the public and professionals, the safety of the product from the point of view of its long-term impact on human health and environment." Unfortunately, such consultations are not held in Bangladesh, yet a Bill is enacted to enable the GM crops to be grown in Bangladesh. This raises serious questions to the environmentalists and those who were opposing the release of GM food and crops in Bangladesh as well as in India, why Bangladesh had to table this Bill at a time when India has decided on the moratorium. Is this merely a coincidence or a plan to help Bt. Brinjal continue to be released commercially?<sup>15</sup>

### **The Biosafety Rules, 2010**

In exercise of the powers conferred by the rule 20 of Environment Conservation Act 1995 (Act No. 1 of 1995) and with a view to protecting the environment, nature and biodiversity thereof, and above all human health, in connection with the application of modern biotechnology and manufacture, use, import, export and storage of potentially hazardous micro-organisms and/or genetically modified organisms (GMOs) or cells or living modified organisms (LMOs), the Government of Bangladesh hereby makes the following rules, namely:-"the Bangladesh Bio safety Rules, 2010" [MOEF, 2010].

Ministry of Environment and Forest (MOEF) shall be acting as the competent national authority and national focal point to implement the Cartagena Protocol on Biosafety to the Convention on Biological Diversity (CBD). MOEF shall establish a National Committee on Biosafety (NCB) in order to ensure environmentally safe management of modern biotechnological development including research and development, introduction, use and transboundary movement of GMOs/LMOs [MOEF, 2010].

According to the Rule (XXXV)"Release into the environment" refers the use of a regulated material outside the physical confinement found in a laboratory, a contained greenhouse, a fermenter or other contained structure.

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<sup>15</sup> [‘Bt Brinjal: India halts Bangladesh moves ahead’?](#) The Opinion Pages, bdnews24.com & [‘Approval of Bt Brinjal: from India to Bangladesh’](#) in Dhaka Tribune, 16 January 2014

In case of providing for permission in order to conduct the confined or the large scale field trial of GMOs/LMOs Field level Biosafety Committee (FBC) shall be constituted by the Ministry of Environment and Forest.

The Biosafety Rules was finally passed as Gazette in 2012 and the information is available in the ISAAA<sup>16</sup>

### **Use of government at its weakest position**

Knowing the weakness of the government in its election procedure, the government followed the directions given by ABSP II and the Cornell University. The country is running in an undemocratic way, where people's voices are not allowed to be raised. In this situation the Public Research Institution, Bangladesh Agriculture Research Institute (BARI) is a passive actor and has no control over the field cultivation of Bt Brinjal. This is evident by the blank page of Bt Brinjal in the website of BARI as accessed on 8 September 2016<sup>17</sup>.

On the other hand, the report on the performance of Bt Brinjal is published by ISAAA brief 47 with three authors out of which two are Indians published from ISAAA South Asia Center. The other strategy was to honor the Prime Minister Sheikh Hasina by Cornell University of the United States with a citation in recognition to her overwhelming contribution to the development of agriculture sector and ensuring food security in Bangladesh. Visiting director Ronnie Coffman of Cornell University handed over the citation to the Prime Minister at her office on behalf of the university's president David J Skorton.

The citation signed by the president of the university read: "Prime Minister Sheikh Hasina's continuous support for the improvement of agriculture sector in Bangladesh and attain self sufficiency in food production as well as her keen interest in promoting science and technology." Sheikh Hasina thanked the Cornell University for innovation of the BT Brinjal.

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<sup>16</sup> <http://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=10212>.

<sup>17</sup> See the blank page of BARI website

## Bt Brinjal in Farmers' Field failed

Nationally Brinjal is grown in about 50,000 hectares of land in two major seasons: winter and summer. However there are varieties which can be grown round the year. Bangladesh is a country of wide range of varieties of brinjals. According to Bangladesh Country Report of Plant Genetic Resources to Food and Agriculture (FAO), 2007<sup>18</sup> there were 248 varieties of brinjals, traditional varieties reducing with release of new varieties. Most of the varieties are resistant to major disease and pest. The major pest of brinjal include insect, mite, fungi, nematode and bacteria. The fruit and shoot borer (*Leucinodes orbonalis*) is one of the insect pest of brinjal. Some of the local varieties including Jhumka 1, Jhumka 2 are highly resistant, Islampuri 3, BL 34, Muktakeshi are fairly resistant, Singnath long and Singnath 4 are tolerant to brinjal shoot and fruit borer<sup>19</sup>.

Bt Brinjal is promoted on the argument that it will control Fruit and Shoot Borer (FSB) pest and therefore will save pesticide use. But the FSB is not the only pest of brinjal. There are a number of other pests, including insect attacks, diseases and nematodes that inflict serious damage to brinjal crops causing heavy yield losses. The pro-GM scientists are claiming to reduce pesticide use and anyone who speaks against Bt Brinjal is blamed to be an “agent of the pesticide company”! Independent scientist Dr. A. N. M. Rezaul Karim in Bangladesh<sup>20</sup> has shown through their calculation that this claim is false. Since 24,583 tons of insecticides are used for all crops occupying 14,943,000 ha, an estimated amount of insecticides to be used for 50,000 ha of brinjal crops may be only 82.3 tons. This estimated amount of insecticides is supposed to be saved if Bt brinjals occupy all the 50,000 ha of brinjal cultivated area, which is almost impossible.

After approval for field cultivation in October 2013, three rounds of seed distributions to farmers were made by the Bangladesh Agriculture Research Institute (BARI) and Directorate of Agriculture Extension (DAE), although field signboards have the names of Cornell University and ABSPII. In each round the number of farmers is increased irrespective of performance

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<sup>18</sup> Country Report of the State of Plant Genetic Resources, BANGLADESH ; Second Report on Plant Genetic Resources for Food and Agriculture of Bangladesh: The State of Activities, Bangladesh Agriculture Research Council, Ministry of Agriculture, Government of Bangladesh

<sup>19</sup> See [Bt Brinjal is a burden](#) by M.A Sobhan and Jahangir Alam Jony

<sup>20</sup> Bt Brinjal in Bangladesh: A serious Concern for Bangladeshi citizens in the Briefing Paper by Dr. A.N.M Rezaul Karim , 2014

status. The first round (2014) had twenty selected farmers on 5 districts; seventeen out of 20 farmers incurred severe loss as the genetically modified brinjals performed poorly in the field. These farmers challenged the BARI officials in open meetings and demanded compensation.

