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Insurance of a Global Food Security in a New Context and Fulfilment the Millennium Development Goal 1 (MDG1)

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Abstract: *In the current context marked by the uncertainty and rapid transformations of the world economy, international economic relations are caused by processes of integration and globalisation, the unprecedented growth of the interdependence of national economies. The contradictory evolution of economic integration process, of the internationalization of the global financial space, the multinational economic connections between industry, banks and capital, can cause socio-spatial tensions and alter the geometry of power in the world economy. Changes also occur in determining food security. The basic, distinct components whose effect ensures food security conceptually, remain today in the forefront of the attention of specialists and experts; however, at the present stage, the significance of some problems is increasing and the demands of these fundamental components are changing. In the immediate connection to the classic compartments of food security, environmental, energy, demographic components are being essential. The phenomenon of global warming of the atmosphere is emphasised. In addition, the production of energy bio-resources is growing significantly, the emigration to the continental scale is intensifying, forced by the military operations; and the protection of health and social insurance remain inefficient, the external debts of the poor countries are becoming suffocating. The global context in which dozens of poor countries are fighting for the eradication of poverty and hunger has also changed. World competition for raw materials and retail markets has become more aggressive and unrelenting. Hence the notion of food security has become multidimensional, more complex fact that is reflected in multiple concepts, definitions, specifications, strategies. According to the evaluations by monitoring specialists from USA, FAO and WB carried out in the past several years, food insecurity problems exist in 86 countries. The causes being: military and civil conflicts, refugees, unfavourable climatic situations (floods, drought, landslides, the use of outdated agricultural technologies, decreased sources of drinking water and irrigation. The purpose of this work is to demonstrate the fluidity and complication of the security environment, including the food environment, in which natural, economic and scientific possibilities for solving hunger and poverty, accompanied by risks, dangers, interstate threats, natural disasters coexist and amplify in the lives of people all over the Earth. At the same time, the author is attempting to demonstrate that food security remains one of the most important companions of the internal economic security for each state, and there is enough reserve on a global scale to ensure that food cease to be one of the main goals of the world economy. In this context, the article analyses the realisation of the Millennium Development Goal 1 (MDG1). At present, poverty and chronic underfunding touches hundreds of millions of people, which attests to the necessity for the studies of the problem on the global scale and at the level of countries that are vulnerable in this area.*

Keywords: *food security, agricultural products, hunger, malnutrition, poverty eradication*

Introduction

Food production and provision of it to the population in a constant manner, sufficient volume and quality plays an important role in the development priorities of the states.

Everyone agrees with the fundamental truth, namely that the "agriculture is the mother and the family pillar, which supplies all other trades; when agriculture is well conducted, all other crafts flourish". This postulate of an ancient Greece scientist Xenophon remains viable at the current stage. Decisive impact of the agriculture and the food industry on the national economy, regardless of its level of development, is undeniable.

According to experts, the global economy has sufficient means and resources to ensure food availability to the population of the world. Growth volume of the agricultural and food products has achieved the same rate with the global population growth in the 60's of the twentieth century, when implementation of the new agricultural technologies has risen. International and national programs combined involved huge agricultural areas, and the results were as expected.

Shortly after this period the situation has worsened again. According to FAO, in 64 countries from 105 analysed population growth rates were again higher compared to the growth of food production. FAO listed 82 countries, where the population was growing rapidly and the level of development remains ineffective, creating a self-insurance risks, especially with agricultural production and food supply for the population. These countries were forced to resort to external financial loans at the risk of jeopardising their financial security to be able to import necessary food. In the mid-60s Africa produced 30% more food than in the 90s of XX century. Despite the development of science and modern technologies in agriculture (referring only to agricultural products obtained through genetic modification), which allowed higher production volumes, diversification and optimisation of production processes in multiple domains of agriculture, elimination or reduction of tariff and non-tariff barriers in world trade, agricultural production, exchange and distribution of agricultural products and food did not ensure its correlation to the pace of population growth. Global campaign against hunger launched in 1960 improved the situation, but unevenly. Trends of poverty, malnutrition and hunger continued to dominate dozens of underdeveloped countries in Africa and Asia. The number of undernourished people in 1998 compared to 1969 increased by 3.4% in the countries of sub-Saharan Africa, 1.9% in Latin America and the Caribbean, and by 10.1% in South Asian countries. [1]

