

Report

COM/ENR/REP/001/FINAL

FOURTH MEETING

14 September 2018, Bishkek

**GENETICALLY MODIFIED ORGANISMS "EFFECTS OF SPREAD OF
GENETICALLY MODIFIED ORGANISMS"**

I. INTRODUCTION

1. During the third meeting of the Commission on Environment and Natural Resources held in Astana on 22 June 2017 it was proposed to take up subject Genetically Modified Organisms (GMO) "Effects of Spread of Genetically Modified Organisms" for the fourth meeting as a main item of agenda.
2. The range and assortment of GMO products in the world continue to grow. The negative impact of GMO products on human health, biodiversity and environment observed for the last years has raised public concerns. There is no widely accepted scientific findings harms of GMO containing products and due to it many countries do not ban the import, production, cultivation and use of GMO products.
3. In 2016, in the world there was 185.1 million hectares of cultivated areas of transgenic plants that expanded rapidly. Cultivation of GMOs and production of food products containing GMO create a number of risks. Ecologists are concerned that widely cultivated GMOs are a threat to agriculture because such cultivation can cause significant changes in ecosystems and destruct biodiversity. Public health workers are concerned that the use of products containing GMO can bear serious risks for the health of the population. These risks include such health problems as increasing allergen diseases, cancer, infertility cases, weakening of the immune system, creation of changes in genome, acceleration of aging, etc.

4. TURKPA member countries also attach particular importance to the issue on GMO. As is known, GMOs are regulated and restricted by law in TURKPA member countries, as in many countries, but there is no restriction on scientific research in this area. One of the main reasons for the restriction is the protection of the countries' rich biodiversity, but another important reason is the lack of a biosafety system that will regulate these processes.
5. The purpose of this report is to assess the use of genetically modified organisms in the member countries and to work out priorities of regional cooperation on the issue. Report is based on the contributions received from the relevant ministries of Azerbaijan, Kazakhstan, Kyrgyzstan and Turkey, as well as data of relevant international institutions.

II. GENETICALLY MODIFIED ORGANISMS (GMO)

6. A GMO, or genetically modified organism, is a plant, animal, microorganism or other organism whose genetic makeup has been modified in a laboratory using genetic engineering or transgenic technology. This creates unstable combinations of plant, animal, bacterial and virus genes that do not occur in nature or through traditional crossbreeding methods.
7. The first GMO was derived from the transfer of Salmonella genes to E. coli bacteria in 1973. Examples and effects were advanced during 1980s. Following the early examples of GMO products in 1980s, genetically modified foods such as maize, potato, tomato was marketed since 1990s.
8. The main purpose of researches in this direction were to meet the growing demand of the world's population, to achieve poverty reduction and prevent some diseases. Hurbert Boyer Company has synthesized insulin from E. coli bacteria using recombinant DNA technology and it is now widely used in medicine. However, the effects of GMO on human and animal health and the environment have not yet been fully investigated, and even many studies have shown that the GMO is dangerous.
9. Main growing GMO crops in the world: Corn, Soy, Cotton, Sugar Beet, Rape, Side, Potatoes, Rice, Tomato, Tobacco and so on. Main GMO producing countries:

№	Countries	Total area of genetically modified crops (million hectares)	Growing GMO crops
1	United States of America	72.9	corn, soybean, cotton, canola, sugar beet, clover, papaya
2	Brazil	49.1	soybean, corn, cotton
3	Argentina	23.8	soybean, corn, cotton
4	Canada	11.6	corn, soybean, canola, sugar beet
5	India	10.8	cotton
6	Paraguay	3.6	soybean, corn, cotton
7	Pakistan	2.9	cotton
8	China	2.8	cotton, papaya, tomato, sweet pepper
9	South Africa	2.7	soybean, corn, cotton

III. MAIN INTERNATIONAL INSTRUMENTS ON BIOSAFETY

10. The international organizations involved in the regulation of GM crops and GM foods either directly or through their subordinate legislations along with their broad objectives are:

- The Convention on Biological Diversity (CBD)-1992: Deals with conservation, sustainable use and sharing of benefits by use of biological resources. CBD adopted the Cartagena Protocol on Biosafety, which came into force in 2004 and regulates the transboundary movement of LMOs.
- The World Trade Organization (WTO)-1995: Deals with trade in goods and services and sets rules for transparency and dispute settlement. The Agreement on Application of Sanitary and Phytosanitary (SPS) Measures is based on procedures of risk analysis of plant/ planting materials, food and feed for pests and diseases.
- The International Office of Epizootics (OIE)-1924: Deals with infectious animal diseases that call for harmonization of trade regulations for animals and animal products.
- The International Plant Protection Convention (IPPC)-1952: Deals with pests of plants and plant products and is responsible for setting international standards for phytosanitary measures.
- The Codex Alimentarius Commission (CAC)-1972: Deals with food labelling and food safety standards, and develops international standards and recommendations.
- The Organization for Economic Cooperation and Development (OECD)-1961: Undertakes harmonization of international regulations, standards and policies.