In the second round (2014-2015) 110 farmers were selected in 19 districts for Bt Brinjal seed distribution. Among the farmers 109 were new. Most of them are not traditional farmers, but engaged in farming in addition to their other livelihood options. Criteria of selecting these farmers were that they had land and were known to Agricultural Extension Officers. Agricultural officers instructed by the BARI to intensively monitor the fields and command over the cultivation of Bt Brinjal needed such connections. The exercise could hardly be termed as farmer's field cultivation. Seventy nine farmers, who were interviewed by UBINIG. Among them 58 (74%) farmers declared that due to the losses they had incurred, they would not cultivate Bt brinjal again in the future. Sixteen (20%) of the farmers said they would do so only if the BARI or DAE provided all the support. Only one farmer showed an interest in growing Bt brinjal again.

Bt brinjal was claimed to be profitable because the yield would not be impacted by the fruit and shoot borer. However, UBINIG found yield did not live up to the expectations of farmers. Those farmers who were able to supply details of costs and income reported losses ranging between Tk. 15,000 (USD 192) and Tk. 30,000 (USD 385). In comparison, farmers cultivating local non-GM varieties could earn between Tk. 70,000 (USD 898) and Tk. 100,000 (USD 1280) from the same size field.

Bt Brinjal was supposed to be pesticide free. But the farmers had to use huge amounts of pesticides recommended by the supervising authorities of BARI and DAE. These included Comfidor, Ektara, Admasar, Dithen M-45, Bavistin, Thiovit, Basudin, Furadan, Borax, Demsa granular, Vim powder, Admire, 200sl (Bayer CropScience), bleach powder, Heckel, Salclox, Diazinon, etc. There were many other insecticides and fungicides sprayed, as provided by DAE. In the booklet of BARI, organic pesticides such as Neem seeds, Neem oil, powder soap, Trix, and the chemical pesticides Malathion, Omite, and Baviston were suggested for different pest/disease attacks.

UBINIG found “Thirty-five types of pesticides, including acaricide [kills ticks and mites], insecticide, and fungicide, were sprayed several times in the Bt brinjal fields”, on the direction of the supervising officials<sup>21</sup>.

At present, brinjal is cultivated in 2,00,000 hectares while Bt Brinjal is produced in only 10 hectares<sup>22</sup>.

## **Protecting brinjals: Bangladesh resisting gene-pirates**

In Bangladesh brinjal as a vegetable is cultivated by small farmers for their subsistence needs as well as a cash crop, while there are large commercial farmers cultivating it only for market. Those who cultivate for subsistence needs use local variety seeds, while those for commercial cultivation use hybrid seeds. In Bengali it is called “Begoon” or “Be-shumar goon” meaning it has endless good qualities and nutritional values. There are over hundred varieties cultivated in different agro-ecological zones of the country. The Nayakrishi farmers have a collection of 41 different varieties. The subsistence farmers, owning less than 3 acres of land comprise 84% of all farming households in the country. These farmers use local variety seeds for cultivation, which means the small farmers are the custodians of the local variety brinjals. On the other hand, only 15% of farming households (medium and large farmers) produce brinjals on large scale using commercial hybrid seeds using heavy doses of pesticides. There are only 19 brands of Hybrid brinjals sold to farmers by seven private seed companies and BARI.

It is more common as a Rabi (winter) than Kharif (rainy season) crop and often grown as a mixed crop in the small fields. It is also grown in the homestead land by women for family consumption. Brinjal is an important Rabi crop, comprising 61% of brinjals grown during the two major seasons Kharif and Rabi in terms of acreage and 63% in terms of production.

The context of the Bt. Brinjal was created by introduction of Hybrid brinjals replacing local varieties for commercial cultivation. In fact the MAHYCO is a hybrid seed company and clearly engraved in its full name “The Maharashtra Hybrid Seeds Company (MAHYCO)”. MAHYCO

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<sup>21</sup> See [‘Bt Brinjal under life support’](#) by UBINIG

<sup>22</sup> See [‘BARI set to release three Bt Brinjal varieties this year’](#) in Financial Express, July 29, 2015.

has donated this technology to public sector partners in India, Bangladesh and the Philippines in an arrangement facilitated by ABSPII.

Pest attacks in vegetable crops are considered to be a major problem in agriculture. Without investigating the causes of such pest attacks, the pesticide use has been increased. This is a direct contribution of the Green revolution which started with HYV variety of Rice and wheat, but gradually spread to vegetables and other food crops such as sugar cane, tea etc. According to a study released by Bangladesh Rice Research Institute (BRRI), the use of toxic pesticides by Bangladeshi farmers increased by 328 percent during the past 10 years, which is posing serious health hazards on human health due to its long-term residual effect. The intensity of pesticide use was found especially higher in vegetables in Bangladesh, compared to other countries in the world. The overuse of pesticides has been identified as one of the reasons for the decline in the overall export of vegetables from Bangladesh<sup>23</sup>.

Among the different types, liquid pesticide is used for vegetables and sometimes granular pesticide is mixed with the soil at the planting of the seeds. The common liquid pesticide used for vegetables are Sumithion, Marshall, Regeat, Fenfen, Nogos, Ostad, Dithane, Malathion, Sembush and Dimecron. The common granular pesticide for vegetables is Furadan. For brinjal Dimecron 100 SL, Furadan 5G and Sunfuran 5G is mostly used. In the brinjal field pesticide is applied frequently, at least twice a day. Pesticide is sprayed on the day brinjal is taken to the market<sup>24</sup>.

Fruit and shoot borer (FSB), considered the most devastating pest in South and Southeast Asia, ravages brinjal fields and can cause loss of the crop by as much as 70 percent unless a heavy dose of pesticide is used. Farmers are found to apply pesticides of up to 50 times in a cropping season of brinjal against a recommended dose of 25, making the vegetable highly toxic<sup>25</sup>. There are at least seven other kinds of pests/insects that may attack brinjal plant, leaves and fruit. Bt. Brinjal technology does not solve those problems. So what is the guarantee that the farmers will not use any pesticide to handle such pest/disease attacks?

