



Socio-economic considerations for Biosafety: case study of Moldova

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Socio-economic considerations in agricultural biotechnology



The socio-economic issues related to modern agricultural biotechnology include concerns over:

- ▶ Biodiversity values and protected areas;
- ▶ Ecosystem services
- ▶ Agricultural land reform/small scale farmers
- ▶ Ecological (organic) agriculture, non-GMO
- ▶ Local communities/ traditional agriculture/labor
- ▶ Export/markets – local market
- ▶ Public perception/public opinion
- ▶ Ethics, culture religions





Republic of Moldova

The Republic of Moldova is located in the south-eastern part of Europe.

Occupying a land-locked area of 33,843 km², Moldova is surrounded by Ukraine on its northern, eastern and southern boundaries and by Romania in the west.

National policy with respect to SEC in the environmental decision making



- ▶ NBSAP - 2002, 2014,
 - ▶ National Strategy for sustainable agriculture and rural development, 2014-2020
 - ▶ Strategy on food security for 2011-2015
 - ▶ Association Agreement Moldova-EU, 2014
 - ▶ Law on Biosafety, nr. 755 of 21.12.2001
 - ▶ Law on agrofood ecological production, non-GMO, nr. 115 of 09.06.2005
 - ▶ Law on payment for the environmental pollution, nr. 1540 of 25.02.1998
 - ▶ Law on ecological expertise, nr. 851 of 29.05.1996
 - ▶ Law on environmental impact assessment, nr. 86 of 29.05.2014
 - ▶ Regulation on the authorisation of the activities related to the development, testing, use and commercialization of GMOs, G.D. Nr. 1153 of 25.09.2003
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Biodiversity values and protected areas

- ▶ The country straddles three main European eco-regions: the Central-European mixed forests, the Pontic steppe, and the East European forest steppe.
- ▶ This confluence of eco-regions has resulted in a wide diversity of habitats and species; a number of which are rare, relictual or at the limits of their natural distribution.
- ▶ Approximative 15% of the country remains under some form of natural vegetation cover.
- ▶ Currently the system of protected areas in Moldova covers 157,227 ha (or 4.65% of the country).
- ▶ The flora of the Republic of Moldova is rich and includes 5 513 species of plants [higher plants – 1 989 species, including vascular plants – 1 832 sp.
- ▶ About 14 800 species of animals have been identified in the Republic of Moldova (461 – vertebrates and about 14 339 – invertebrates).
- ▶ The National Ecological Network and Emerald Network.
- ▶ Red Book 3rd edition-2015.



Ecosystem services

- ▶ Forest and natural ecosystems:
 - wood production,
 - medical plants, traditional fruits/nuts collection
 - ▶ recreation and tourism
 - ▶ water supply
 - ▶ fishery

 - ▶ Economic value of ecosystem services in Moldova generated from tourism, forestry, agriculture etc. is **USD21,986 mln.**
 - ▶ Quantitative value of ecosystem services is equivalent **to 41%** of GDP.
 - ▶ Ecosystem generate multiple economical values as capital investments – 1,4 mil. USD, ecotourism – **7,9 mil. USD**, and **1400 labor places**.
 - ▶ Efficient management of ecosystems may contribute to the considerable reduction of natural disaster effects, and the costs for mitigation and restoration from natural disaster is estimated to **14 mln. USD/year**.
 - ▶ (source: NBSAP -2014)
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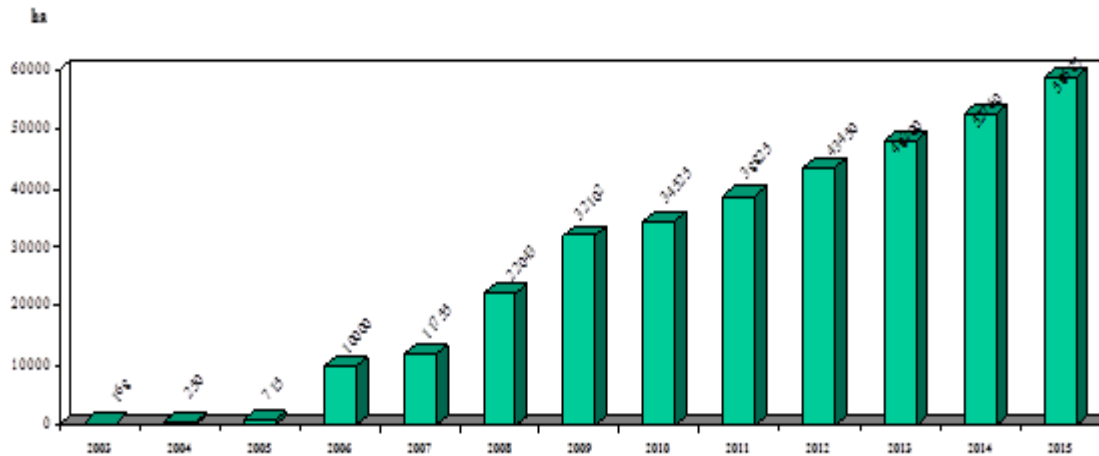
Moldova – agriculture