11. ***Cartagena Protocol on Biosafety.*** The Convention on Biological Diversity adopted the Cartagena Protocol on Biosafety (hereafter referred to as the Protocol) in the year 2000 which entered into force on 11 September 2003. The Protocol is a legally binding agreement to ensure adequate levels of protection for safe transfer, handling and use of LMOs resulting from modern biotechnology that may have adverse effects on human health and conservation and sustainable use of biological diversity. As of 2018, the Protocol has 198 Parties. The Protocol specifically focuses on transboundary movement of LMOs and attempts to produce a globally harmonized regime for biosafety under the CBD. However, it does not cover products derived from LMOs and LMOs that are pharmaceuticals for humans. The Protocol also

includes a clause clarifying that it does not alter the rights and obligations of parties under the WTO or other international agreements.

IV. GMO IN REGULATIONS OF MEMBER COUNTRIES

AZERBAIJAN

12. Azerbaijan ratified the Protocol on April 1, 2005 and developed its NBF in 2005.
13. Food safety is one of the main goals of the state agrarian and economic policy in Azerbaijan. The Decree № 640 on “Food Security Programme of the AR” dd. March 02, 2001 signed by the President of the Republic of Azerbaijan states that the main factor in food safety is human dignity and it is one of the fundamental human rights.
14. In accordance to the 27th Article of the Law of the Republic of Azerbaijan on Seeding - Seeds of unregistered varieties in the State Register may be imported only for breeding, research, experiments and exhibitions. Importation of plant seeds (genetically modified or genetically modified organisms) obtained on the basis of genetic engineering to the Republic of Azerbaijan is not permitted. The delivery of these seeds may only be permitted in exceptional circumstances and in the manner prescribed by the relevant executive authority.
15. Absence of biodiversity system in Azerbaijan, prevention of pollution of rich genetic resources and elimination of risks to population health have led to the prohibition of transgenic planting.
16. Importation, distribution and inclusion to state register of genetic materials of genetically modified plants on the territory of the Republic of Azerbaijan is prohibited by Article 21 of the Law of the Republic of Azerbaijan "On the Protection and Rational Use of Genetic Resources of Cultural Plants".
17. A special GMOB expert council (hereinafter referred to as the "expert council") was established within the Scientific and Technical Council to determine the directions of research activities on GMOB found on the territory of the Republic of Azerbaijan, to identify the potential hazards arising from GMO and to make appropriate comments.
18. Expert Council consists of experts from the National Academy of Sciences, the Ministry of Agriculture, the Ministry of Ecology and Natural Resources and the Ministry of Health.

19. Determination of GMO plants is carried out in specialized laboratories of ANAS Institute of Genetic Resources and Customs Committee. Highly qualified personnel potential has been created in the country by using international cooperation in this area. The genetic analysis of the presented sample is being carried out, and the GMO detected samples are returned.
20. Due to amendments made in the Code of Administrative Offenses, the penalty is imposed on natural persons - three thousand manats, officials - ten thousand manats, and for legal entities - fifty thousand manats for transformation, distribution and incorporation into the state register of transgenic plants in the territory of the Republic of Azerbaijan.
21. The Food Security Agency of the Republic of Azerbaijan has been established with the Decree (13.11.2017) of the President of the Republic of Azerbaijan with the aim of addressing issues related to study the world experience, membership to the World Trade Organization and the establishment of food safety and biosafety systems taking into account the requirements of the Cartagena protocol. The agency has been tasked with improving the legislation on GMO food safety with the relevant agencies since 2018.