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<sup>23</sup> [‘Pesticide use in Bangladesh tripled in 10 years’](#), September 22, 2010, Agronews.htm

<sup>24</sup> ‘BEESH: Poisoning of the Lives, A Study on Women and Pesticides in Bangladesh’ by UBINIG, published by Narigrantha Prabantana, 2002

<sup>25</sup> [‘Brinjal modified: Bangladesh set to join elusive club of 28 GM crop growing countries’](#) Daily Star July 11 2013

### **Monsanto strategy: Control over mostly used food crops – brinjal**

Brinjal (*Solanum melongena* L), also known as aubergine or eggplant) is one of the most common and important vegetables for the people of Bangladesh. Brinjal or eggplant (*Solanum melongena* L.) is an important solanaceous crop of sub tropics and tropics. The name brinjal is popular in Indian subcontinents and is derived from Arabic and Sanskrit whereas the name eggplant has been derived from the shape of the fruit of some varieties, which are white and resemble in shape to chicken eggs. It is also called aubergine (French word) in Europe <sup>26</sup>.

Bangladesh is among the few known countries as the country of origin<sup>27</sup> of brinjals. In “Origin of cultivated plants” published in 1886 De Candolle, stated that the species *S. Melongena* has been known in India from ancient times and regarded it as a native of Asia. Vavilov (1926) was of the opinion that its center of origin was in the Indo-Burma region. Various forms, colours and shapes of brinjal are found throughout South-East Asia, suggesting that this area is an important center of variation. A center of diversity is believed to be in the region of Bangladesh and Myanmar, i.e. former India-Burma border<sup>28</sup>.

### **Violating Convention on Biodiversity (CBD)**

Bangladesh is a country of diversity of crops, having thousands of varieties of rice, several varieties of each vegetables, pulses, oil seeds etc. For brinjal, there are at least 248 varieties all over the country. Bangladesh is in the center of origin for brinjals. Then why genetically modified brinjal is introduced which is a threat to the local brinjal varieties? Why genetically modified rice and potato are in the pipe line to be introduced, which we do not need?

So by introducing GM crops, Bangladesh is contributing to the loss of biodiversity and violating the Convention on Biological Diversity which states under Article 8 (g), which says

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<sup>26</sup> Cultivation of Brinjal, aegropedia, 20 April, 2012

<sup>27</sup> The term origin of crop plants mainly refers to the way by which the crop plants came into existence or by which these crops were derived at a particular point or a particular place. The origin of a particular crop is directly related to the place or the site or the country where it was born and domesticated for the first time. Alphonse de Candolle (1883) was the first to develop the subject of origin of domesticated plant in his book, 'Origine des Plantes Cultivées'. Nikolai I. Vavilov, a Russian scientist and pioneer of the plant genetic resource movement, suggested the idea that many cultivated plants originated in the regions of the world called gene or diversity centers, where these plants were domesticated and then dispersed and spread to other areas of the world. These centers are characterized by the presence of dominant genes. Initially Vavilov (1926) suggested six main geographic centers of origin of cultivated plants, but subsequently (1935) increased their number to eleven. For several of these crop species, the wild ancestors still exist in the center of origin.

<sup>28</sup> Cultivation of Brinjal, aegropedia, 20 April, 2012

“Establish or maintain means to regulate, manage or control risks associated with the use and release of living modified organisms resulting from biotechnology which are likely to have adverse environmental impacts that could affect conservation and sustainable use of biological diversity, taking into account the risks to human health”.

This violation is leading to a silent death trap for humans as well as plants, animals and micro-organisms. We must stop the loss of biodiversity.

## Research manipulation, propaganda and risks

### False claims and risks

The traditional varieties planted with healthy seed and integrated into mixed cropping system are not vulnerable to pests. It is the hybrids, that is the ‘laboratory seeds’ named by farmers, that are usually attacked by pests including (Fruit and Shoot Borer) FSB. The hybrids require huge amount of pesticides as these are developed mostly by pesticide companies and not by farmers. Solution to the problem is to strengthen the art of selection from the local varieties and enhance the farmer ecological approach to agriculture. According to Dr. David Schubert, Professor, Salk Institute for Biological Studies, USA “brinjal is not a crop threatened by an overwhelming insect infestation”<sup>29</sup> This is consistent with the experience of the Nayakrishi farmers of Bangladesh.

The intention of genetic engineering of eggplants is not to reduce the use of pesticides, rather to make the plant toxic by inserting Bt gene in the plant to make it resistant to Fruit and Shoot Borer (FSB). But there are several other diseases (fungus) suffered by the crop which will not be addressed by Bt. Brinjal. These include ‘damping off’ (fungus), ‘phomopsis blight’ (fungus) ‘leaf spots (fungus) ‘Altermeria leaf spot’ (fungus), ‘Cercospora leaf spot’ (fungus), ‘Verticillium wilt’ (fungus), ‘Bacterial wilt’, Little leaf (mycoplasma)’ etc. The claim that Bt. Brinjal does not require pesticide, therefore it is safe is also false. No health safety study has been conducted by BARI. The claim is only made on the basis of the so-called reduction of use of pesticide. Bt. Brinjal may not need direct spraying of pesticides, but the plant is toxic. In order to study health

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<sup>29</sup> Letter to Mr. Jairam Ramesh, Minister of Environment and Forests, Government of India, November 18, 2009 by Dr. David Schubert, Professor, Salk Institute for Biological Studies, USA

risks, it is necessary to evaluate the longest toxicological data for long period of time performed with blood analysis in mammals. These are sub chronic 90 day tests with goats, rabbits and rats.<sup>30</sup>

The commercial trait in Bt. Brinjal is conferred by the Cry1Ac-like derived protein. This protein is not Cry1Ac isolated from natural plasmids of *B. thuringiensis* v. *kurstaki*, but a protein made from a series of in vitro modifications. The first 40% of the amino acids found in Cry1Ac2 were replaced with 466 amino acids from Cry1Ab, another insecticidal protein. The developer has claimed that the fusion construct is 99.4% identical in amino acid order to the natural Cry1Ac protein (p. 33 of MAHYCO, 2008). However, Dr. Jack A. Heinemann, Professor of Genetics and Molecular Biology, university of Canterbury, New Zealand, has found that when he construct the fusion using sequences published in Genbank, he found that the fusion is a maximum of 94% identical to Cry1Ac (GenBank: ABD37053.1) and only 95% identical to Cry1Ab (GenBank: ABV91087.1). Based on these matches, it is also not clear why the developers have historically called their fusion construct after cry1Ac rather than after cry1Ab, or more precisely, cry1Ac-like to accurately identify it as a product of modern biotechnology formed as a chimera of multiple origins. Furthermore, the developer reports that a leucine residue at position 766 has been replaced by a serine residue in planta. According to Prof. Heinemann, to conclude that a novel protein is likely to be of no safety concern because of even few differences as 7 amino acids is not a research -based conclusion <sup>31</sup>

