

## FOOD PRODUCTION AND TRADING UNDER THE IMPACT OF SUSTAINABLE DEVELOPMENT

Cecilia Irina RABONTU\*, Mădălina Cristina VASILE \*, Laura Nicoleta NASTA\*\*

\*Constantin Brâncuși University of Târgu Jiu, Romania,

\*\*Economic Study Academy, Bucharest, Romania

cecilia.rabontu@gmail.com, vasilecmadalina@yahoo.com, alsenasta@gmail.ro

**Abstract:** *In the current period, more and more economic agents involved in producing and trading food are tempted to avoid certain standards of safety and innocuousness of agricultural and technological processes in order to maximize profit. There are often situations in which food producers with the will of a quick return do not realize or do not measure the adverse effects that may arise on life, health, environment and thus on sustainable development. This paper tries to determine the degree of compliance with safety rules imposed by manufacturers in the food industry but also the factors that may cause the consumer purchasing decision in the context of uncertainty about the harmlessness of food. The food correctly and environmentally made, stored, transported and traded contributes to a sustainable development, aspect that will be the subject of our study.*

**Keywords:** food production, trade, Romania, sustainable development

### 1. Introduction

If predictions come true, in the coming years we will see that the population will increase to about 8 billion in 2030 and to over 9 billion by 2050. Population growth will be accompanied by a strong trend of urbanization appreciating that, in the next thirty years, the population will increase only in the cities, which will require large-scale infrastructure improvements. This development will bring obvious and exert pressure on ecosystems and supply of material resources such as food, water, energy and raw materials, etc. The organisations both on macro and micro level will face these changes and threats.

This raises a major problem, namely food security that will be exposed to increased pressure of the great forces including population growth, water shortage and deforestation. It is estimated that food

prices are likely to increase to 70% by 2030 globally.

Since the early 1970s, the famous report "The limits to growth" concludes: "If the current trends of growth in world population, industrialization, pollution, global food production and resource exploitation continue unchanged, the limits to growth on this planet will be reached some point in the next hundred years". (Meadows and Meadows, 1972).

Given the current realities of life a sustainable development, a development that focuses on reducing available resources, climate change but also the growing environmental deterioration is increasingly more required.

"Society is more and more imbalanced, the rich are becoming richer and the poor get to be much poorer, many countries facing serious difficulties in

securing enough food, money and other resources. Under growing pressure of environmental constraints, social and economic, the mankind began to understand that if it continues to consume unjustified, to ignore and to dispel signals of this lifestyle, it will destroy itself' [2].

Regarding the issue of food, we must emphasize that they cross all three sectors of the economy, from the state of starting materials in the primary sector, namely in agriculture, raw material that can be consumed as it is or processed, reaching the secondary sector in manufacturing industry, more specifically in the food industry, the end food product reaching finally the tertiary sector in the sphere of trade and catering in restaurants, fields that make possible the completion of the commodity supply economic circuit. So, food can be found in all three sectors of the economy, requiring a greater focus on the safety and food security, on the safety products throughout all their way, on the much higher quality demanded by consumers and imposed by the quality standards, etc.

The industry and food trade are more often focused on the increasing role and importance of quality in the supply-demand ratio, meaning the demarcation between “where it creates quality, production process and where it manifests, in the consumption “.

A sustainable development involves, in the first place, knowledge of the indicators that show the level of product quality with regard to composition and structure of the product, the product reliability, maintainability and keeping quality characteristics; technological indicators; aesthetic indicators (which give indications of informational and compositional integrity expressivity); economic indicators (with reference to the costs of production and sales of products).

We increasingly use more natural resources due to population growth, changing lifestyles and intensification of personal consumption. To stop this unsustainable consumption that we have

adopted, we must address to the entire system resources, including production methods, patterns of demand and supply chains [6].

## **2. Sustainable development and food industry**

The food industry along with other industries such as the processing of energy resources, basic chemicals, building materials, machinery manufacturing industry and, to some extent, even the extractive industry, are crucial sectors for the society's functioning and, generally, have rates evolving parallel with population growth.

Therefore, even if the food is not considered as a possible leader of the economic development, this sector, which provides commodities, cannot be overlooked considering the fact that, in general terms, we can say that the food system is composed of all materials, processes and infrastructure related to agriculture, technological processes for obtaining processed food, wholesale trade and retail, transport and food consumption.