KAZAKHSTAN

22. Kazakhstan does not grow any GM crops. The country ratified the Protocol in 2008. The National Biosafety Framework (NBF) was developed in 2004 and a draft regulation was also proposed in 2004.
23. Kazakhstan's draft "Law on State Regulation of Genetic Engineering Activities" which is in the Parliament since 2011 is being reviewed by a Parliamentary Committee. According to Customs Union Regulations, up to 0.9 percent of unapproved GM events are allowed (USDA, 2013).
24. National Biosafety Framework (NBF) Document of the Republic of Kazakhstan (2004) is directed to provide proper control over GMOs and GM products, with potential to cause negative impact on biological diversity and human health, and also provides for public information and participation in their use. The NBF covers the interests of different government, public and scientific structures. It also reflects on all the necessary activities on effective functioning of the system.
25. The draft Law of Republic Kazakhstan on Safety in Gene-engineering Activity (2004) defines legal and organizational bases of safety in genetic engineering

activity and is directed towards protection of the environment and health of the population against adverse impact of GMOs. The provisions of the law are applicable to all kinds of activity related to: 1) Reception, duplication, test and use of GMOs in the closed systems for various purposes, with application of methods of genetic engineering; 2) Deliberate release of GMOs, including any living structures capable of reproduction like seeds, tubers, cuttings, pollen, spores, etc. into the environment; 3) In-deliberate release of GMOs into the environment; 4) Any kind of research on GMOs, including laboratory, clinical, field trial, industrial tests; 5) Illegal transboundary movement of GMOs; 6) Storage, disposal and destruction of GMOs.

26. Draft Law on State Regulation of Genetic Engineering Activities (2011) specifies separate roles for different government bodies on the regulation of agricultural biotechnology. The provisions of this Law apply to the following types of genetic engineering: 1) to establish and (or) testing of LMOs/ GMOs; 2) the use of LMOs/ GMOs in closed systems; 3) release into the environment, the use of LMOs/ GMOs in open systems; 4) The transboundary movement, transit, import and export of LMOs/ GMOs. Article 17 of the law specifies the requirements for LMOs/ GMOs and the processes of their life cycle (including design, manufacturing, maintenance, storage, transportation, disposal and recycling) shall be established by technical regulations. Transit of LMOs through the territory of Kazakhstan is also covered.
27. In accordance with Customs Union Technical Regulation on Labelling (2013) imports of GM crops or products are allowed into Kazakhstan, but must abide by Customs Union regulations which cover the entire Customs Union of Belarus, Russia, and Kazakhstan.
28. Other Related Regulations on the issue are The Law of the Republic of Kazakhstan on Environmental Protection N160 (1997) which regulates the issue of biosafety taking into account environmental requirements and The Law of the Republic of Kazakhstan on Protection, Reproduction and Use of Animal Species, on Especially Protected Natural Territories N 162-1 (1997) regulates biological safety of animal and plant species.
29. The Law of the Republic of Kazakhstan on Plant Protection N 331-II (2002) defines legal, economic and organizational basis of plant protection from pests and plant diseases. It is directed on conservation of the crop, its quality and prevention of

hazardous impact on human health and environment while conducting phytosanitary activities in the territory of Kazakhstan.

KYRGYZSTAN

30. Kyrgyzstan has ratified the Protocol in 2005. The competent state authority for the fulfilment of Kyrgyz Republic obligations under the CBD and the Protocol is the State Agency on Environment and Forestry.
31. The country's biosafety framework was developed under the UNEP- GEF Project in 2005 and a draft law of the Kyrgyz Republic on Biosafety was elaborated. These were subsequently approved by the government in 2006 and submitted to the Parliament in 2008 for consideration. This draft law was returned to the government for reconsideration and from 2009 to 2010 it was reconsidered by the State Agency on Environmental Protection and Forestry together with other experts. Currently, the consideration of the draft law "On Biological Safety" has been postponed.
32. National Biosafety Framework (2005) contains the basic components of policy in the field of biosafety; regulatory aspects of biosafety; its administrative structure; coordination mechanism and partnership; risk assessment; monitoring, control and liability and mechanism of public information and participation in decision making.
33. The draft Law of the Kyrgyz Republic on Biological Safety (2005) regulates types of activities related to safe creation of LMOs/GMOs by genetic engineering methods, their testing, usage in closed systems and introduction into the environment, realization and transboundary movement as well as determines competence of entities to ensure its implementation for the protection of human health and biodiversity and limit the risk of negative impacts on the environment.
34. The Kyrgyz Members of Parliament approved the third reading of the bill: 'On the prohibition of cultivation, production, import and sale in Kyrgyzstan of products containing GMOs'. Food grown within the borders of the country as well as food being imported will be checked for GMO, and all genetically modified food will be refused or destroyed. The Ministry of Economy mentioned that it would be difficult to police GMO products, but not impossible.
35. Normative legal acts regulating use of GMO products in the Kyrgyz Republic are:
 - Law "On public health" of the Kyrgyz Republic;
 - Law "On the procedure for conducting checks of subjects of entrepreneurship;

