

DEVELOPMENT OF THE AGRI-FOOD SECTOR IN THE REPUBLIC OF MOLDOVA

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The agri-food sector of the Republic of Moldova has undergone significant changes in the past decades. In the context of Moldova's European aspirations, the modernization of the agri-food sector must comply with European patterns and trends that will allow the agri-food industry to adapt to the requirements of international markets, especially in terms of safety and quality of food. The trade policy pursued by the Republic of Moldova at the current stage is focused on geographical diversification of the agri-food exports, primarily to reduce the risks caused by widespread non-tariff measures to protect domestic markets. The main drivers of the integration processes are private business operators and traders. However, the efficiency of the newly emerged food value chains is still low.

This investigation was done in the framework of the FP7 project “AGRICISTRADO” using the official statistical data, qualitative and quantitative studies and other relevant publications.

In this paper the importance and the most recent changes of the agri-food sector of the Republic of Moldova were demonstrated, the main impediments were analyzed and proposals to foster the agri-food sector development were provided.

Key words: *agri-food sector, agriculture, food consumption, agri-food trade.*

Introduction. The Association Agreement between the European Union and the Republic of Moldova was signed on June 27, 2014 in Brussels, Belgium. The Agreement was ratified by the Parliament of the Republic of Moldova on July 2nd, 2014 and by the European Parliament on November 13, 2014. The Association Agreement establishes a new legal framework for the advancement of relations between Moldova and the EU towards a higher quality level – political association and economic integration with the EU [8].

The accession to the Deep and Comprehensive Free Trade Agreements between the EU and Moldova was expected to boost trade relations with the European Union. In order to accompany these developments by analyzing the potential impact of these trade agreements and by delivering insights on the potential developments of the food, feed and biomass sectors in Moldova, Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Russia and Ukraine the AGRICISTRADO Project was launched in 2014. AGRICISTRADO contributes to the analysis of the present situation, the potentials and the projection of future agri-food developments. The project results contribute to a fact-based and well-informed dialogue among EU policy makers on possible impacts of a DCFTA on CIS agricultural development potentials [1].

The purpose of this article is to assess the impact of recent changes and identify possible opportunities for accelerating the development of the agri-food sector of the Republic of Moldova.

Material and methods

Given the challenges of the recent development in food sector the following research methods were used: analysis of the food sector structure and development tendencies, analysis of the country's food security, analysis of the agri-food trade for main groups of agri-food products and countries, analysis of the impact of external shocks over the export development and country's economic stability and food security.

As main sources of primary information for this study were used reports elaborated with the contribution of authors in the framework of the FP7 project “AGRICISTRADO”, data from the publications of the National Bureau of Statistics of the Republic of Moldova and the databases of the National Bureau of Statistics of the Republic of Moldova. As a secondary source of information a range of articles and studies elaborated by local and foreign experts were used.

Results and discussion

Primary agriculture

Favorable climate and high quality soils historically have determined Moldova's agricultural specialization, particularly in the production of high value crops like fruits and vegetables. Agriculture contributed with almost 12.5% of the country GDP in the year 2013. About 29% of the active population of the country was engaged in agriculture in the year 2013 [5].

A great part of the Moldovan agricultural sector is composed of two major sub-sectors: corporate sector comprising large companies and the individual sector that includes peasant farms and household land in private property. On the one hand, small farms, especially subsistence and semi-subsistence farms generate a limited surplus of high value-added crops (fruits, nuts, grapes, vegetables, potatoes) that are mostly sold in open air agricultural markets [4].

In the same time large scale agricultural companies are specialized in the production of low value-added crops (such as cereals, oilseeds, sugar beet), and employ limited labor force due to the high level of mechanized agricultural operations. This specialization has been driven by a number of factors such as the relatively low production cost of these crops, the availability of agricultural machinery allowing the rapid cultivation on large areas, relatively simple and cheap post-harvest facilities, as well as assured markets for these commodities.

General objective of the agri-food sector of the Republic of Moldova is formulated as the following: Increase competitiveness of the agri-food sector through modernization and market integration. Specific objectives are related to:

modernization of agri-food chain in order to meet EU requirements on food safety and quality; facilitation the access to capital, inputs and output markets for farmers; reform of education, scientific research and rural extension services in the agri-food sector, and creation of integrated agriculture information system [3].

