A Factsheet Series

GMOs and GMO+

Genetically modified organisms (GMOs) are organisms – which could be microbes, plants or animals - containing genes or genetic materials engineered through modern biotechnology, in particular through genetic engineering. Plants that have been genetically modified are referred to as ***genetically modified crops*** or ***GM crops***. Organisms that contain genetically engineered traits or genes from an unrelated species (i.e., genetically engineered bacterium inserted into the genome of a plant like rice, maize or soybean) are also called ***transgenic organisms***.

GMOs are also referred to as ***living modified organisms (LMOs)***, defined as "*any living organism that possesses a novel combination of genetic material obtained through the use of modern biotechnology or recombinant DNA technology*" under the Cartagena Protocol on Biosafety of the United Nation's Convention on Biological Diversity (CBD).

GMOs were first developed and experimented inside laboratories and greenhouses initially in universities and public research institutions in industrialized countries in the 1970s and the first patent on a GMO was granted in the US in 1980. When pioneering GM crops were in advanced stage of research and development in the 90's, transnational seeds and agrochemical companies started acquiring small biotech companies that emerged from universities. The first GM crop developed by a biotech company was released for cultivation in the US in 1994. *Calgene*, the biotech company that developed *Flavr Savr* tomato was bought by Monsanto in 1997. The approval for cultivation of *Bt* maize varieties developed by Monsanto, Syngenta and Pioneer Hi-bred and Monsanto's *RoundUp Ready* soybeans in 1996 opened a floodgate of commercial releases of

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other GM crops in the US and the beginning of the aggressive push for approval of GM crops for food, feed or cultivation in developing countries around the world in the early 2000's. After two decades, only 46 countries globally – representing roughly 24% of the countries in the world - have approved the introduction for food, feed or cultivation of GM crops in their territories.

Government Policies on GMOs in Asia

UN member-states adopted the Cartagena Protocol on Biosafety in January 2000 to govern the safe handling, introduction and transboundary movement of living modified organisms (LMOs, which is synonymous to GMOs). It entered into force in September 2003 after 50 countries have submitted their instruments of ratification or accession to the UN. Except for a handful of countries that have not signed or ratified the Biosafety Protocol, namely Brunei, Nepal, Singapore and Timor Leste, the rest of Asia have committed to abide by its provisions. Parties (i.e., the countries that ratified or acceded to the Protocol) have the obligation to adopt legislations or regulations on biosafety at the national level consistent with the provisions of the Cartagena Protocol on Biosafety on safe use, handling, transfer and transboundary movement of LMOs. Soon after the Protocol entered into force, Asian countries formulated biosafety regulations or laws and established their biosafety authorities often in the form of committees comprised mostly of scientists and academics. Countries that have existing biosafety regulations prior to 2003 subsequently updated their national policies to ensure compliance with the provisions of the Protocol.

Below is a summary of the biosafety regulations or laws adopted by focus countries in Asia over the past 20 years:

Country	National Biosafety Policy Adopted
Bangladesh	• 2007: Biosafety Guidelines • 2012: Biosafety Rules gazetted, promulgated by the Ministry of Environment and Forestry • 2018: amended the Biosafety Guidelines
India	• 1989: Rules for Manufacture, Use, Import, Export and Storage of Hazardous Micro-Organisms, Genetically Engineered Organisms or Cells; created the Review Committee on Genetic Manipulation (RCGM) and the Recombinant DNA Advisory Committee (RDAC) • 2008: Guidelines for Biosafety • 2017: Regulations and Guidelines for Recombinant DNA Research and Biocontainment