- Law “On seeds”
- Law “On environmental protection”
- Technical Regulations of the Customs Union on “Food safety”

36. The marking of GMOs and GM is carried out in cases when:

- The product – genetically modified organism (GMO)
- Food products and components made from GM plants and microorganisms (whether a GMO can be detected in the final product)
- All foodstuffs in the Kyrgyz Republic, containing GMOs over 0.9% must have a special label, in accordance with Technical Regulations of the Customs Union 021/2011.

37. There are 3 laboratories of the Ministry of Health in the Kyrgyz Republic:

- Laboratory of virological and molecular genetic studies of the Department for Disease Prevention and State Sanitary Epidemiological Surveillance
- Laboratory of the Center of State Sanitary Epidemiological Surveillance in Bishkek
- Laboratory based on the Department for Disease Prevention and State Sanitary Epidemiological Surveillance in Osh.

TURKEY

38. As being a Party to the Convention on Biological Diversity since 14 May 1998 and participant of the process of preparations of the Cartagena Protocol on Biosafety since 1998, Republic of Turkey has signed the Protocol on 24 May 2000 during the 5th COP to the CBD and adopted it on 17 June 2003 (act 4898, OJ 24 June 2003). The Ministry of Agriculture and Rural Affairs (MARA), General Directorate of Agricultural Research has been appointed as national focal point for the Protocol.

39. In the scope of the legislation in force, the only regulation directly related with the biosafety is the “Communiqué on Field Trials of Cultivated Transgenic Plants” which is executed by MARA-GDAR and is in force since 1998. The objective of the communiqué is establishment of procedure and principles of field trials of genetically modified plants (GMPs) intended to agricultural production and it applies to all genetically modified plants whether imported or locally developed. The communiqué determines the procedure of and information to be submitted by applications, establishes the commission for evaluation of applications, authorizes

GDAR to undertake field trials of GMPs by its research institutions and determines rules for field trials.

40. With the Seed Act, published in 2006, the importation and use of GMO seeds was not allowed. On October 26, 2009, the "Regulation on the Importation, Processing, Exportation, Control and Supervision of Genetically Modified Organisms and Their Products for Food and Animal Feed" was introduced and an inspection and control system determined by the legislation related to these products was adopted.
41. Turkey's Biosafety Law went into effect on September 26, 2010. After publication of the law, the Turkish Ministry of Food, Agriculture, and Livestock (MinFAL) established an independent Biosafety Board to review genetically engineered (GE) food and feed import applications. There are currently 36 approved GE soybean and corn traits allowed in Turkish animal feed. The most recent new GE traits were approved in August 2017 and six applications are still pending approval. No GE traits have been approved for human food use, so GE presence in food products is prohibited. The coup attempt on July 15, 2016 and the subsequent investigations within the Turkish government and academia temporarily slowed the approval processes in 2016 and 2017.
42. The law on biosafety is based on the precautionary principle, protection of biological resources and human health and case-by-case scientific risk assessment. It regulates the import, placing on the market for environmental release and/or as food and feed or for processing, contained use, export and transit of GMOs and products thereof. It covers all kind of measures, including risk assessment, and regulations for the activities related to GMOs and products thereof, including, inter alia, research, development, use, production, consumption, processing, trade, marketing, transport, transit, handling, identification, documentation, packaging, labeling, storage, control, inspection, monitoring and traceability.
43. Following actions are prohibited by draft law:
 - use and/or making use of GMOs and products thereof in violation of the conditions set by the consent and permitted intended use,
 - use of GMOs and products thereof in the baby foods, import and distribution of baby foods containing GMOs and products thereof, except GMOs specifically developed or found to be safe for babies,