Input production

At the national scale just a few companies provide supply services for agricultural farms. The most important one is the Moldagrotehnica SA that offers a large range of ploughs, seeders, cultivators and heavy disc harrows. In recent years, the company established close cooperation with foreign companies such as: Dutch AP MACHINEBOUW, Slovenia - SIP, Germany - WIRGEN and Kijner Import-Export and Italian-MAURA.

Another supplier of agricultural equipment is the Institute of Agricultural Technique Institute (ITA) "Mecagro". The Institute elaborates technical document and policies for the development of mechanized agricultural sector and efficient use of technical means, but also performs scientific research and technological designs, develops technologies and technical means for the agricultural sector and for the production and use of the renewable energy.

Input use

Moldovan agricultural production is entirely dependent on imported agrochemicals products, seeds and fuel and this has a strong impact on the competitiveness of food products. Primary inputs such as fuel, fertilizer and chemicals for plant protection necessary for agricultural production are all imported. This dependence makes Moldovan agriculture subject to international price volatility.

Insufficient access to high quality inputs remains a constraint for competitiveness in a number of sub-sectors. Manufacturers of high value crops such as fruits and vegetables, which rely mainly on imported seeds and seedlings, appear to be most affected by lengthy and costly procedures for registration of varieties. The test requirements and registration that govern imports of seeds and seedlings are probably the most important constraints and are currently nominated by stakeholders as an obstacle for production of more competitive crop varieties due to the costs involved and delay of access. This is also an obstacle to access to inputs for the agri-food processors.

After a strong decline of mineral fertilizers use during 90s the situation was slightly improved. Thus comparing with the year 2005 the quantity of mineral fertilizers use increased more than twice in 2013 (see table 1).

Table 1. Fertilizers' use in the Republic of Moldova 2006-2013 and its ratio 2013 vs. 2006, thousand tones, %

	2006	2007	2008	2009	2010	2011	2012	2013	2013/2006, %
Pure nutrients use. total	15.4	20.1	22.7	17.0	20.1	23.6	34.7	44.8	290.9
<i>N. total</i>	12.8	17.1	19.9	14.6	16.4	19.2	26.9	34.0	265.6
<i>P₂O₅. total</i>	1.9	2.0	1.7	1.6	2.4	2.9	5.6	8.3	436.8
<i>K₂O. total</i>	0.7	1.0	1.1	0.8	1.3	1.5	2.2	2.5	357.1

Source: Statistical Yearbook of the Republic of Moldova, 2014 [5].

However level of agricultural land fertilization is much lower comparing with EU and other neighboring countries. Utilization of organic fertilizers demonstrates the same tendencies. The prospects for continued growth in demand for value-added food and agricultural products constitute an incentive for increased attention to agro industries development within the context of economic growth, food security and poverty-fighting strategies [7].

During the transition period the industry, and particularly the food processing industry, has maintained its position as an important sector of the national economy and as a foundation for the continuous development of the country. The leading positions in the structure of industrial production belong to the branches specialized in the processing of local raw material, mainly of agricultural origin. The food processing sector involves about 1,260 companies. The share of food industry accounted for about 43% of the total industrial production in the Republic of Moldova in 2013, although this share was 52% in 2004 [5].

In the same time the large scale food industry is characterized by underutilization of its capacities and insufficient investments. High levels of moral and physical depreciation of the industrial capacities and infrastructure is typical for local food processing companies. A large part of processing equipment and technologies is not energy efficient and do not meet modern standards. Many enterprises lack modern management practices and necessary investment capital. The lack of financial resources leads to inadequate compensation and to the exodus of the skilled labour force. Lack of horizontal and vertical coordination of supply chains is another important reason underlying the low competitiveness of the agri-food sector.

The reasons causing low prices of agricultural products include insufficient development of the agri-food value chains, low bargaining power of the small scale agricultural producers, unstable quality of the agricultural products, poor infrastructure and limited access to foreign markets. Value chain deficiencies lead to large discrepancies between the farm gate price and the consumer price, resulting in low-income, low investment and persistently low quality at the farm level.

Despite favourable circumstances in international markets the development of food sector of the Republic of Moldova had an unstable character. Production volume of food and beverage industry in 2013 amounted to only about 87% of production in 2005 (see Table 2).