It is reported in the Daily Star that “consumers in Bangladesh have long been exposed to GM food through consumption of imported GM soybean oil”. But that does not mean there has not been any effect on the health of people. Researchers studied effect of feeding GM soybean on mice and found that it caused significant modifications in the nuclei (irregularly shaped nuclei) in the hepatocytes of GM fed mice. Several animal studies indicate serious health risks associated with GM food consumption including infertility, immune dysregulation, accelerated aging, dysregulation of genes associated with cholesterol synthesis, insulin regulation, cell

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<sup>30</sup> [http://www.envfor.nic.in/divisions/csurv/geac/bt\\_brinjal.html](http://www.envfor.nic.in/divisions/csurv/geac/bt_brinjal.html) Raw MAHYCO's data (November2008). Séralini. <http://www.criigen.org/brinjal> Report on the Bt. Brinjal counter-valuation for the Supreme Court (January 2009)

<sup>31</sup> Suggestions on How to Apply International Safety Testing Guidelines for Genetically Modified Organisms, prepared by Jack A. Heinemann, Professor of Genetics and Molecular Biology, university of Canterbury, New Zealand, 27 February, 2012

signalling, and protein formation, and changes in the liver, kidney, spleen and gastrointestinal system. There is more than a casual association between GM foods and adverse health effects.<sup>32</sup>

The Doctors for food and Biosafety stated that: There is non-cognizance of existing information on Health hazards associated with Bt. Brinjal and GM food. Based on existing knowledge and clinical experience, the Adverse Health Effects are:

**Damage to fertility and reproductive health.** Serious reduction in size of litter, growth and age of offspring, inability to conceive by offspring , manifesting itself after 2-3 generations.

**Multi-organ damage,** notably to Liver, Kidneys, heart, adrenal glands, spleen intestine and haemotopoietic systems (organs related to detoxification of food/ poisons).

**Immune reactions and allergies.** All BT Proteins are foreign and different proteins and several studies were shown that they provoke immunological reactions such as respiratory allergy like Asthma and Skin allergies.

**Malnutrition**-15% less calorie uptake was noted in the MAHYCO studies itself  
Causation/ initiation of Cancers.

**Unpredictable Mutations/** distortion of Cellular structure.

Detection of Antibiotic Resistant Marker genes in human/ animal gut bacteria, portending disastrous consequences e.g. Kanamycin resistant gene detected in gut bacteria in GM feeding trials can seriously jeopardize National Tuberculosis Control Programme due to grave pre-existing problem of Multi-Drug-Resistant(MDR) and Extreme-Drug-Resistant(XDR) Tuberculosis in India as well as other parts of the world.

A real concern is that Bt. Brinjal will evolve resistance to Bt. Brinjal, rendering it useless. Resistance is expected to occur within a few years at the localities where hybrid EE-1 Bt. Brinjal is adopted at a high rate. This is because EE-1 is a low dose event and the GEAC set no requirements to reduce the risk of resistance. In addition, EE-1 may jeopardise

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<sup>32</sup> Health Hazards related to Genetically Modified Food with reference to Bt. Brinjal, submitted by Doctors for food and Biosafety, 4 February, 2010, New Delhi, India

better Bt. Brinjals that could be developed in the future by providing a stepping-stone for rapid resistance evolution<sup>33</sup>.

### **Procedural flaws in the research and non-accountability of information sharing**

The ABSP II project has always been as much about changing public policies as about developing technology. Tightly linked to this project is the USAID-funded South Asia Biosafety Program (SABP), which is assisting the governments of Bangladesh and India to “streamline” their governance of biotechnology<sup>34</sup>. The Parliament of India is due to consider two proposed pieces of legislation concerning GM that have emerged from the Program: first, a Seed Bill law to allow for the registration and marketing of GM seeds, and a second to set up a three-member biotechnology regulatory authority that can more quickly rubber-stamp GMO approvals. In Bangladesh, the Program hastened the development of a National Institute of Biotechnology Bill, which was tabled before Parliament in February 2010. If adopted these laws would open the door to the approval of many more GM crops<sup>35</sup>.

Scientists at Bangladesh Agricultural Research Institute (BARI) engineered brinjal, one of the country’s most consumed vegetables, back in 2005. It took seven years to complete greenhouse trials. Using lab facilities of leading Indian seed company Mahyco, scientists infused Bt gene into nine brinjal cultivars of Bangladesh. Mahyco has received the application rights of the Bt cry1Ac gene technology from US company Monsanto. BARI officials say that the national biosafety committee approved the contained field trial of Bt. Brinjal in 2007-08<sup>36</sup>. It was also the regime of a military backed unconstitutional government.

However, the results of the contained field trial were not shared with different stakeholders before it was allowed for Open Field Trial. Later, Open-field trials of Bt. Brinjal were conducted in various agro-ecological zones in the country for local adaptability of the crop.

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<sup>33</sup> Bt. Brinjal event EE1: The Scope and Adequacy of the GEAC environmental risk assessment, by David A. Andow, Department of Entomology, University of Minnesota, USA, August 2010

<sup>34</sup> South Asia Biosafety Program, see: [http://www.agbios.com/sabp\\_main.php](http://www.agbios.com/sabp_main.php)

<sup>35</sup> <https://www.grain.org/article/entries/4024-gm-in-the-public-eye-in-asia>

<sup>36</sup> Daily Star July 11 2013. **Brinjal modified**: Bangladesh set to join elusive club of 28 GM crop growing countries <http://www.thedailystar.net/beta2/news/brinjal-modified/>

## Public-private partnership

The public-private partnership still leaves the likes of Monsanto very much in control. As can be seen from the Material Transfer Agreement (MTA) between TNAU and MAHYCO of March 2005, the public partners supply the local germplasm, to be freely used, while MAHYCO/Monsanto supplies its transgenes, loaded with patents. When MAHYCO in its laboratory crosses its proprietary insect-tolerant *Bt* eggplant lines into the local farmers' varieties supplied by TNAU, the resultant progeny becomes the "product" of the company.<sup>37</sup>

For Bt Brinjal, Monsanto is not relying on BARI alone for commercial marketing. It has involved the private seed companies. A private seed company is preparing to market three genetically modified Bt brinjal seeds. Officials of agriculture ministry said that preparations were afoot for the commercial release of at least three more Bt brinjal seed varieties through private seed company Lal Teer Limited. The National Daily New Age accessed the applications of Supreme Seed Company Ltd and GETCO Agro Vision Ltd seeking the permission to produce and market the controversial Bt brinjal seeds<sup>38</sup>.