- production of GMOs within a given distance, which is determined according to the results of Risk Assessment, to the protected areas and centers of genetic diversity designated for the conservation of biological diversity and genetic resources and to the lands allocated for organic agriculture.
44. Following the adoption of the Biosafety Law, MinFAL established a Biosafety Board. MinFAL's Agricultural Research and Policies General Directorate (TAGEM) acts as the secretariat of the Board. The Board has nine members who may serve two consecutive three-year appointments. The Board members review applications for the approval of transgenic events. Most of the Board members are high-level bureaucrats from MinFAL, the Ministry of Health, the Ministry of Science, Industry and Trade Technology, the Ministry of Environment and Urbanization, the Ministry of Forest and Water Affairs, and the Ministry of Economy. The Ministers of each ministry appoint a member of their staff to serve on the Board. Two non-governmental Board members are appointed by the Minister of MinFAL, and are selected from qualified experts from a university and from a related association (such as agricultural engineers or food engineers). Article 10-(1) of the Law states that "the Board is independent in the performance of its duties. No organization, office, body, or person can issue orders or instructions to the Board."
45. MINFAL published two implementing regulations of the Biosafety Law on August 13, 2010. These are "Regulation on genetically modified organisms (GMO) and Products" and "Regulation on the Working Principles of the Biosafety Board and the Committees."
46. The High Planning Council (HPC) of Turkey adopted the "Biotechnology Strategy and Action Plan" in June 2015 to be implemented in the period of 2015-2018. The Plan is the first adopted document which covers all aspects of biotechnology (agricultural, health, industrial) in one document and is owned by a very high-level government authority. The HPC is chaired by the Prime Minister and the members are from the Cabinet such as ministers from MinFAL, Ministry of Development, Ministry of Finance, Ministry of Environment and Urbanism, Ministry of Transport, Maritime and Communication, Ministry of Energy and Natural Resources, Ministry of Science, Industry and Technology, Ministry of Forest and Water Affairs, and all interested parties such as related government agencies, private sector and academia.

47. The Plan states the vision is “to improve the level of technological information, increase the number of products with added value, and take place amongst the leading countries within the field of biotechnology.” It was prepared by the Ministry of Science, Industry and Technology in cooperation with universities/academia, business sector, and related government agencies. General targets of the plan are:

- to regulate the legal and administrative structure
- to improve technical infrastructure
- to increase production capacity of products from GE components
- to improve agricultural, health and industrial biotechnology sectors

Specific targets related to agricultural biotechnology are:

- to amend the Biosafety Law and other related legislation
- to determine the rules and principles of allocating “specifically controlled fields” to scientists for Research & Development and field trials

V. COOPERATION OF THE TURKPA MEMBER COUNTRIES AND CONCLUSIONS

48. The need for cooperation among countries is widely recognized as a means of reducing commercialization cost by improving regulatory oversight through shared expertise, building capacity and facilitating trade.

49. The Protocol recognises the role of regional and sub-regional cooperation in developing institutional and human resources capacities for proper management of biotechnology and in the use of risk assessment and risk management.

50. UNEP-GEF identified four areas of regional cooperation in biosafety, resource sharing (technical, material and expertise), experience sharing (methodologies, materials and know-how), information sharing, and capacity building (UNEP-GEF Biosafety Unit, 2006).

51. Effective regional cooperation in biosafety implementation would require some level of harmonization in risk assessment and evaluation protocols and information requirements. A number of biosafety harmonization models functional at regional or economic group levels exist.

52. FAO is organizing highly successful projects on food and food safety across the globe, including our region, and carries out planned activities to increase the

knowledge and skills of the staff of member countries in related sphere. FAO activities in this direction are highly appreciated.

53. The Organization of Economic Co-operation and Development (OECD) has a Working Group on Harmonization of Regulatory Oversight in Biotechnology (WG-HROB) which deals with the environmental risk/safety assessment of transgenic plants and other GMOs (OECD, 2013). OECD has produced consensus documents on biology of plants and selected topics to facilitate harmonization (www.oecd.org/env/ehs/biotrack/).
54. Harmonization at regional and sub-regional level among member countries could follow one of the above or a different model depending upon countries' policies on adoption of GM crops and priorities for their development and trade.
55. It is recognised that decision on harmonisations would also be influenced by perceived impacts on other national policies and prerogatives. There is indeed a challenge in the region keeping in view the very different level of growth and economy of the countries.
56. The Legislation and Implementation Workshop on Genetically Modified Organisms (GMOs) held by TURKPA on 16-18 April 2018 in Istanbul with the support of the Grand National Assembly of Turkey (GNAT) played an important role in strengthening cooperation among our relevant structures. Experts from member countries met and changed information and their contacts with each other.
57. As it was mentioned, one of the main reasons for the restriction of GMOs is the protection of the countries' rich biodiversity and another important reason is the lack of a biosafety system that will regulate these processes. Therefore, the establishment of the biosafety system with further improving the situation in the legislation will enable us to do significant work in the direction of the country's economy, especially agriculture by the use of modern scientific achievements.