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Indonesia	• 1997: National Biosafety Regulations • 2004: National Biosafety Framework • 2005: Biosafety Regulations on Genetically Engineered Products • 2024: updated the Regulation on Genetically Engineered Processed Products including labeling requirements
Malaysia	• 2007: Biosafety Act passed by Parliament • 2010: Biosafety Regulations • 2015: Biosafety Policy Guidelines
Pakistan	• 1997: National Biosafety Guidelines • 2005: National Biosafety Rules • 2024: amended the National Biosafety Rules
Philippines	• 1990: Executive Order providing for Biosafety Guidelines and establishment of the National Committee on Biosafety of the Philippines • 2006: Executive Order Establishing the National Biosafety Framework • 2016: Joint Department Circular 1 on *Rules and Regulations for the Research and Development, Handling and Use, Transboundary Movement, Release into the Environment, and Management of Genetically Modified Plant and Plant Products Derived from the Use of Modern Biotechnology* • 2021: Joint Department Circular 1 revising JDC 1 s. 2016 • 2025: Department of Agriculture Circular on *Guidelines on the Registration of Varieties of Crops Propagated by Open Pollination that have Developed Resistance through Natural Cross-Pollination with Genetically Modified Varieties Having Freedom to Operate and Subsequent Selection*
Sri Lanka	• 2005: National Biosafety Framework • 2009: Biosafety Act and creation of the National Biosafety Authority
Vietnam	• 2005: Regulation on the Management of Biosafety of Genetically Modified Organisms and Products and Goods originating from GMOs • 2007: National Biosafety Framework, also created a State Council on Biosafety

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The eight selected focus countries for the purpose of this Fact Sheet adopted their national biosafety policies in the form of national framework, guidelines or laws within a few years after their governments ratified or acceded to the Cartagena Protocol on Biosafety in the early 2000's. These national biosafety policies are generally permissive, welcoming GMOs as a technological advancement in plant breeding and facilitating the approval of applications for introduction of GM crops in agriculture and the food systems. Objections to proposed releases are either ignored or are not seriously considered in biosafety decision making processes. Technical reviews are often opaque and information is not accessible to the public, even to organizations that are monitoring biosafety processes. Biosafety is generally regarded in these policies and regulations as a strictly scientific-technical process, often without consideration of socio-economic and cultural aspects, and does not need to involve affected communities and the public.

Two decades of implementation of these policies witnessed the approval of applications for importation and introduction of dozens of GM crops for food, feed and processing, and allowing the commercial cultivation of GM crops. The formulation and implementation of national biosafety policies were mostly surrounded by acrimonious debates, political controversies, legal challenges and strong opposition by broad movements of consumers, farmers and other food producers, civil society organizations, academics and church leaders in different countries in Asia. Most recently in May 2025, the Philippines' Department of Agriculture has adopted a circular allowing the registration of naturally cross-pollinated crop varieties that are contaminated by GM varieties. This development paves the way for normalization and legalization of genetic contamination which the national biosafety authorities have denied over two decades of releases of GM crops without any capacity to monitor and prevent widespread contamination. Other countries could soon be following this trend as the Philippines, the most prolific adopter of GM crops in the region, sets the pace for adoption of policies on GMOs and ensuing releases of GM crops in Asia.

GM Crops Approved in Asia

All eight selected Asian countries whose experiences are highlighted in this Fact Sheet have adopted policies and institutional mechanisms to review and approve applications for the introduction of GM crops in their territories for direct use as food, feed and processing and/or for commercial cultivation. Sri Lanka is the only one in the list that has not actually approved any GM crop for food, feed or cultivation in its territory. Other countries in Asia that approved the introduction of GM crops are China, Iran, Japan, Myanmar, Singapore, South Korea, Taiwan and Thailand.

The Philippines is the first country in Asia that approved the introduction for food, feed and processing and the commercial cultivation of GM crops in 2002, yielding to relentless push coming from the US Department of Agriculture, US-based GMO lobby groups led by the International Service for the Acquisition of Agricultural Biotechnology (ISAAA) and CropLife, the lobby group of transnational seeds and agrochemical companies. Despite strong objection of farmers' organizations, civil society groups, church leaders and local government units, the Department of Agriculture approved the release for commercial

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propagation of genetically modified Bt maize developed by Monsanto (which was later acquired by Bayer in June 2018 for USD63 billion) in 2002. Bt maize is genetically engineered to express the pesticidal traits of the bacterium (Bt) in corn plant intended to kill lepidopteran insects such as army worm which is considered as pests in commercial maize areas. This was followed by a number of GM maize varieties in subsequent years, notably herbicide-tolerant maize such as Monsanto's RoundUp Ready maize and the respective brands developed by Syngenta and Pioneer Hi-Bred (earlier acquired by DuPont in 1999) that were genetically engineered to tolerate the company's proprietary herbicides. A few years later, so-called "stacked trait" GM crops with combined insect-resistance and herbicide-resistant traits were released.