Table 2. Indices of industrial production, by most important types of activities, 2006-2013 (2005 = 100%)

	2006	2007	2008	2009	2010	2011	2012	2013
Industry – total, of which:	95,2	94,0	95,4	75,2	82,2	90,1	88,3	94,3
Processing industry, of which	93,5	91,8	92,8	71,7	79,5	88,8	87,4	94,3
Manufacture of food products and beverages	81,6	75,2	82,0	67,6	75,7	80,9	82,0	87,2
Production, processing and preserving of meat and meat products	109,8	142,8	147,1	121,8	132,5	150,7	174,2	179,4
Processing and preserving of fruits and vegetables	106,5	115,6	109,2	84,1	90,4	118,0	98,0	111,4
Manufacture of dairy products	98,2	101,7	108,3	98,2	107,1	109,3	117,3	127,7
Manufacture of products of flour-milling industry, of starches and starch products	106,5	95,1	105,0	88,7	81,6	80,3	70,5	85,9
Manufacture of bread and pastry products	106,4	118,0	129,1	121,2	127,6	137,3	136,5	143,2
Manufacture of wine	50,9	36,3	45,2	35,7	40,3	41,2	41,9	38,8

Source: elaborated by authors based on data of the National Bureau of Statistics [6]

However this decrease was mostly due to the reduction of wine production after the restrictions imposed by Russian Federation for Moldovan wine exports in 2006.

The most important products of the food processing sector include wine, meat, fruit and vegetable products, dairy products and bakery products.

The ratio between the value added in agriculture and agri-food industry shows that during the recent years the value added in agriculture is higher than value added created in the food processing industry – more than 2.4 times on average for the period of 2007-2013 (see Figure 1). At the same time, food processing industry has higher productivity as compared with the agricultural production.

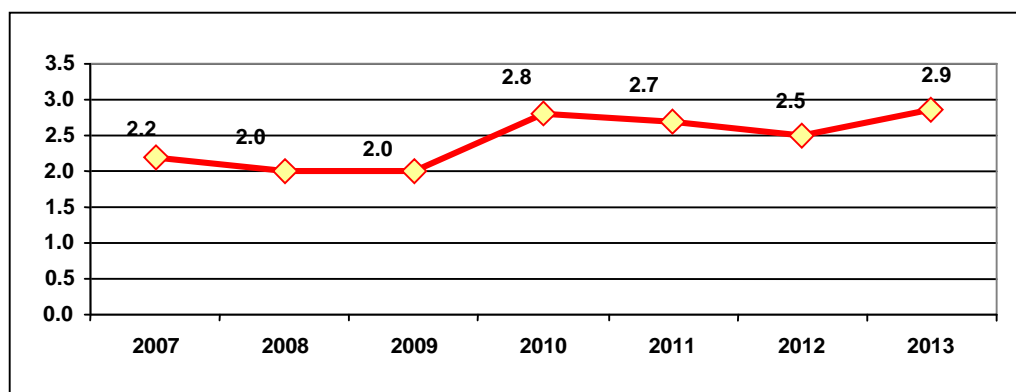


Fig. 1. The ratio between value added in agriculture and agri-food industry, 2007-2013

Sources: elaborated by authors based on data from National Accounts of the National Bureau of Statistics, 2014 [6]

Consumption

At the national level Republic of Moldova is food secure. It produces its main food products, exports its surplus food, and imports what it needs to meet its food requirements.

Food security indicators prove that in the Republic of Moldova the level of per capita food consumption have stabilized during the last years. However there are some evident changes in consumption patterns. Thus in the period of 2006-2013 the consumption of cereals and bread products has been steadily reduced by about 20%. Consumption of potatoes and vegetables has been reduce even more significantly with about 40% and 35% respectively. In the same time consumption of grapes increased twice, while consumption of meat increased with about 21% (see table 3).