- ▶ The economy is heavily dependent on agriculture, which covers some 75% of the country's surface area, accounts for 15% of GDP and employs 33% of the country's labor force.
 - ▶ Most of country's population (58.6 %) lives in the rural areas.
 - ▶ Agriculture structure - annual crops, orchards, vineyards and pastures. Agricultural sector has a leading role in national economy, being an issue for sustainable development.
 - ▶ Moldova has high agronomic potential and proven comparative advantages for agricultural exports based on the country's favourable geographic characteristics - rich soils, mild climate, topography; and long tradition of agricultural production.
 - ▶ Moldova is mainly an agricultural country: agrocoenoses (agricultural habitats) cover 75,6% of the territory. The important crops are cereals (wheat, corn), fruits (apple, plum, sweet cherry, apricot, walnut), grape (different sorts of vine), vegetables (tomato, sugar beet) and fodder (alfalfa). The agricultural landscape was created by the conversion of natural habitats which occurred on fertile chernoziom soils, common in Moldova.
 - ▶ Moldova farmers cultivate about 97 species (including 553 varieties, hybrids and forms), and foster 28 species and breeds of domestic animals.
 - ▶ Small scale farming – National Program on agriculture land's consolidation.
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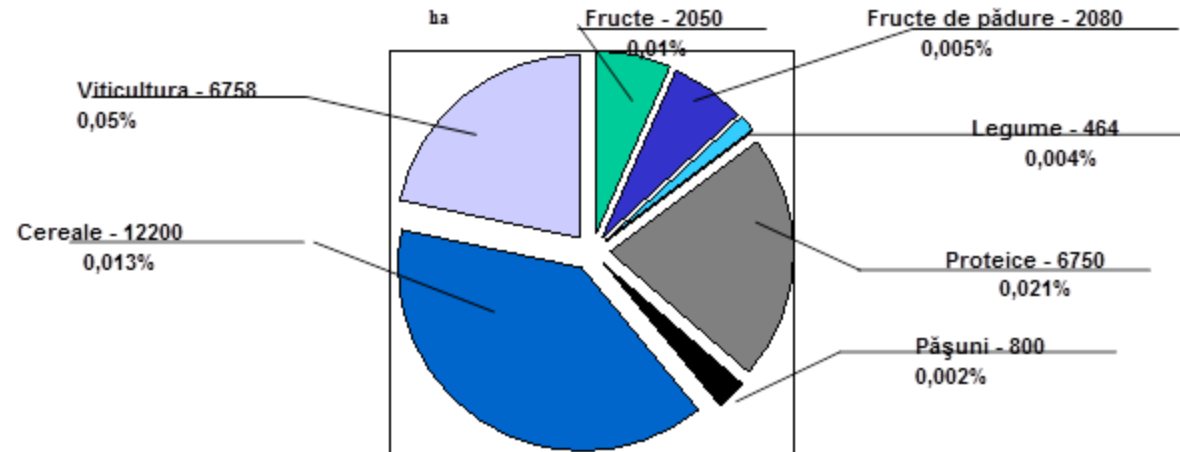




Ecological (organic) agriculture, non-GMO – a priority for Moldova



National Program on development of ecological production and its commercialization



Objective: extension of agricultural area with the ecological (organic) crops to 150.000 ha in 2020

Local communities/ traditional agriculture/labor

- ▶ Most of country's population (58.6 %) lives in the rural areas. About 75% of land is used for agriculture, including for annual crops, orchards, vineyards and pastures.