## Approval Conditions were not followed

The field cultivation of genetically modified brinjal (also known as Bt Brinjal) was conditional [ See Annex 2] . In October 2013, the National Committee on Biosafety (NCB) imposed seven conditions to be followed in field cultivation. One of these conditions was labeling -- if Bt Brinjal is brought to the market, they must be labeled, i.e. it should be clearly stated if it is GMO.

Since 2014, two rounds of cultivation showed very poor performance, and the brinjals which were brought to the market were not labeled. Consumers did not know what they were buying.

This is indeed a violation of the conditions of approval. Bangladesh Agricultural Research Institute (BARI) always refused to label them, insisting that it was impossible. In that case, they

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<sup>37</sup> In a Sublicense Agreement, dated 2 April 2005, to which MAHYCO/MHSCL and UAS are parties, Article 1.19 defines "Monsanto/MHSCL IP Rights" as "all intellectual property rights that Monsanto or MHSCL owns or controls which will be infringed by making, using or selling Licensed Domestic Eggplant Products containing MHSCL or Monsanto technology" (i.e. the *Bt* gene).

<sup>38</sup> Pvt Companies preparing to market Bt Brinjal seeds, The New Age September 23, 2014; <http://newagebd.net/51855/pvt-companies-preparing-to-market-bt-brinjal-seeds/#sthash.C4ROK2BI.dpbs>

should not have gone for field cultivation, as they were unable to prevent bio-pollution and protect human health.

Not only that, since it is a food crop, Bangladesh, as a member of the Codex Alimentarius Commission should follow the guidelines and principles outlined in 2003 for genetically-modified foods. Monsanto clearly opposes labeling. It says: “We oppose current initiatives to mandate the labeling of ingredients developed from GM seeds in the absence of any demonstrated risks. Labeling GM crops as a consumer right is an international demand, and it is followed in many countries as mandatory or voluntary.

A report was recently published in the Dhaka Tribune, where BARI Director General Dr Rafiqul Islam Mondol repeated the same position, saying: “It would not be possible to ensure labeling at the retail level.” However, there seems to be something of a positive shift in position when it comes to labeling. Dr Mondol has now agreed to label the sacks. He said: “When the crops enter the market, the sacks will be labeled as poison-free GM brinjal.”

If a crop is “poison free,” then Dr Mondol must test it to make sure that they are free from all hazardous poisons classified by the WHO. Declaring Bt Brinjal “poison-free” is a sneaky way of advertising to promote Bt Brinjal. Ironically, Bt Brinjals cultivated so far have not been done so without the use of pesticides.

An UBINIG report shows 35 types of pesticides, including acaricide (kills ticks and mites), insecticide, and fungicide, were sprayed several times in the Bt Brinjal fields under the direction of the supervising officials<sup>39</sup>.

### **Using Media leading newspapers, electronic media**

Bangladeshi National Daily, The Daily Star has assigned a journalist to report on the ‘positive’ performance of GMOs, particularly Bt. Brinjal.

Promoters of GMO adopted scandalous options. Instead of reviewing the experiment by the normative standard of strict scientific experiment and the international ethical standard of precautionary principle obligatory for potential hazards from GMOs they took more aggressive

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<sup>39</sup> [Put a label on it](#), Farida Akhter, Dhaka Tribune March 4, 2016

attempts to carry out propaganda based on false claims. The article of Mark Lynas, introduced as a researcher at the Cornell Alliance for Science, published on April 24, 2015 in New York Times is a pathetic example.

The name of the article is essentially self promotional: '[How I got converted to G.M.O food](#)'. The issue is not how someone got converted to GMO, but failure of field trial of Bt Brinjal. The article was fabricated, misleading and lacks evidence. Some responses to the article were published as letter to the Editor on 4 May, 2015. ANNA LEPPE of Small Planet Institute said "Mark Lynas profile of one farmer in Bangladesh does not represent the facts on the ground about genetically engineered eggplant there. The trials of the new variety of eggplant have actually had very poor results: Genetic engineering did not protect plants from most pests and have led to crop loss and debt for farmers". Also she revealed that "Mr. Lynas' Bangladesh visit was organized by the new Cornell Alliance for Science, funded by a \$5.6 million grant from the Gates Foundation, that is promoting biotechnology, not dispassionately reviewing the science".

Journalists in Bangladesh reported on the performances of Bt Brinjal, but Mark Lynas was hired to counter them with baseless facts. Previously journalists of Financial express Yasir reported that the bt brinjal crops are under the pest attack, but the agents of Monsanto claimed that the report is false<sup>40</sup>. Because of his access to mainstream media such as BBC Panorama and Al Jazeera, the promoters of Bt Brinjals continued with propaganda of 'success'.

## National remedies are not available

### The Writ Petition

The Petitioners including activists and farmers pleaded to the Court that the Bt. Brinjal contains a gene construct of Cry 1 Ac from Monsanto, the American MNC, which has a 26 percent stake in Mahyco-Monsanto Biotech (MMB). The PSIs will use the Mahyco material to backcross with

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<sup>40</sup> [Misleading information on Bt brinjal pest attack in Bangladeshi fields](#) by Jonathan Mathews, GM Watch

their own Brinjal varieties to incorporate the genetic event into them, imparting tolerance to the fruit and stem borers that cause severe damage to the produce.

That it is the responsibility of the State to protect the citizens from harmful activities of any person, organization and agency that can threaten health, life, environment, ecology and the lifestyles and the associated livelihood and knowledge practices. There are natural rights that not only predates the formation of the State but also constitutes the State's obligations and bindings to the international community accrued through signing international covenants such as Ramsar Convention, Convention on Biological Diversity (CBD), Cartagena Protocol on Biosafety and various other covenants related to human rights.

That through monitoring, investigations and discussions with the officials related to the Bt. Brinjal research our clients have found the followings:

Research and introduction of genetically modified crops and their consumption is very risky in a country like Bangladesh, known to be in a geographical location of origin of diversity of various species and varieties, particularly Brinjals. The research has not been conducted in accordance with the obligatory dictum known as 'precautionary principle'. Thus seriously exposing the environment of the research area to potential biological pollution. In this context it is clear that the decision to release varieties of Bt. Brinjal in the farmers' field is based on faulty and incomplete research methodology and claims not supported by evidence.