In the world economy level, we are witnessing today multiple interdependencies including the food industry, given at the same time, the magnitude of financial and exchange rate relations and international prices, the deepening of international division of labour, diversification of centres of power in political and economic international ground, changing the structure of the world in terms of the level of economic development, growing interdependence of North-South, between rich and poor as a result of the need for food, environment etc.;

The operational objectives set for the sustainable food consumption and production to promote this trend consist of: decoupling economic growth from environmental degradation; improving social and environmental performance of products and processes; increasing the share of the international market of environmental technologies and eco-innovations. Thus,

agriculture and food industry operate at the demarcation line between the needs of a growing population and nature protection. They have a duty to produce a bigger "pie" while respecting the environmental space and humanity (as a whole), and mankind has a duty to share this "pie" as fair as it can. Clearly, a bigger "pie" will provide larger portions for everyone [1].

The food industry is a big branch generating waste along with energy industry, chemical and petrochemical industries and metallurgy industry. The amount of generated production waste, almost 30% is recovered, the rest being eliminated through landfilling or incineration. "In Europe, it is estimated that about one third of the food products are not consumed and waste is generated in all stages of the chain. The European Commission estimates that only in the EU, 90 million tons of food (or 180 kg per capita) are discarded; many of them are still suitable for the human consumption. The generation of food waste is identified as one of the issues to be addressed to in the Roadmap to a resource-efficient Europe in terms of the resource use [6].

Although we are more obviously witnessing increasing consumers and employees' concerns about the issue of sustainability, we require companies from the food industry, and not only, to produce goods and services with more environmentally friendly methods and to be more socially responsible. They also award companies through higher fidelity, adopt new products and have a certain readiness to pay higher prices for goods and services in the premium category. The biggest sustainability has those sectors providing goods and services that bring sustainable benefits. Some examples are the health sector, which gets high marks of sustainability in proportion of 21%, the alternative energy sector, with 20%, and food and medicines retailers by 14% each[2].

In the context of a sustainable development, the food waste, which in the context of compliance with current public

health and consumers protection is generated in large amounts (e.g. contaminated meat withdrawn from the shelves is a preventive measure necessary to protect human health but it is a waste of resources), must be brought also into discussion.

Satisfying consumer expectations (for example, in terms of the variety of options and full shelves or aesthetic aspect) is also a determinant of food waste in the retail sector. Fate of unsold food depends on waste management practices. They can be used as feed, for compost or recovered as energy or can reach the landfill.

### **3. Production and organic food**

The Romanian agriculture, as the entire agri-food economy is, is characterized by crisis ineffectiveness allocation and use of resources (that started long before 1989) and strongly affected by systemic imbalances of property and farms, of markets and agricultural prices, of inputs of agricultural production, and of competitiveness and institutional functioning, all of which generate non-performance factors, constituting the main weaknesses of the Romanian agri-food system and also threats to improve food safety and security in Romania [2].

The organic farming, as an alternative to multifunctional agriculture and as a branch focused on environmental protection, involves technologies that encompass more work in agriculture which attracts some of the surplus rural labour.

The organic farming is mainly the farming system that ensures high quality products controlled and certified in harmony with nature and health of consumers. It is estimated that in developed countries organic farming is practiced on almost 4-5% of the agricultural area at this time and due to higher eco-product prices, it cannot count on significant increase of areas with environmentally friendly crops, namely on a "massive greening" of agricultural production in the next 2-3 decades. Therefore, a significant increase in rural

employed population in such holdings in Romania cannot be provided [5].

Regarding the sustainable management of agricultural land, it is focused on supporting farms that can provide resources which their further processing will increase the added value of products. Currently there is a tendency among companies in the industry to produce series of green products. The organic farming in Romania is favoured by the existence of an extensive majority of traditional agricultural systems.

The food security and safety can be achieved, especially in the context of the global climate change, only through the proper use of natural resources available to the Romanian agriculture, the environmental resources being superior to many EU countries, these constituting the main opportunities of the Romanian agriculture[5].

The agri-food strategy of Romania aims to fundamentally ensuring the food safety and the food security of the Romanian population, having on its centre the sustainable rural development as a factor of the sustainable economic growth, which involves strong rural economy with its main branch – a performance-based agriculture – built on a modern rural infrastructure, an

appropriate technique equipment of rural territory, of settlements and rural housing, by using the economic circuit of renewable local natural resources (from rural place), environmental protection and landscape and, as a result of them, reaching an acceptable standard of rural life, alleviating poverty and severe restriction of rural areas. The sustainable economic development can be achieved, above all, only if it invests on medium and long term to strengthen farm businesses and food processing, advanced technologies, the layout and equipment of adequate agricultural land with irrigation systems, the drainage systems, the erosion control, windbreaks protection field, anti-flood systems, etc.

#### 4. The industry and food trade in statistics

In 2014, in Romania, 8,119 enterprises, in which 159,735 employees were working, were concentrated in the food industry. The turnover in the food industry in 2014 was worth 39,861 million lei, in current prices, representing 13% of the turnover in the manufacturing industry, where food industry is a part of. For a dynamic evolution we present the turnover in areas involving food, namely the food industry and the food trade.