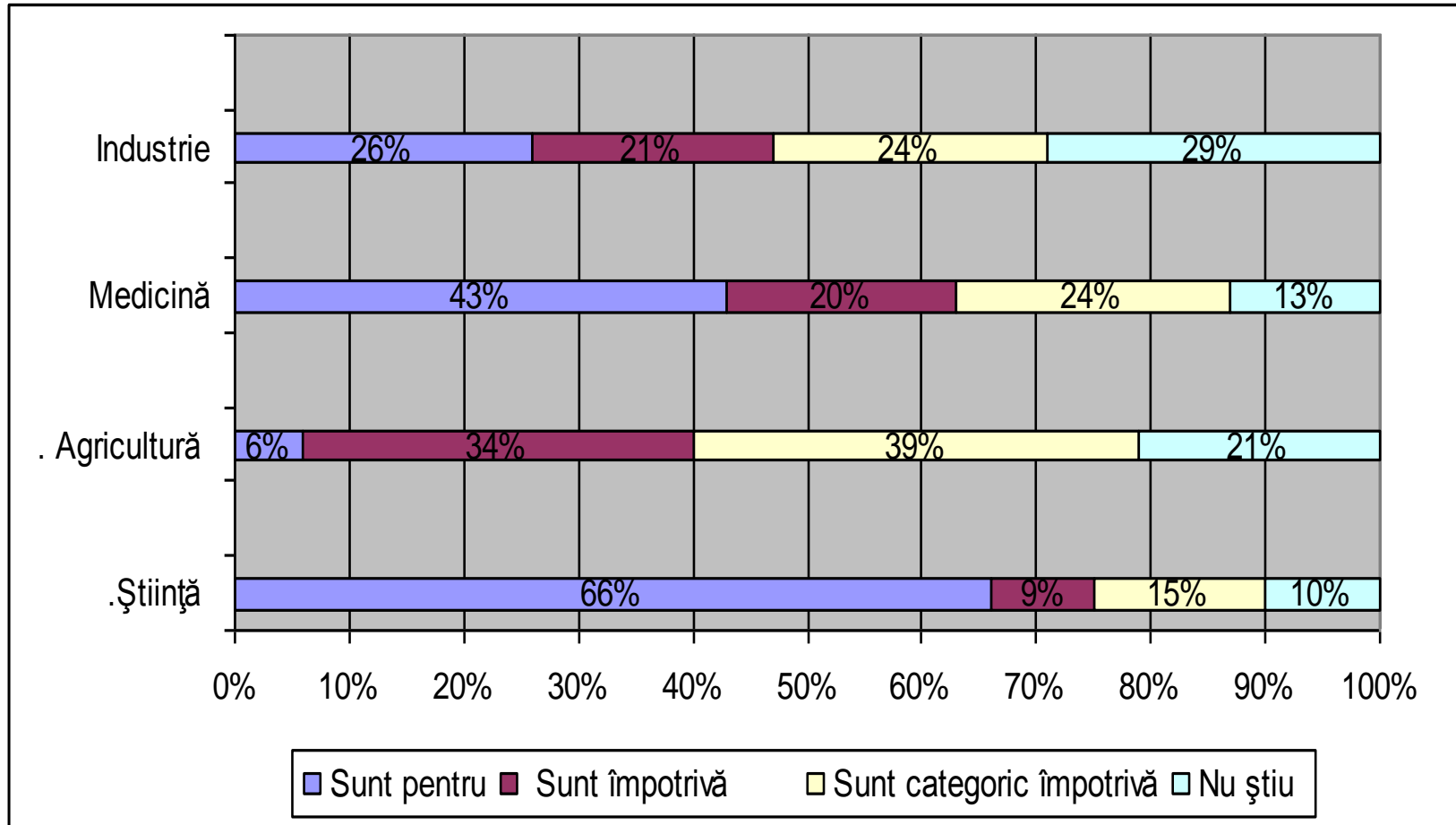


Export / markets

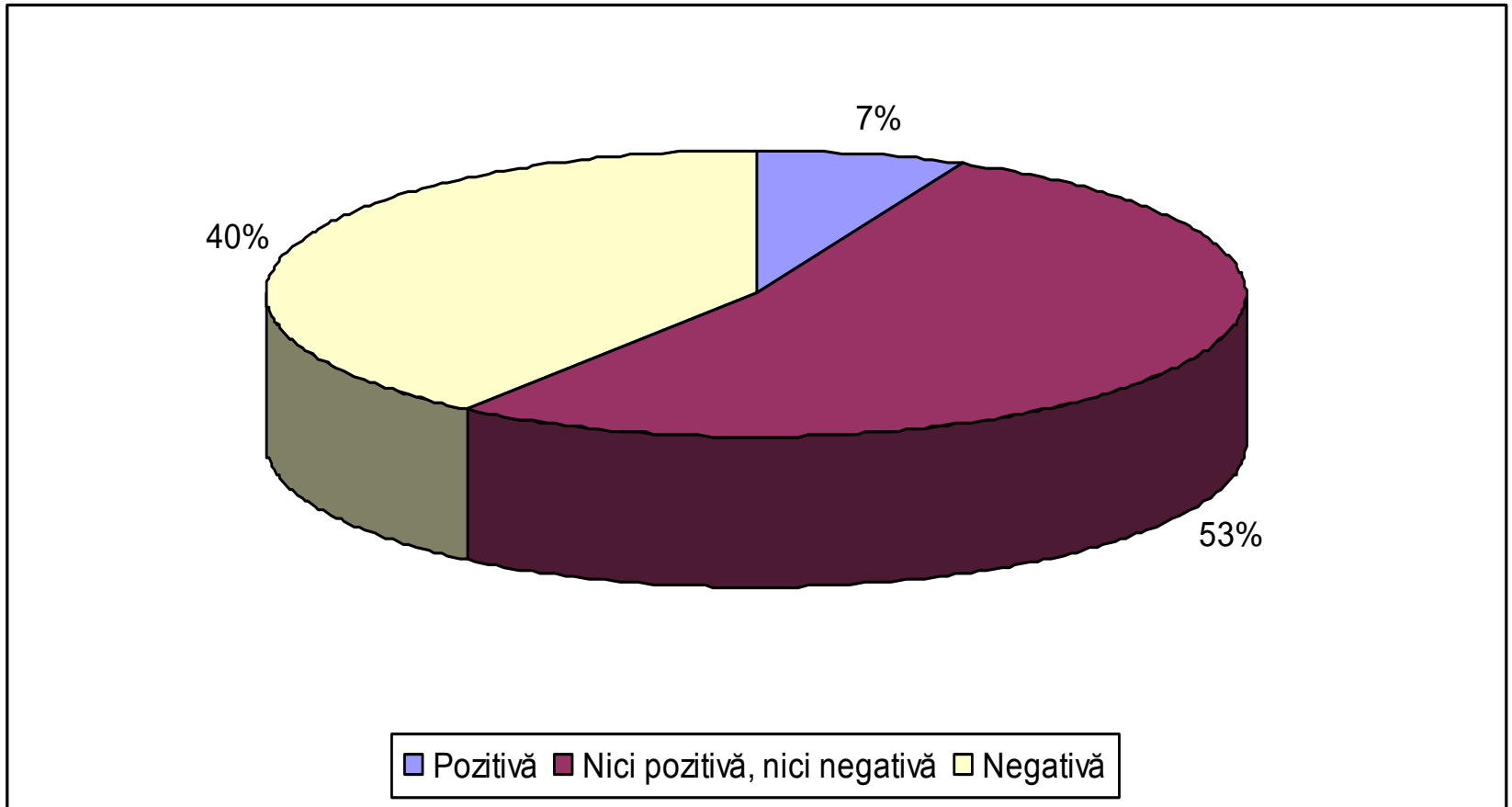
- ▶ Moldova being an Eastern European country on the border of East and West commercial traffic of goods and agricultural products, is disposed to the potential transboundary movement of LMOs through its territory. In addition, Moldova is itself an important agricultural producer and exporter, especially for the Eastern European region.
 - ▶ Moldova being a country of intensive transit operations and commerce between the European countries, Russia, Ukraine, Turkey, etc., can be exposed to the introduction of LMOs in the country. The LMOs have been detected in the imported soybean products commercialized in the local market and growing in the field.
 - ▶ Sampling and laboratory detection of LMOs corn and soybean (Vilnius veterinary laboratory, Lithuania, 2013) – botanical impurity with the GM soybean.
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Public opinion pool survey: What is your opinion regarding the GMOs use?:



What are your attitude regarding perspectives of GMOs use in Moldova?

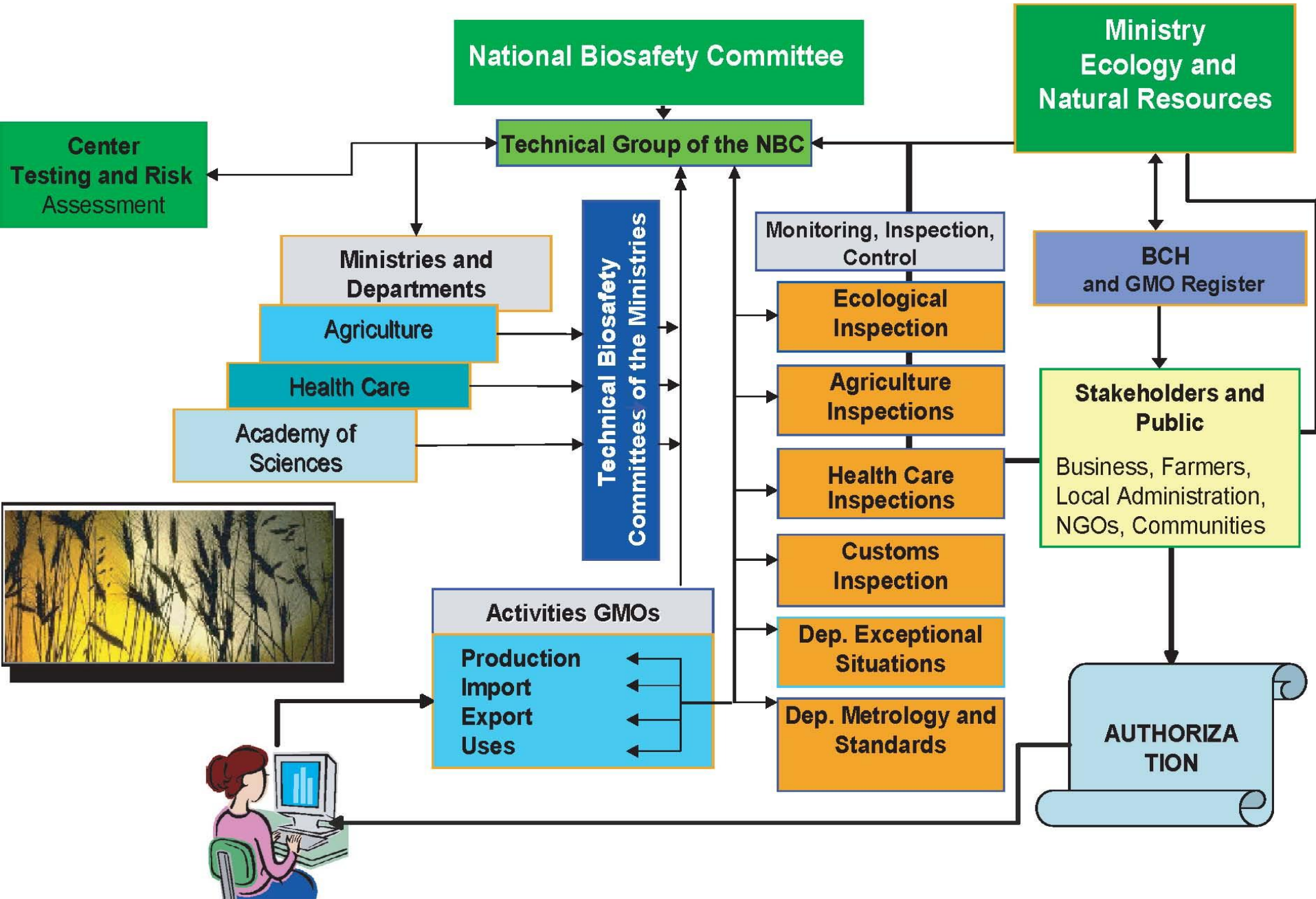


Socio-economic considerations in LMOs decision making

- ▶ National Biosafety Commission
- ▶ Decisions: decision on soybean-MON (Brazil-Romania) for FFP – 2015



NATIONAL BIOSAFETY FRAMEWORK



❖ BIOSECURITATE GENERAL

- [Protocolul de la Cartagena](#)
- [Cadrul Național de Biosecuritate](#)
- [Legea privind Biosecuritatea](#)

❖ BCH - MANAGEMENT CENTER

- [BCH - Portalul central](#)
- [BCH - Reteaua Națională](#)
- [BCH - Training site](#)

❖ Registering data

❖ LOCALIZARE INFORMAȚIE

- ❖ [Contacte naționale](#)
- ❖ [Legi și regulamente](#)
- ❖ [Decizii și autorizații](#)
- ❖ [Capacități instituționale](#)

- [Registru de experți](#)

- [Registrul Național pentru OMG](#)

❖ CENTRUL DE RESURSE

- ❖ [Testarea OMG](#)
- ❖ [Cercetări biotehnologice](#)
- ❖ [Publicații](#)
- ❖ [Resurse publice](#)



[Convention on Biological Diversity](#)



[Global Environment Facility](#)



[United Nations Environment Programme](#)



[Ministry of Ecology and Natural Resources](#)

La 29 ianuarie 2000 la o întâlnire extraordinară a **Conferinței Părților la Convenția privind diversitatea biologică** (Montreal, Canada), a fost adoptat Protocolul de la Cartagena privind Biosecuritatea. Acest document la nivel global reglementează activitățile legate de asigurarea unui nivel adecvat de protecție pentru siguranța transferului, manipulării și utilizării organismelor modificate genetic rezultate din biotehnologiile moderne și care pot avea efecte