There is no convincing research to prove that Bt. Brinjal could add any agronomic value to the already existing local varieties of Brinjals but will unnecessarily increase risks for health and environment.

Local varieties of Brinjals used for genetic manipulation are properties of the farmers and the people of Bangladesh while the IPR of the genetic engineering technique belongs to Monsanto and Mahyco. It is unclear how the legal ownership of the new variety will be determined in the absence of any explicit law in Bangladesh. In that case the genetic manipulation of local Brinjals with the proprietary technology of multinational companies will end up being the property of that company, which is literally known as bio piracy of local bio-geographic and agro ecological knowledge and innovation of the people of Bangladesh.

Despite the obligation to protect the intellectual property of the people of Bangladesh through legal and regulatory regimes stipulated in the Convention on Biological Diversity, the government has failed to do so till date. In the absence of any legal and regulatory regime to protect biodiversity and local and traditional knowledge any decision to allow any germplasm or genetic materials that belong to the people of Bangladesh and in custody of the genebanks of National Agricultural Research Systems to exchange, trade and transfer to other countries or to business corporations for any purpose including genetic manipulation is the violation of the rights of the citizens of Bangladesh. More so when local varieties are genetically manipulated with proprietary technology that may end up being a technical means for biopiracy of our genetic wealth and knowledge. Unless these issues are settled the release Bt. Brinjal is the infringement of the rights of the farming community and the people of Bangladesh.

Wherefore, it is most humbly prayed that Your Lordships would graciously be pleased to:

Issue a Rule Nisi calling upon the Respondents to show cause as to why the Impugned unlawful decision and initiative with regard to the approval of Bt. Brinjal in Bangladesh for its commercial release by the respondents shall not be declared as illegal, without any lawful authority and is of no legal effect and why an independent investigation shall not be initiated by the respondents before its approval.

Pending hearing of the Rule the respondents are directed for not to give approval of Bt. Brinjal for its commercial release.

But the writ petition was rejected on 19<sup>th</sup> September, 2013 by the High Court without much hearing and without receiving any strong grounds in favour of the need for approval.

On 29 September, in another writ petition, the court asked the government to explain why taking initiative without assessment should not be declared illegal. The High Court directed the government not to release genetically modified crop Bt brinjal without assessing possible health risks<sup>41</sup>. <http://www.dhakatribune.com/law-amp-rights/2013/sep/30/do-not-release-bt-brinjal-hc>

The court ordered Bangladesh Agricultural Research Institute (BARI), agriculture secretary and health secretary to submit a progress report by three months after conducting an independent

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<sup>41</sup> See '[Do not release Bt Brinjal: HC](http://www.dhakatribune.com/law-amp-rights/2013/sep/30/do-not-release-bt-brinjal-hc)' in Dhaka Tribune 30 September 2013

research focusing on the health safety issues in line with the GM food standard set by Codex Alimentarius Commission, an organisation founded by the FAO and the WHO. This High Court Rule was stayed by the Appellate Division<sup>42</sup>.

The news media in Bangladesh played a very active and significant role in reporting the developments and published a number of articles highlighting the harmful effects of Bt brinjal on human health and biodiversity. The local environmentalist group and the civil society expressed deep concern, held meetings with journalist forum, arranged for human chain and held a number of protests and rallies against Bangladesh government's move of releasing Bt brinjal.

The journalists also unfolded a secret kept by Bangladesh Agricultural Research Institute (BARI) about the tripartite agreement signed on March 14, 2005 by BARI with the US Company Monsanto's Indian Subsidiary Mahyco (Maharashtra Hybrid Seed Company) and its regional coordinator Sathguru Management Consultants Limited (India) for the development and release cultivable Bt brinjal varieties in Bangladesh<sup>43</sup>. This tripartite agreement has Section 1.19 which clearly mentions that all the Bt gene is a Monsanto or Mahyco technology and Monsanto or Mahyco preserves the "intellectual property rights" (IPR) of the technology and the IPR of the concerned will be infringed by unauthorized distribution of the products containing Bt gene. According to Section 1.6 of the agreement seeds of Bt brinjals should be purchased from the seed company. This means that BARI or the Bangladeshi farmers have no right over the nine Bangladeshi brinjal varieties that have been infused with Bt gene by Mahyco and BARI has no right to distribute the seeds of Bt brinjals.

Bangladeshi farmers are forced to take the seeds when they are offered as the seeds given by the government department are strictly monitored. Their land is used for Bt. Brinjal crops and is not allowed to grow other crops of their own choice. They are not told what GM crop means and what potential impact it might have. They are only told that it is free from Fruit and Shoot borer (FSB). During the season, the farmers are not allowed to speak to the media/journalists.

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<sup>42</sup> [HC rejects Bt brinjal bar writs](#), The Dhaka Tribune, 24 September, 2013

<sup>43</sup> [Monsanto's Indian affiliate to win IP right of Bt Brinjal](#), The Financial Express, 23 February, 2014

BARI started to claim about various positive aspects of Bt brinjal only when different environmentalist groups raised their voice against Bt brinjal. BARI claimed that the four Bt brinjal varieties (Bt brinjal Uttara, Bt brinjal Nayantara, Bt brinjal Kajla, and Bt brinjal ISD-006) released for commercial cultivation, have been developed after seven years of field tests since 2006 at BARI experimental farms, and that were claiming to be resistant to the brinjal fruit & shoot borer (FSB). But in reality the situation was different.

Since Bt brinjals have been developed through USAID funding and by using the technology of the US seed giant Monsanto and its Indian subsidiary Mahyco, local environmentalist group has long been expressing deep concern over the corporatization of Bt brinjal seeds that would force the farmers to go back to the seed company and buy seeds from them for planting every crop. In response to this issue, BARI and IP-CALS claimed that Bt brinjal seed can be preserved and cultivated as it is not a hybrid. They mentioned that “Bt brinjal was developed in the public sector by the government-operated Bangladesh Agricultural Research Institute, for non-commercial purposes. It is not owned by any corporate entity. Seeds will be distributed to farmers in a non-commercial approach where small and medium –enterprise farmers will access seed through the state university system. .... Monsanto has no ownership rights over Bt brinjal”

### **Reducing pesticide use is already in practice: Genetic modification was not needed**

Integrated Pest Management or IPM is a globally acclaimed effective, socially and environmentally safe and economically profitable method for controlling pest insects, diseases and weeds of different crops. In recent years, the BARI scientists have developed a number of very effective non-pesticidal IPM (integrated pest management) technologies for controlling fruit and shoot borer (FSB) and other insect pests and diseases of brinjal. The IPM technologies developed by BARI scientists are also highly cost effective, and completely safe for public health and the environment.