Assessments made by experts in monitoring the USDA, FAO and the World Bank indicated that in the recent years there are problems of food insecurity in 86 countries, including 43 in Africa, 24 in Asia, 9 in Latin America and the Caribbean, 7 in Oceania, and 3 in Europe. Annually 35-40 countries or regions receive emergency aid due to food crises. The causes of them are: military and civil conflicts, post-conflict situations, refugees, adverse weather conditions (floods, droughts, and landslides).

This situation is explained by the appearance of the new risk factors and threats to the safety and security of supply, by reduction of the agriculture and food potential not only on the national level in some countries, but also on the regional, continental and global levels. One of these factors is the ambient component that can directly impact agricultural crops on existing surfaces.

States with low capacity for confrontation of the droughts are experiencing its negative effects in reduction of agricultural production and the number of animals. Desertification phenomenon associated with drought (as a result of excessive deforestation), stifling heatwave with temperatures not only causing significant losses in agriculture, but also creating natural disasters, floods and forest fires in great proportions, involving risks to public health, vulnerability, and thereby, increasing the risk of death for elderly population. The effects of environmental factors on human habitat in some cases are equivalent even to those of local military conflicts.

Another important factor is the rapid growth of the population. According to the UN official forecasts, global population will grow to 9-9.2 billion people by 2050. [2] In addition to these factors it's

important to mention the countries with inefficient level of agriculture, cultivating all arable land without using crop rotation, without allowing it to regenerate successively, and small farmers using the seed fund around 30-40 years without any changes. In some countries the drinking water and the irrigation sources are decreasing. Fresh water supply is becoming deficient. According to experts, around 1 billion people do not have universal access to drinking water, and 1.5 billion people have no electricity sources today. Worrying trends have emerged related to the industrial fishing, exceeding the annual volumes of fish reproduction.

Population growth is inevitably leading to the increasing demand for all kinds of vehicles, which in turn will increase the fuel consumption of biofuels, including, particularly, in countries without the oil resources. Bruno Parmentier (specialist in Agriculture, Sustainability, Hunger and Global Warming) stresses the biofuels extracted from cereals or plants in significant proportions are another factor that has an adverse effect on the areas of arable land and freshwater for irrigation, and as result, on the volume of food. The author proposes that biofuels should be obtained from genetically modified organisms.

Poor states with economic and inefficient agricultural systems are forced to rely on food imports to ensure food security and avoid any imbalance that may trigger hostilities, riots or social convulsions. Agricultural and food products treated genetically and hormonally may be presented on the Market, ensuring the rapid growth of chemically treated products, allowing a longer preservation of them. Consequently, the range of side effects that can occur in consumers is wide.

All these factors give new dimensions to the concept of food security. Increased demand for food, biofuels, biomass for energy, livestock and timber without jeopardising critical limits of ecological environment and maintaining biodiversity is very costly. A massive new research of these global issues, development of the new strategies for sustainable growth of agricultural resources is imperatively required to obtain an adequate food potential, biofuel needs for sufficiency, and environmental protection. Well determined human interventions will anticipate the objective changes that occur, and will allow to make timely decisions with political, economic and social context in order to combat global warming, to substantially reduce poverty and hunger across the planet, to manage volatility of agricultural market prices.

Additionally, some very important decisions must be made regarding optimisation of bio eco energetic resource utilization of agriculture, forestry and fisheries in order to protect and conserve the environment. Such target measures will help obtain sufficient volumes of food that will face the new challenges, improve safety and food security globally.

1. Methodology

Food security is one of the important components of economic security at the state and global level. The concept of food security has evolved over time. It has become elastic and conceptually complex, which has reflected in different nuances, specifications, measurements, boundaries with multiple features and dimensions. Statistical and logical analysis is utilised to study multiple definitions of food security methods and research tools, such as analysis and synthesis of economic, normative methods. Methodological research of food security at individual, family, community, national and global levels uses processes and tools of scientific knowledge, generalisation, comparative and deduction methods of economic processes at various levels. [3]

These research methods are based on establishing relationships between different economic, social and environmental phenomena comparable to those used in research of different economic and social sectors.