Table No.1. The turnover for enterprises in industry and food trade  
Millions lei current prices

	2012	2013	2014
<b>Industry, from which:</b>	384,966	389,966	403,169
<b>Manufacturing industry</b>	278,708	290,226	306,171
<b>Food industry</b>	37,999	39,993	39,861
<b>Wholesale of food, beverages and tobacco</b>	62,161	60,333	60,940
<b>Retail sale of food in non-specialized stores</b>	46,800	48,952	52,800
<b>Retail sale of food in specialized stores</b>	3,012	2,941	3,121

Source: Romanian Statistical Yearbook, 2015

In the analysed period it was found that the food industry, as part of the manufacturing industry, has not kept the general trend in the industry growing in 2013 and decreasing in the last year of analysis. But the food trade, be it retail or wholesale,

recorded significant increases from year to year. It is also seen that the biggest turnovers were recorded in the wholesale and retail trade in non-specialized stores, the trade in non-specialized stores being insignificant compared to other forms of commerce.

Other activity related to food industry activities for events, where their turnover is found in the framework of population as follows: services, namely restaurants and catering

*Table No. 2. The turnover for enterprises with service activity for population with specific food*  
Millions lei current prices

	2012	2013	2014
Total services for population	14,886	14,693	16,110
Restaurants	4,431	4,619	5,327
Catering activities for events and other food service	680	722	739

Source: Romanian Statistical Yearbook, 2015

It was found that, in terms of the turnover for service activities with specific food, increases from one year to another are recorded in the analysed period, more significant in this respect being the turnover achieved in restaurants which increased from 4,431 mil lei (29.7% of total) in 2012 to 5,327 mil lei (33.06% of total) in 2014.

The catering activity for events also registered growth in terms of turnover, even if the total weight is less.

*Table No. 3. Industrial production indices on industry activities*  
2010=100

	2012	2013	2014
Total	110,1	118,7	125,9
Manufacturing industry	110,4	120,5	129,5
Food industry	104,7	112,1	116,9

Source: Romanian Statistical Yearbook, 2015

For a clearer picture on the food industry it is seen from the data above that the food industry presents indices confirming the increased production from year to year compared with the reference year 2010. Thus, in 2012 it increased by 4.7%, in 2013 to 12.1% and in 2014 it is observed a significant increase, namely 16.9%. It is noticed that the manufacturing industry keeps the trend, but at a lower level, the manufacturing industry registering a growth of 29.5% in 2014 compared to 2010, more than in the whole industry.

*Table No. 4. The food products international trade*  
Millions euro

	Export			Import		
	2012	2013	2014	2012	2013	2014
Total	45,069	49,562	52,459	54,703	55,317	58,522
Food and live animals	2,795	3,571	3,662	2,666	3,860	4,066
Beverages and tobacco	558	625	817	444	451	453
Basic products, from which	1,661	2,583	2,640	1,084	1,220	1,294
For industry	1,472	2,337	2,367	549	573	557
For population	189	246	273	535	647	737
Manufactured products	1,088	1,154	1,169	2,623	2,684	2,754
For industry	171	215	199	572	532	426
For population	917	939	970	2,052	2,151	2,327

Source: Romanian Statistical Yearbook, 2015

The food products were the subject of the international trade both in export and import concerns, but also regarding the basic and processed goods. As expected, even if the Romanian trade balance is detrimental, the imports of food products are higher per total than food exports. We observe with confidence that in 2012 the exports of food and live animals have been greater than the imports with about 130 million euros. We

also noticed that the commodities industry recorded higher values in export compared to import on the entire analysed period, something that gives us certainty that a large part of the raw materials processed come from internal production, which, as it is known, is less polluted and supports a sustainable development of the Romanian industry.

*Table No. 5. The retail sale on product groups*

	2009	2014
<b>Food products</b>	36,8	33,4
<b>Non-Food products</b>	45,5	40,9
<b>Fuels</b>	17,7	25,7

Source: Romanian Statistical Yearbook, 2015

An interesting analysis is the one related to the retail trade by groups of goods from which we noted that in 2014 there are a decrease of 3% of food trade and 5% in terms of non-food products, these declines being a

disadvantage of the sustainable development considering the increasing trade and fuel consumption by 8%, aspect that implies more pollution, fuels being particularly used in order to travel and the transport use.