The BARI scientists have developed IPM packages combining effective component technologies, such as (a) sanitation by destroying FSB-infested twigs and fruits to minimize and control infestation of FSB); (b) use of grafted seedlings of brinjal for controlling bacterial wilt

disease which causes devastating mortalities of brinjal plants and also to control the infestation of root-knot nematode ; (c) use of sex pheromone bait traps to control infestation of FSB; (d) use of Tricho-compost for controlling various disease pathogens and root-knot nematode; and (e) use bio-control agents (such as *Trichogramma chilonis*, *Trichogramma evanescens* and *Bracon hebetor*) for controlling FSB. These technologies are integrated in an IPM package depending on the kind of pest problems of the brinjal crops in different areas of the country without using any chemical pesticides.

Farmers also practice mixed cropping as pest management and use ashes and other organic matters in case of pest attack.

### **Bt Brinjal Approval process violated constitutional rights**

The process of approval of Bt. Brinjal for commercial release in Bangladesh will be violative of Article 18, 31 and 32 of the Constitution of the Peoples Republic of Bangladesh.

It violated the right of the citizen of the country under the constitution to seek remedy against any violation of law, rules, regulations etc. in performing the functions delegated to the respective authorities of the Government and any Statutory Organization.

Bt. Brinjal is a genetically modified crop and its consumption is very risky in a country like Bangladesh, which is known to be in a geographical location of origin of diversity of various species and varieties, particularly Brinjals. In this context the decision to release genetic engineered Bt. Brinjals in the farmers fields based on faulty and incomplete research methodology will be harmful for the country.

### **Conclusion**

It is evident that introduction of Bt Brinjal was done through a long process despite concerns from the environmental groups, international scientists and resistance from the farmers. Bangladeshi scientists, working in different Universities have divided opinions on GMOs. Although they are willing to build capacity for biotechnology the flawed procedure of introducing Bt Brinjal was not acceptable. Introduction of Bt Brinjal in Bangladesh is a story of manipulation, deception and lies. The Government cannot say that it did not have the right information about potential hazards; the environmental groups including international scientist

took all the efforts to apprise the government and appealed not to allow commercial release without solid scientific information about safety. Instead Monsanto through Cornell University, ABSP and the USAID made government to silence the dissident voices even tried to stop independent newspaper reporters from writing true stories of failures and disappointments of the farmers.

The Bt Brinjal story gives an account of violation of rights of farmers what they were given as seeds; it was a violation of the rights of the consumers whether they were eating any genetically modified food without their choice; it was a violation of the rights of activists to know about the potential environmental and health damage and the effect on biodiversity. It is a story of the failure of the government to protect the interest of the people, its natural resources. On the other hand, this story shows how the companies like Monsanto can manage to get their interests served by the state using repression and with weak regulatory mechanism at the cost of the country and its people.

Bangladesh does not need genetic modification of Brinjals for controlling Fruit & Shoot borers (FSB). Farmers in Bangladesh have been producing and can produce enough brinjal for consumption at national level and for export. The pesticide use can be reduced by controlling cultivation of the hybrid varieties and by following IPM methods. Farmers with ecological practices have diverse collection of brinjals which are pest resistant.

Bangladeshi farmers bow to resist genetically modified crops and particularly Bt Brinjals. Monsanto cannot fool the people of this country.

# Annex

## Annex 1

### Synthesis/Regeneration 17 (Fall 1998)

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#### Biodevastation

#### Vandana Shiva Responds to the Grameen Bank

In response to the recent announcement of a "partnership" between Monsanto Corporation and Bangladesh's Grameen Bank for the creation of a Grameen Monsanto Centre, Vandana Shiva sent the following open letter:

July 4, 1998

Prof. Mohammad Yunus, President  
Grameen Bank, Bangladesh

Dear Prof. Yunus,

When a few decades ago you gave a few hundred Takas from your pocket to rural women in Bangladesh who were in the grip of a famine, you started a movement called "the Grameen Bank" which used microcredit to enable women to use their skills, their knowledge, their resources to build local markets for their products, rejuvenate their livelihoods and hence improve their food entitlements.

When you announced your Joint Venture with Monsanto on June 25 in New York at the Micro-credit Summit, you reversed that movement and took a step to betray the interests of the women you have served so far. The microcredit scheme linked to the Grameen Monsanto centre will create markets for Monsanto's products, not the products based on the creativity of Bangladesh peasants. They will not build on the skills and knowledge and resources which women of Bangladesh have; they will wipe out their knowledge and resources and destroy their livelihoods and food security.

Monsanto's skills in agriculture are in the field of genetically engineered crops. These crops are designed to use more agrichemicals like Round-up which is a broad spectrum herbicide that kills anything green. Your microcredit venture with Monsanto will directly finance the destruction of the green vegetables that women collect from the fields. Round-up also has negative impacts on fish which provide 80% of the animal protein in Bangladesh.

*This rising indebtedness of farmers is intrinsic to industrial agriculture and is the reason why only 2% of farmers survive in the U.S. and thousands of farmers have committed suicide in India.*

Initiatives on Sustainable Agriculture which are promoting agriculture without agrichemicals show an increase of 11% in yields and 52% in farm incomes when agrichemical use is stopped – as a result of which fish can thrive in the small ponds which scatter the rural landscape of Bangladesh. These are the

initiatives you should be supporting for promoting an environmentally friendly agriculture which provides livelihoods and food security to the poor.

Contrary to your announcement, Monsanto's technologies are not environmentally friendly, or sustainable. They pose a threat to ecosystems and agriculture. Monsanto's technologies will push Bangladeshi peasants into debt as they have to spend more money on herbicides, seeds, royalties and technology fees. This rising indebtedness of farmers is intrinsic to industrial agriculture and is the reason why only 2% farmers survive in the U.S. and thousands of farmers have committed suicide in India.