Table 3. Human consumption per capita and its variation 2013 vs. 2006, 2006-2013, kg, %,

	2006	2007	2008	2009	2010	2011	2012	2013	2013/2006, %
Cereals	173.5	146.7	160	152	152.4	148.6	141.0	137.4	79.2
Sunflower	1.6	0.7	0.7	0.7	0.8	0.8	1.0	1.5	93.8
Potatoes	87.6	58.8	58.0	59.3	56.7	59.8	52.3	52.7	60.2
Vegetables	131.9	75.8	99.1	106.3	109.6	114.6	78.2	85.9	65.1
Fruits	35.8	24.1	36.7	30.5	34.3	34.6	34.3	35.1	98.0

	2006	2007	2008	2009	2010	2011	2012	2013	2013/2006, %
Grapes	3.0	3.8	4.4	4.1	6.4	8.1	6.4	6.4	213.3
Meat	38.3	36.0	32.3	29.5	35.6	37.9	39.7	46.2	120.6
Eggs	167.5	177.1	141.1	161.7	184.9	189.6	155.7	165.0	98.5
Milk and milk products	177.3	175.4	155.0	168.9	175.3	170.2	170.8	166.0	93.6

Sources: National Bureau of Statistics of the Republic of Moldova, 2014 [5]

Another aspect of the consumption patterns is reflected by the level of daily calorie intake that shows an increasing trend since 2008 after a decline during the period of 2006-2007. There are also some other interesting trends that show an approximation of daily calorie intakes in rural and urban areas (see figure 2).

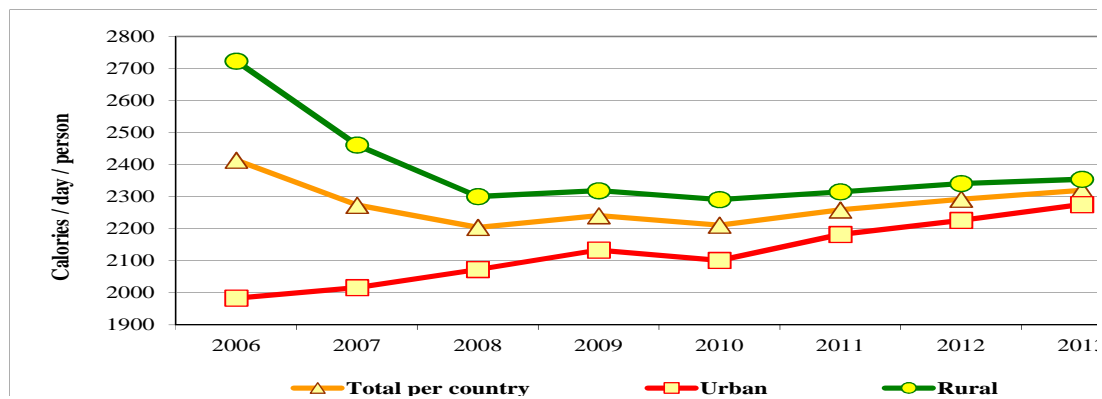


Fig. 2. Average calorie intake in the Republic of Moldova in rural and urban areas, calories / day / person, 2006-2013

Source: National Bureau of Statistics of the Republic of Moldova, 2014 [6]

The nowadays food security challenges in the Republic of Moldova have two major dimensions. The first dimension seeks to maintain and increase the country's ability to face the national food demands through assurance of the internal food production, import of the food products that cannot be produced efficiently in the country, and exports of products that have a comparative advantage.

The second dimension is related to the reduction of the increasing inequalities and expansion of the poverty among the majority of the households of the Republic of Moldova that is manifested by inadequate and unstable food supplies, lack of purchasing power, weak institutional support networks, weak food emergency management systems and unemployment. In addition to natural risks, commercial risks largely influence the level of food security in the Republic of Moldova. The evolution of prices in Moldova follows the trends of international food prices, agricultural products and resources for agricultural production in relative terms. Like other small countries with low income, Republic of Moldova faces additional challenges when making an effort to refocus and modernize the sector of primary production and processing industry in order to supply the local market with basic food products.

The level of food self-sufficiency of the country is rather high, however in several years it decreases to a critical degree due to severe droughts (see table 4).

Table 4. Self-sufficiency rate (%), 2006-2012

	2006	2007	2008	2009	2010	2011	2012	2013
Cereals	99.2	70.6	143.4	105.0	117.8	115.6	60.8	150.3
Sunflower	145.0	65.5	178.0	121.4	156.6	195.9	143.8	326.3
Potatoes	91.7	67.0	93.4	89.4	100.4	116.2	66.6	89.8
Vegetables	103.5	84.8	110.1	98.6	104.2	100.5	93.3	102.4
Fruits	195.8	227.0	222.2	213.9	207.7	237.7	245.2	264.2
Grapes	102.4	106.8	102.6	104.3	104.6	102.8	103.9	103.7
Meat	67.8	84.5	67.8	86.7	86.0	86.1	81.5	69.8
Eggs	112.7	101.6	100.0	100.3	98.8	95.4	102.2	98.0
Milk and milk products	97.5	95.0	97.1	95.0	94.1	92.0	84.7	86.8

Sources: National Bureau of Statistics of the Republic of Moldova, 2014 [6].