imprevizibile asupra conservării și utilizării durabile a diversității biologice, ținând de asemenea cont de riscurile pentru sănătatea umană și concentrându-se în special asupra mișcării lor transfrontaliere. Semnarea Protocolului a fost calificată drept un pas semnificativ prin faptul că el asigură cadrul internațional de reglementare pentru reconcilierea necesităților respective de comerț și protecție a mediului în privința industriei biotehnologice. Astfel, Protocolul creează un mediu favorabil pentru aplicarea ecologică a biotehnologiei moderne, ceea ce permite utilizarea echitabilă a beneficiilor din potențialul oferit de biotehnologie, minimizând în același timp riscurile pentru mediu și sănătatea umană.

Capacity building/training course on Impact assessment

- ▶ GenØk, in partnership with the Ministry of Environment in Moldova and Third World Network, is organizing a CEE Regional training course in biosafety and risk assessment in Chisinau, Moldova 3-8 February 2014.
- ▶ In addition to increase the participants general knowledge of biosafety, the course aims to run a test of the “Roadmap for Risk Assessment” developed by the Cartagena Protocol under the Convention on Biological Diversity. Socio-economic considerations has been focused as one of the key elements of the integrated impact assessment.
- ▶ The participants in this course come from countries such as Armenia, Azerbaijan, Belarus, Georgia, Moldova, Tajikistan, Turkey and Ukraine.
- ▶ <http://genok.com/arkiv/2516/>



Thank you!

GMO-free areas in the European Union