Grameen Monsanto Centre will become a partner in the destruction of biodiversity and farmers, livelihoods supported by free access to biodiversity. You will have contributed to the establishment of monopolies on seeds through patents with Monsanto collecting rents every year from farmers for saving seed or through technologies like the "Terminator" which are designed to prevent the germination of future generations of seed so that farmers are forced to buy seed every year. Your microcredit support to the spread of Terminator seeds or patented seeds will not liberate the poor; it will enslave them irreversibly. Monsanto controls the Terminator technology through its recent purchase of Delta and Pine Land. Monsanto has also bought up Cargill seeds, MAHYCO, Holden, DeKalb, Agracetus, Calgene, Asgrow and is emerging as a global monopoly which threatens food security worldwide.

People around the world are concerned and are questioning this monopoly and fighting it.

*Your microcredit support to the spread of Terminator seeds or patented seeds will not liberate the poor; it will enslave them irreversibly.*

You have made a name for yourself in the annals of history through your innovation and commitment to the poor in setting up the Grameen Bank to serve rural women in Bangladesh.

I am sure you will not want your efforts to be hijacked as a marketing strategy by Monsanto. The US\$150,000 that Monsanto is giving to start the Grameen Monsanto Center is a miserable 0.6% of the US\$1.6 billion that it is spending in an advertising campaign against the consumers in Europe who have rejected Monsanto's genetically engineered foods. I am sure you do not want to go down in history as the man who took the side of a corporation against citizens worldwide and who introduced destructive technologies and corporate monopolies in Bangladesh and robbed rural women of their resources, their knowledge, and their right to life.

We call on you to withdraw from this partnership with Monsanto and invite you to join the growing worldwide movement of people against Monsanto and against genetic engineering and patents on life.

Yours sincerely,

Dr. Vandana Shiva  
Director, Research Foundation for Science, Technology and Ecology,  
Founder, Diverse Women for Diversity

Update from Beth Burrows, Director, The Edmonds Institute

The outcome of Vandana's letter and the letters and calls and demands of many others, particularly of activists in Bangladesh, was that Dr. Yunus decided to withdraw from the microcredit arrangement with Monsanto. On July 27 Muhammad Yunus, managing director of the Grameen Bank of Bangladesh was reported by the BBC to have canceled the Bank's planned relationship with Monsanto Corporation.

Unfortunately, however, Monsanto was undaunted in its apparent desire to penetrate the Bangladeshi seed market.

**Urgent Alert Message** –from Farida Akhter, UBINIG

Dear all,

**MONSANTO VICE-PRESIDENT HORACIO MAVARRETI IS IN BANGLADESH!**

Today (August 30) we came to know that Mr. Horacio Mavarretti, Vice-President (Development) is coming to Bangladesh on a three-day visit. He is coming from St. Louis, USA.

We do not yet know what his exact plans are. They have not publicized the visit prior to his arrival because of several protests against the Monsanto-Grameen Center. Monsanto has already registered the Company in the name "Monsanto Bangladesh Ltd." There is a temporary office located in Hotel Mid Way, Paltan, Dhaka with an Indian person in charge. His name is Mr. F. Ahmed. He will be here for a few days and then go back to India. However, he will come back, as Monsanto is going to start the office very soon. Tomorrow we are going to organize a demonstration in front of the Sonargaon Hotel -- the Pan-Pacific Hotel where Mr. Horacio will be staying for next three days.

Please raise alarm all over to stop them from establishing Monsanto Business in Bangladesh.

## Annex 2

### Bt Brinjal Approval Letter

[ note Bt Brinjal referred as Bt Begun]

The People's Republic of Bangladesh  
Ministry of Environment and Forestry  
Environment Section-2

No.22.00.073.05.003.2012-271

Dated: 30.10. 2013

Circular

In accordance with the decision taken in its 5th meeting of the National Committee on Biosafety (NCB) the Bangladesh Agricultural Research Institute's petition for releasing the Bt Begun varieties 1,2,3, and 4 to cultivate in a limited scale at the field level is approved on the following conditions:

1. Based on the proposal and recommendation of the Bangladesh Agricultural Research Council and the Ministry of Agriculture, BARI Bt Begun 1,2,3, and 4 varieties may be released for cultivation in a limited scale at the field level by following a well defined work plan.
2. Before releasing the BARI Bt Begun varieties at the field level, the concerned ministry and organization should inform the NCB and BCC after preparing documents on the following: Field production planning, Field biosafety management planning, Emergency response planning, Safety measures, such as Isolation distance management planning, Border row management planning, Techniques for protection of local and indigenous and wild plants.
3. In order to monitor the biosafety measures in the places where the BARI Bt Begun varieties will be cultivated in a limited scale, BARI should send a proposal to the NCB on the formation of 'Field level biosafety committee' that will comprise of a related local officer of the Department of Agricultural Extension, a concerned scientific officer of BARI, a district or

division-level officer of the Department of Environment and an officer of the Upazila Administration.

4. Training should be imparted to the farmers of the selected areas where the BARI Bt Begun varieties will be cultivated in limited scale. The farmers of the selected areas should be provided with a hand out that will contain the rules of biosafety and the methodologies and practices needed to cultivate the Bt Begun varieties.

5. In case of any possibility of risks of hazards on the environment and public health due to the cultivation of Bt Begun varieties, BARI as the petitioner and the concerned ministry should implement emergency measures along with undertaking immediate management practices, so that the spread of such risks could be prevented and its adverse impact could be mitigated. Under the jurisdiction of the biosafety rules the petitioning institute/organization should bear the liability of the adverse impact or the situation developing from the release of Bt Begun varieties at the field level.

6. The petitioning organization should undertake effective measures so that the Bt Begun varieties are marketed by maintaining proper labeling under the jurisdiction of the biosafety rules.

7. In accordance with the Cartagena Protocol on Biosafety to CBD, a monthly detailed report on biosafety measures taken at the place of release of Bt Begun varieties should be submitted to the NCB and BCC for publication in the biosafety clearing house.

By order of the President

Sd/- Md. Monirul Huda

Deputy Secretary

Deputy Controller

Bangladesh Government Press

Tejgaon, Dhaka

(With a request to publish the notification in the next issue of Bangladesh Gazette and send 100 copies of the gazette to this ministry)

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6. Executive Chairman, Bangladesh Agricultural Research Council, Farmgate, Dhaka.
7. Director General, Department of Environment, Agargaon, Dhaka.