Other countries in Asia followed suit in approving the introduction of these GM crops in subsequent years. These are limited to 8 commercial crops, namely: canola, alfalfa, potatoes, soybeans and sugar beets which are exclusively imported into the region for use as food and feed; cotton, maize and sugarcane which are mostly approved for cultivation. The importation or introduction of these GM crops were almost exclusively applied for by transnational corporations that developed these genetically modified traits (technically referred to as "transformation events") solely or in partnership with local institutions or companies. More recent approvals of cultivation of GM crops, namely Bt eggplant/brinjal/talong in Bangladesh and the Philippines, and vitamin A-enriched rice (a.k.a., Golden Rice) in the Philippines were proposed by public research institutions that have early-research stage collaboration with transnational companies that have proprietary ownership over specific GMOs that were introduced in local crop varieties.

The table below provides a snapshot of the GM crops approved for introduction as food and feed or for cultivation in each of the eight Asian countries highlighted in this Fact Sheet:

Source: ISAAA GM Approval Database, see: https://www.isaaa.org/gmapprovaldatabase/default.asp

Country	Approved GM Crops*
Bangladesh	2 transformation events approved (1 GM cotton, 1 GM eggplant) • *Bt* cotton (2023: for cultivation)[1] • *Bt* brinjal/eggplant (2013: for food and cultivation)
India	11 transformation events approved (6 GM cotton, 5 GM soybeans) • *Bt* cotton (2002: for food, feed and cultivation) • Stacked trait IR + Ht soybean (2014: for food and feed)

1 The Daily Star, 26 Aug 2023, "Bangladesh starts growing genetically modified cotton", see: https://www.thedailystar.net/business/news/bangladesh-starts-growing-genetically-modified-cotton-3403576

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Indonesia	36 transformation events approved (1 GM canola, 18 GM maize, 1 GM potato, 13 GM soybeans, 3 GM sugarcane) • *Bt* cotton (2001: cultivation)[2] • Herbicide-tolerant maize (2011: for food; 2012: for feed) • Late blight resistant Potato (2017: for food) • Water stress tolerant Sugarcane NXI-40 (2019: cultivation) • Stacked trait IR + Ht maize (2020: for food) • *Bt* maize (2022: for food)
Malaysia	69 transformation events approved (3 GM alfalfa, 5 GM canola, 8 GM carnation, 8 GM cotton, 23 GM maize, 3 GM potato, 18 GM soybeans, 1 GM sugar beets) • *Bt* maize (2010: for food and feed) • Herbicide-tolerant maize (2010: for food and feed) • Stacked trait IR + Ht corn (2016: for food and feed) • Herbicide-tolerant soybean (2016: for food and feed) • Herbicide-tolerant cotton (2017, 2021: for food and feed) • Stacked trait Potato (2018: for food and feed) • Herbicide-tolerant Sugar beet (2021: for food and feed) • Herbicide-tolerant cotton (2017, 2021: for food and feed) • Stacked trait Bt cotton (2022: for food, feed and cultivation)
Pakistan	6 transformation events approved (2 GM cotton, 4 GM maize) • *Bt* cotton (2010: for cultivation) • Herbicide-tolerant maize (2017: for food and feed) • Stacked trait IR + Ht maize (2017: for food, feed and cultivation)
Philippines	140 transformation events approved (5 GM alfalfa, 9 GM canola, 17 GM cotton, 1 GM eggplant, 67 GM maize, 11 GM potato, 2 GM rice, 27 GM soybeans, 1 GM sugar beet) • *Bt* maize/corn (2002: for food, feed and cultivation) • Herbicide-tolerant corn (2003: for food and feed; 2010: for cultivation) • *Bt* cotton (2003: for food and feed) • Herbicide-tolerant Sugar beet (2005: for food and feed) • Stacked trait *Bt* + Ht corn (2006: for food and feed; 2010: for cultivation) • Stacked trait IR + Ht soybean (2014: for food and feed) • Herbicide-tolerant cotton (2018: for food and feed) • Herbicide-tolerant soybean (2019: for food and feed) • Stacked trait Potato (2019: for food and feed) • *Bt* talong/eggplant (2021: for food and feed; 2022: cultivation) • Golden Rice (2021: for cultivation)