*Table No. 6. Trade in food, beverage and tobacco by EU countries in 2014*

Tara	Thousands euro	
	Export	Import
<b>Estonia</b>	3,157	192
<b>Cyprus</b>	10,304	646
<b>Finland</b>	565	1,260
<b>Ireland</b>	11	6,901
<b>Croatia</b>	6,220	7,565
<b>Denmark</b>	19,913	17,460
<b>Greece</b>	153,822	29,236
<b>Belgium</b>	13,641	61,694
<b>Czech Republic</b>	18,766	67,068
<b>Austria</b>	39,595	69,521
<b>France</b>	34,117	83,361
<b>Bulgaria</b>	162,533	114,806
<b>Germany</b>	85,054	325,836
<b>EU total</b>	1,345,055	1,658,364

Source: Romanian Statistical Yearbook, 2015

There are not less relevant data on the Romania food trade with the EU countries, where it is noticed that Romania exports to EU food products in a value of 1345.1 million euros unlike imports amounted to

1658.4 million euros in 2014. The countries to which we export more than we import are Bulgaria, Cyprus, Denmark, Estonia and Greece. The imports with the highest value are from Germany, followed by Bulgaria,

France, Austria, Czech Republic and Belgium. We may be confident that imports from developed countries are the products obtained by technologies that comply with the sustainable development principles.

The main exported food products in 2014 were: wheat (nearly 5 million tons for 959.4 million euro), corn (3.7 million tons for 755.1 million euro), cigarettes, seeds and sunflower oil, rape seeds, barleycorn, livestock of sheep and goats, poultry and bovine livestock. Compared to the proceeds in 2013, the exports of cigarettes increased from 193.1 million euros to 699.1 million euros, while the rape seeds increased from 145.7 million euros to 338.3 million euros.

Exports of nuts performed again in 2014, in terms of increasing by 22.8% of quantity delivered and unit price, earnings being 55.6% compared to 60.4 million euros in 2013.

Regarding imports, pork, soy grits, bakers, pastry, chocolate, etc., the various food preparations were located on top last year after the share in total import value. Compared to 2013, bills were higher mainly for the raw tobacco (a total of 162,4 million euros, representing an increase of 27.9%), poultry (146.1 million euro, + 19.2%), chocolate (163.6 million euro, + 16.3%) and pork (286.1 million euro, + 6.5%) [7].

## Conclusions

The sustainable development in terms of food production must be primarily supported by getting some healthy raw food obtained from farming as organic as possible, aspects that lead to the need for targeting European and national funds in order to support and implement a sustainable rural development. Also, in this category of the

encouraging development of sustainable agriculture, legislative, institutional, financial and fiscal actions are found in order to increase competitiveness of commercial agricultural national circuits, internationally, expanding participation of the Romanian agricultural products in third markets, primarily in the European agricultural common market.

Also, we must become aware that every time we waste food, we also waste land, water, energy and other raw materials used to produce the food consumed. Therefore, any reduction in the food waste means, in fact, potential environmental benefits. If we reduce the amount of food that we waste throughout the food system, we will need less water, less fertilizers, less land, less transport, less energy, less waste collection, less recycling and so on.

In the wider context of the green economy, increasing the resource efficiency in a system contributes to the reduction of resources in other systems. It is almost always a win-win scenario.

A major concern for the correct and concrete analysis of the extent to which the production and sale of food determine and influence the sustainable development as synthetic indicators of the analysis is: the value of primary agricultural production (crop and livestock) and their structure; the value of agricultural production and its destination – domestic food consumption, export/import food; food consumption forecast annual per capita in Romania; nourished population of domestic food production (availability of food for export); capital investment per hectare to support the food production of Romania.

## References

- [1] Al, N. & Apostu, S., "Food and nutrition in the third millennium. Population and food resources", Agriculture - Science and Practice, no. 1-2 (69-70)/2009
- [2] Danciu, V., "Sustainable enterprise. New challenges and strategies for improving corporate sustainability." [http://store.ectap.ro/articole/898\\_ro.pdf](http://store.ectap.ro/articole/898_ro.pdf) -2013
- [3] Pantea, Emilia Valentina, „The Study of Treatment Technologies for Urban and Food Industry Wastewater” (April 17, 2015), „The impact of socio-economic transformation

- and technology on national, European and world level”; No.2/2015, Vol. 2., available at SSRN: <http://ssrn.com/abstract=2632074>
- [4] Vasilescu, I. & Bunghez, L. „Food industry in the Romanian economic system”, The Ninth International Conference “Investments and Economic Recovery”, May 22 – 23, 2009
- [5] [http://192.129.4.164/Strategia\\_Agroalim\\_Ro.pdf](http://192.129.4.164/Strategia_Agroalim_Ro.pdf)
- [6] <http://www.eea.europa.eu/ro/semnale/semnale-de-medi-2014/articole/de-la-productie-la-deseuri>
- [7] <http://www.mediafax.ro/economic/exporturile-de-produse-agroalimentare-ale-romaniei-au-deposit-cu-514-milioane-euro-importurile-13988821>