Food export

In the context of Moldova's European aspirations, the modernization of the agri-food sector must comply with European patterns and trends that will allow the agri-food industry to adapt to the requirements of international markets, especially in terms of safety and quality of food. The trade policy pursued by the Republic of Moldova at the current stage is focused on geographical diversification of the agri-food exports, primarily to reduce the risks caused by widespread non-

tariff measures to protect domestic markets.

The average volume of exports of agri-food products for the period of 2010-2014 amounts to 922 million USD. Export geography includes 112 countries, of which the top five account for 54% of exports. These are the Russian Federation, Romania, Belarus, Ukraine and Italy.

The export structure is dominated by few groups of products, among which the leading role traditionally belongs to wine products, fruit, sunflower and vegetable oils. Export of livestock products is carried out on a much smaller scale. In general, the foreign market is supplied mainly with agricultural raw materials and semi-finished products (see figure 3).

Agri-food exports of Republic of Moldova have been strongly marked by a significant reduction of supplies to Russia in 2001-2008 and the embargo in 2013. In 2013, more than one quarter of Moldovan export revenues originated from Russia. Currently, Russia uses this economic leverage to exercise pressure on Moldova through a number of trade restrictions.

The average volume of imports during the same period was 705 million USD. The geography of import trade is more diverse and includes 159 countries, of which the top five countries account for 55% of agri-food imports and encompasses Ukraine, Russia, Turkey, Germany and Romania.

Primarily tobacco, vegetables, citrus fruits, various food products, alcoholic and non-alcoholic beverages, meat and edible meat offal are imported into the country.