2 ISAAA, n.d.,"Global Adoption of Bt cotton", see: https://www.isaaa.org/kc/globalstatus/crop/gmcotton/globaladopt.htm

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Sri Lanka	No approval of GM crops for food, feed or cultivation
Vietnam	37 transformation events approved (1 GM alfalfa, 4 GM canola, 6 GM cotton, 15 GM maize, 10 GM soybeans, 1 GM sugar beet) • Herbicide-tolerant maize (2014: for food, feed and cultivation) • Herbicide-tolerant soybean (2015: for food and feed) • *Bt* maize (2015: for food and feed) • Herbicide-tolerant cotton (2020: for feed) • *Bt* cotton (2020: for feed) • Herbicide-tolerant Sugar beet (2020: for food and feed)

**Only includes general description of approved GM crops (not the specific transformation events or the novel trait that was approved by the biosafety authority in the country) and the year when the GM crop was first approved in the country for food, feed or cultivation*

The first wave of GM crops introduced in Asia in the early 2000's was mainly *Bt* crops (i.e., genetically modified crops that express resistance to lepidopteran insects that are considered as pests in the field) and herbicide-tolerant crops (i.e., genetically modified crops that can tolerate specific herbicide that are produced and patented by the same company that developed the seed). The second wave, mostly introduced in 2010's, were the so-called Stacked Trait GM crops that combine genetic materials that express insect-resistant (e.g., Bt crops) and herbicide-tolerant traits. These two waves of GM crops that were genetically engineered to express essentially only two traits: insect-resistance and herbicide-tolerance, were exclusively developed by giant seeds and agrochemical companies, namely Bayer (which acquired Monsanto in 2018), Syngenta Group (the titan that resulted from the acquisition of Syngenta by ChemChina in 2017 which became the parent company of Adama in 2020), Corteva AgriSciences (resulting from the merger of Dow and DuPont in 2017) and BASF. As these GM crops were continuously introduced until the early 2020's, a third wave of GM crops have emerged: nutritionally-enhanced GM crops, namely vitamin A-enriched rice or the so-called Golden Rice developed jointly by the International Rice Research Institute (IRRI) and the Philippine Rice Research Institute (PhilRice). This third wave also includes the introduction of GM crops that were developed by national research institutions, namely Bt brinjal developed by Bangladesh Agricultural Research Institute (BARI) and Bt eggplant developed by the Institute of Plant Breeding (IPB) in the Philippines. In both cases, the local developers of Bt eggplant worked in partnership with Maharashtra Hybrid Seeds Company Ltd. (Mahyco, an Indian company that developed the Bt cotton gene in a joint venture with Monsanto which was later acquired by Bayer)[3], Cornell University and the US Agency for International Development (USAID).

3 https://www.bayer.in/en/thisisbayer/mahyco-monsanto-biotech-mmb

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Concerns on GMOs

Over two decades, serious concerns on the impacts of GMOs on human health, biodiversity and the environment were raised by grassroots movements, consumers, civil society organizations, church leaders and academics. Numerous studies, evidences and lived experiences on the harm and adverse consequences of GMOs were presented by communities, civil society organizations and academics in different countries. Most of these evidences were ignored by government agencies and biosafety authorities responsible for ensuring the safe handling, introduction and cultivation of GMOs based on the Precautionary Principle. Among these concerns which were supported by evidence and lived experiences in cultivation of GM crops are as follows:

- **Adverse impacts on human health:** that there are no scientific consensus nor comprehensive studies on the health impacts of GMOs and their safety for humans. In 2004, scientists from the University of Tromso in Norway conducted research on the effects on the health of local residents in areas around Bt maize in Polomolok, South Cotabato. The study found the prevalence of allergic reactions among local residents. Instead of looking deeper into the evidence and conducting an independent study, proponents have dismissed the research as "flawed". Concerns on the impacts of GMOs on human health have become louder with the introduction of GM crops for direct consumption such as *Bt* eggplant and *Golden Rice.*

- **Socio-economic impacts:** In 2014, MASIPAG produced a documentary film entitled: "10 Years of Failure: farmers deceived by *Bt* corn"[4] to present the negative experiences of farmers who adopted *Bt* maize/corn in key production areas in the Philippines. Farmers lamented the contamination of traditional seeds by GM corn which affected local food sufficiency, marginalization of farmers' knowledge in crop management, increased dependence on corporate seeds and agrochemicals, and further indebtedness and poverty. In 2024, came out with research on the socio-economic impacts of GM maize in the Philippines, presenting documentation of concrete community experiences.[5]

- **Genetic contamination:** Farmers movements and civil society organizations have raised concerns on the contamination of traditional, local and conventional seeds by GMOs through natural cross-pollination in the fields, especially in open-pollinated crops such as maize. Genetic erosion could result from contamination of local and traditional crop varieties by GMOs that could threaten local food security, food cultures and traditional knowledge systems associated with traditional seeds. Genetic contamination of conventional and traditional cotton by GM vari-

4 MASIPAG, 12 June 2014, "10 Years of Failure: farmers deceived by Bt corn", available in YouTube: https://youtu.be/hCuWs8K9-kI

5 MASIPAG, 2024, "Socio-Economic Impacts of Genetically Modified Corn in the Philippines", see: https://masipag.org/wp-content/uploads/2024/01/Socio-economic-impacts-of-Bt-Corn-in-Philippines.pdf

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eties have been documented by independent researchers in India[6] and Pakistan[7] and in conventional and traditional maize by GM varieties in the Philippines.[8] Local and traditional maize varieties that are contaminated by GM maize have become so widespread and common in some upland areas in Mindanao in the south and in the Visayas in the central part of the Philippines that they are popularly referred to as sige-sige (roughly translated as "keep it going") and ukay-ukay (slang for recycled items).[9]

Peoples' Resistance to GMOs

The story of introduction and deployment of GMOs in Asia is fraught with people's resistance, protests and legal challenges. The Philippines, where a staggering 140 transformation events conferring genetically engineered novel traits in target crops have been approved in a span of over two decades, is ironically where the strongest and longest-running challenges to GM crops have unfolded over two decades.

Timeline of Peoples' Resistance to GMOs in the Philippines

2001	Uprooting of Bt corn/maize field trials in Tampakan, South Cotabato in Mindanao (2012); Bukidnon; Davao City
2003	Month-long Hunger Strike of farmers, consumers, church leaders and activists in May to protest and stop the impending approval of commercial propagation of Bt corn/maize
2002–2004	Objections and call for ban of GM crops cultivation in local environment codes and resolutions adopted by local government units across the country.

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6 World Development, Vol. 40, Issue 1, January 2012, "The Spread of Illegal Transgenic Cotton in India: Biosafety Regulations, Monopoly and Enforcement", see: https://www.sciencedirect.com/science/article/pii/S0305750X11000775

7 ISAAA, Biotech Updates, 19 Oct 2017, "Illegal Bt cotton Comprises 40 percent of Pakistan's Crops", see: https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=1035

8 Bram de Jonge, et al, New Phytologist, 22 Sept 2021, "How regulatory sssues surrounding new breeding technologies can impact smallholder farmer breeding: a case study from the Philippines", see: https://www.sciencedirect.com/science/article/pii/S0305750X11000775

9 Ludovic Bequet, 2019, "Agricultural Practices and Environmental Degradation: the Case of GM Corn in the Philippines", see: https://www.bioecon-network.org/pages/21th_2019/A/A4-Bequet,%20Ludovic%20-%20Agricultural%20Practices%20and%20Environmental%20Degradation.pdf

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2007	The provincial governments of Negros Occidental and Negros Oriental adopted ordinances declaring the Negros Organic Island which includes the banning of GMOs in the island located in western Visayas in central Philippines.
2010	Uprooting of *Bt* corn field trials inside the campus of the University of the Philippines in Mindanao Legal led by the city agriculture office of Davao City.
2012	Farmers, consumers, academics and civil society organizations filed a petition at the Court of Appeals to stop the field trials of Bt eggplant.
2013	The Court of Appeals issued a ruling to stop the field releases of *Bt* eggplant and ordered concerned government agencies to update biosafety regulations to ensure safety on human health and the environment. The proponents filed a petition to the Supreme Court to review the decision of the Court of Appeals.
2015	The Supreme Court affirmed that the testing of *Bt* eggplant should be stopped.
2016	The Supreme Court granted the Motions of Reconsideration submitted by the proponents of Bt eggplant and reversed its earlier decision.
2023	Farmers, consumers, academics and civil society organizations petitioned the Court of Appeals to stop the commercial cultivation of *Bt* eggplant and *Golden Rice*.
2024	The Court of Appeals ruled that the commercial release of *Bt* eggplant and *Golden Rice* should stop, along with all GM crops, invoking the Precautionary Principle due to lack of measures to ensure safety to human health, biodiversity and the environment. The proponents of GMOs field an appeal to the Supreme Court to review the Court of Appeals ruling.

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Evading Biosafety: Introduction of GMO+plus crops

Nearly 20 years after the first commercial introduction of GM crops, new technological breakthroughs and techniques have emerged that do not involve the introduction or insertion of foreign genes into the target genome of an organism, plant or animal. New plant breeding techniques (NBTs) or plant breeding innovations (PBIs) such as gene editing have produced crops bearing novel traits such reduced-browning bananas and non-browning mushrooms that did not require the transfer of genes from other organisms. For the purpose of this Fact Sheet, crops and organisms resulting from these techniques are referred to as GMO+plus because they are also genetically modified but using new techniques that often do not involve the transfer of foreign genes. Among the more widely used new breeding techniques are as follows:

Oligonucleotide-Directed Mutagenesis (ODM)	involves the use of synthetic oligonucleotides in targeting homologous sequence in the genome with the exception of the nucleotide(s) to create a mismatch at the base pair that is to be modified
Reversed Breeding (RB)	involves Reverse Breeding direct production of parental lines for any heterozygous plant to reduce genetic recombination in the plant
RNA-dependent DNA Methylation (RdDM)	uses RNA molecules to silence target genes without introducing mutational changes in the relevant DNA sequences achieved through stable insertion of a construct or by transient expression
Synthetic Genomics	(or broadly, Synthetic Biology) encompasses technologies for the generation of chemically-synthesized whole genomes or larger parts of genomes to allow the simultaneous engineering of changes to the genetic material of organisms.
Site-Directed Nuclease (SDN)	involves the use of different nuclease enzymes to cut the DNA at a predetermined location by a range of different DNA binding systems. After the cut is made, the cell's own DNA repair mechanism recognizes the break and repairs the damage using one of two pathways that are naturally present in cells: non- homologous end-joining (NHEJ) and homology-directed repair (HDR).

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CRISPR/Cas9 or Clustered regularly interspaced short palindromic repeats (CRISPR)/CRISPR-associated protein 9 is a type of SDN tool comprising the DNA-cutting enzyme, Cas9, and the sgRNA that guides the complex to the target sequence to be edited. There are three techniques in SDN:

- SDN-1 produces a double-stranded break in the genome of a plant without the addition of foreign gene. The spontaneous repair of this break can lead to a mutation or deletion, causing gene silencing, gene knock-out or a change in the activity of a gene to express a novel trait.
- SDN-2 produces a double-stranded break which is repaired by the cell supplied with a small nucleotide template complementary to the area of the break. The template contains one or several small sequence changes in the genomic code of the same organism which the repair mechanism copies into the plant's genetic material resulting in a mutation of the target gene.
- SDN-3 also induces a double-stranded break in the DNA, but is accompanied by a template containing a gene or other DNA sequences from another organism. The cell's natural repair process then utilizes this template to repair the break, resulting in the introduction of the gene or new sequences.