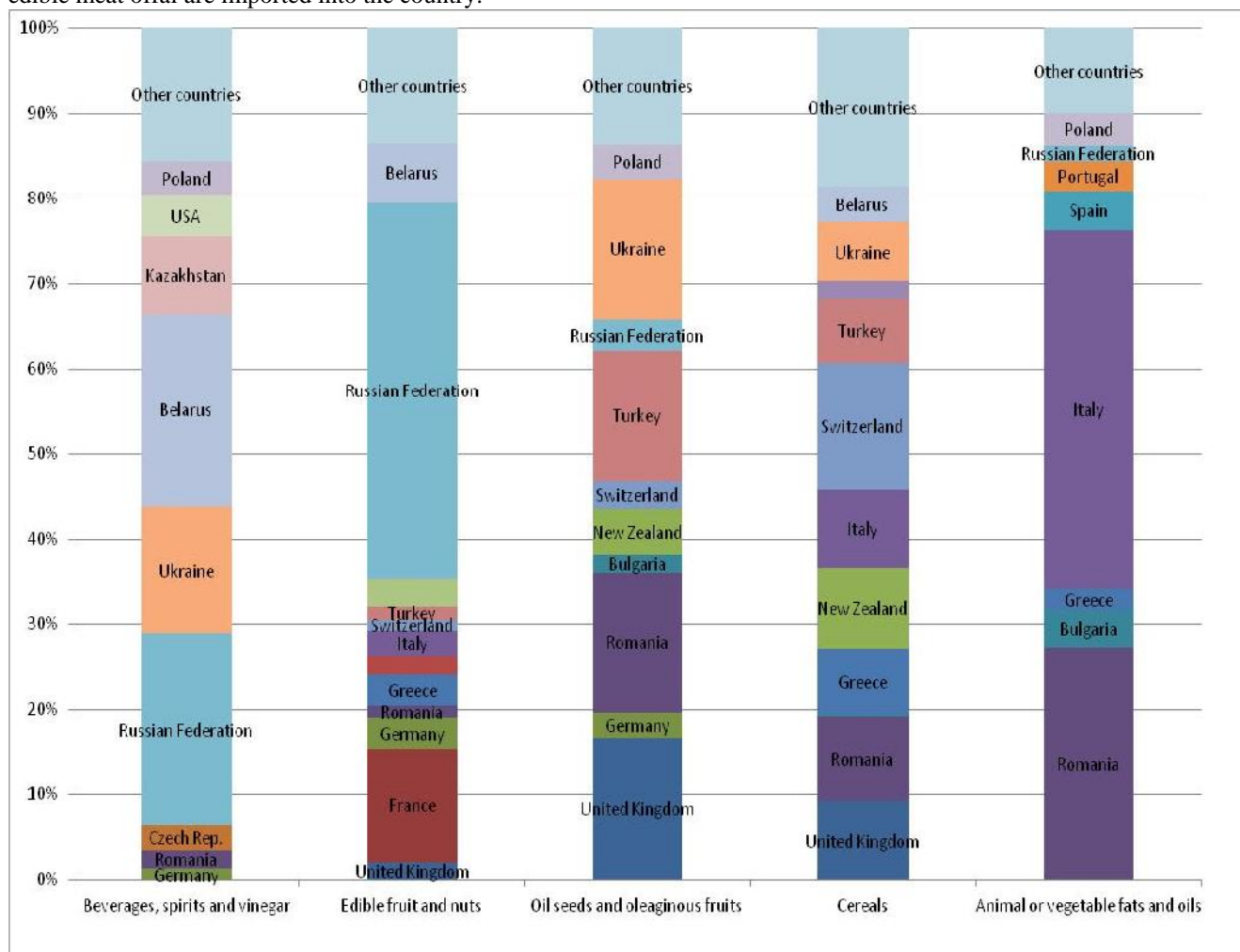


Fig. 3. Structure of agri-food exports of the Republic of Moldova by major products and trading partners during the period 2010-2014

Source: elaborated by authors based on UN Comtrade data, 2015

The Republic of Moldova is a member of the WTO and has signed trade agreements with 93 countries. An important factor of the economic growth of the Republic of Moldova is the trade relations between the EU and Moldova. The EU’s decision to open its market unilaterally to the Republic of Moldova in 2008, through the so-called autonomous trade preferences has led to the growth of mutual trade turnover. This trend will continue due to the recent signing of an Association Agreement, which includes a deep and comprehensive free trade area (DCFTA) between the EU and Moldova. This agreement creates new and closer political and economic relations between the EU and the Republic of Moldova. At the same time, Moldova committed to the development of mutually advantageous trade with the CIS and other countries.

However, it should be noted the slow pace of growth in agricultural exports in 2004-2013. According to this index Moldova’s rank is the last among the CIS countries. In the same period the volume of imports has grew at a faster pace [2].

Discussions on strengthening the export orientation of the economy are conducted in Moldova for a long period of time. However, in society and in government circles is growing awareness that the export development is constrained by a number of general economic issues. The main ones are as follows:

- The high level of businesses fragmentation in the agricultural sector, food processing and foreign trade;
- Low level of productivity in all areas of agri-food sector, as a consequence of the use of outdated technologies;
- Unbalanced marketing activities, expressed in excessive concentration of the agricultural and food products trade in certain directions, and the sporadic nature of this trade with other countries and regions.
- Lack of interaction in the field of technology transfer between business, academic and university centers.

Conclusions

- The agro-food sector in the Republic of Moldova is characterized by weak links between primary agricultural production, processing industry and trade sector, underutilization of the production capacities, lack of investments, outdated equipment and standards.

- There are positive trends in the development of the agri-food sector of the Republic of Moldova during the last years. However the vulnerability of this sector to natural, economic and commercial risks remains to be very high.

- The level of country's food security for major agri-food products has stabilized during the last years. Nevertheless in several years it decreases to a critical level due to negative impact of natural hazards. Trade restrictions exacerbated by natural calamities could increase the risk of food insecurity.

- The current situation in the international trade with agri-food products placed the Republic of Moldova in a difficult position. Exchange of sanctions between a number of Western countries and the Russian Federation provides multiple restrictions on the conduct of economic activities, including international trade that makes it necessary to review existing economic policies. Prohibitions and restrictions on the part of the Russian Federation on the import of agricultural products from the Republic of Moldova are forcing the government to urgently diversify export markets and to take measures to strengthen the economic security of the country.

- The food sector of the Republic of Moldova needs specific actions in order to stimulate development of the high value agriculture through creation of product sales centres, strengthening quality control, organizing regional wholesale markets, assisting producers to sell their products, development of market infrastructure at central level, development of the post harvest and market infrastructure.

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