GMO+plus techniques and resulting organisms, plants and animals are presented by proponents as not covered in the definition of GMOs, LMOs or transgenics. They also claim that these new organisms do not result from recombinant DNA technology and do not involve the transfer and introduction of genetic materials from other organisms. Such interpretation is highly debatable since new breeding techniques are covered by the broad term "modern biotechnology" and also result to products with novel combination of genetic materials that are not found in nature, as defined in the Cartagena Protocol on Biosafety.

Currently, only three among the eight focus countries in Asia for this Fact Sheet have adopted policies specific to genome editing: Bangladesh, India and the Philippines. These new regulations are premised on the interpretation that new plant breeding techniques such as gene editing do not fall under the definition of LMOs in the Cartagena Protocol on Biosafety, thus not covered by biosafety regulations as long as they do not involve the introduction of foreign genetic materials (referred to in technical term as SDN-3 in the above description of Site-Directed Nuclease or SDN techniques). In India and the Philippines, approval of commercial releases of gene edited crops that involve SDN-1 and SDN-2 techniques soon followed the adoption of these policies:

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Bangladesh	They adopted the Standard Operating Procedures for Research and Release of Gene Edited Crops in December 2023. The procedures apply to gene edited crops that do not involve the introduction of foreign genes which technically fall under the categories, SDN-1 and SDN-2. So far, no gene edited crops have been approved for introduction in Bangladesh.
India	The Guidelines for Safety Assessment of Genome Edited Crops was adopted in 2022. In May 2025, two gene edited rice varieties - DRR Rice 100 (Kamala) and Pusa DST Rice 1 which claim to be tolerant to salinity, drought and climate stresses and increase production - developed by the Indian Council for Agricultural Research (ICAR) using genome editing technology based on CRISPR-Cas9, were approved for release and commercial cultivation.
Philippines	In 2022, the Department of Agriculture adopted Memorandum Circular 08 on Rules and Procedures to Evaluate and Determine When Products of Plant Breeding Innovations (PBIs) are Covered by JDC 1 s. 2021. This was soon followed by the approval of three gene edited crops: (1) reduced-browning bananas developed by a UK company called Tropic BioSciences approved in June 2023; (2) high GABA (gamma-aminobutyric acid which is found to counter cholesterol) tomatoes developed by Japanese biotech company Sanatech in May 2024; and (3) another reduced-browning bananas by Tropic Biosciences in June 2024. These gene edited crops were approved by the Bureau of Plant Industry (BPI) for consumption, importation and for commercial cultivation without undergoing biosafety requirements and with much opacity. The agency ruled that these gene edited crops do not contain foreign genes and are not developed through genetic engineering, thus not covered by the country's biosafety guidelines.

Resistance to gene edited crops is only starting in India and the Philippines. Civil society organizations and academics are leading the objections to the recent approval of the introduction of two gene edited rice varieties in India and are calling for suspension of the decision. In the Philippines, civil society organizations that have been challenging the introduction of GMOs learned about the approval of three gene edited crops some months after the decisions were made by the Bureau of Plant Industry. It was the consumers' union in Japan that first informed civil society organizations about the approval of high-GABA tomatoes and the developer's announcement of their plan to market the product in the Philippines and other Asian countries.

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As new GM crops developed through new breeding techniques such as gene editing are approved for consumption and cultivation in the global North without undergoing biosafety processes, Asian countries that welcomed GMOs in their territories over the past two decades are expected to approve the introduction of gene edited crops. Biosafety regulations, while essentially permissive of GMO releases at the very least, provide mechanisms for technical review and clearinghouse of information on approvals as prescribed in the Cartagena Protocol on Biosafety. As gene edited crops that are deemed not involving foreign genes are not required to go through biosafety hurdles and not currently required to be labeled, monitoring the impact of their introduction into the food system and cultivation in the fields would be more challenging for grassroots movements and civil society organizations, many of whom are still grappling to understand these new technologies and their implications. More than ever, solidarity, closer collaboration and sharing of information and capacities among anti-GMO movements in every country in Asia are crucial.

Acknowledgements

This factsheet was prepared by Neth Daño.

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