Obviously, the research of this problem also applies to other methods of investigation procedures than those above. Moreover, each researcher applies its own approach to procedures and methods of processing the information and generalisation of accumulated material, given that the food security or prices for food demand react to the smallest changes in economy, commerce, finance, currency,

demographic, social, political, natural, climatic areas being connected in a system between these elements. Volumes and structure of consumption is also correlated with a variety of parameters including household income, food availability on the market in volume and structure, dynamics of food prices, which in turn determines the possibility of purchase by consumers.

In turn accessibility is based on (is caused by) the development of agriculture, of its productive potential, adequate infrastructure of consumer's purchasing power, the structure of the population by sex, age, size of the family, eating habits of a specific region or a given country. All of these indicators require different methods and research tools that enable an analysis of different conditions, factors, events that contribute in different ways to determining and achieving food security, including the availability of food resources, and accessibility of the budget allocated for food, which can determine a dynamic balance of food intake required for a healthy and active life of the population.

Cereal production is used as methodology standard in food safety assessment, given that cereal per capita assures directly and through derived products 50% of the requirements for human consumption for necessary energy. In addition, cereal is less perishable than other foods, it can be stored to create the necessary reserves, it's easily calculated, measured, transported, compared between different countries and different periods of time. Thus, **the food safety standard of any state is a criterion that triggers production of cereal based on the calculation: one metric ton per capita.**

States' approaches for determining food security can vary, but commonality for them remains the need to maintain the necessary level to ensure all social groups of the population with food by volume and structure, stability in the economic and social policy of the country.

USA and EU have strategies to insure maximum independence of food security-100%. Russian Federation developed the thresholds that ensure food security by determining the share of raw materials in total national agricultural achievements of agricultural production on the domestic market. For cereals and potatoes this share is at least 95%, sugar - 80%, meat and meat products - 85%, milk and dairy products - 90%, vegetable oil - 80%, fish and fish products - at least 80% threshold and the import share of total food sources - no less than 17%.

Also, days of consumption are used as a different method to determine the status of food security at International level. This method demonstrates stability and global food reserves taking into account necessary measures for mitigating risk and protection in the event of an emergency (crop failure, interstate wars or internal armed conflict, natural disasters etc.).

It is believed, global food security is ensured when minimal conditions are met when global harvest of collected grain is sufficient for average consumption of the population for a period of 14 months. Cereal stocks reserve at the beginning of the new harvest should equal a 60 days of consumption or nearly 17% more than the annual consumption.

In the years 1960-1990 the dynamics of food production generally increased due to increased grain harvests in China, India, Pakistan, Bangladesh and other developing countries, but in 1991-1996 world stocks fell from 339 million tons to 299 million tons (equivalent of 48 instead of 60 days of consumption), which decreased a continuous safety supply which contributed to higher prices in the international agricultural market.

Next, a chain of economic and financial crises at national and regional level have contributed to the collapse of national budgets. In parallel to that, personal income of people has fallen sharply in 49 countries with a population of about 850 million people. The unexpected fall of the revenue simultaneously with the rise in prices, brought food to deficiency seconded by the increasing external debt of the poorest countries, the number of poor reached over one billion people suffering of chronic hunger.

2. The Degree of Problem Investigation

Methodological, theoretical and practical concept of food security has been a conceptual evolution in its definition. Over time it captured new dimensions, distinct meanings, principles, which correspond to specific human needs, multiples of given situations in this area.

The concept of food security was introduced in scientific and political circuit in 1974 at the World Food Conference in Rome as a result of the global grain crisis of 1972-1974 determined by the sharp rise of prices in agricultural markets and the devastating famine in Bangladesh.

At this conference the need to secure food at the global level was emphasised by the crisis conditions, it is why imperatively required that the volume of produced food to suffice the requirements of growing population, including the vulnerable groups, and also to reduce the risks of crop failure or disturbances in the world prices.

Such a three-pronged approach includes basic valences of food security concept.[4] This notion gained new sides in 1983 FAO Director General's report, where suffering of a chronic hunger and poverty population can have physical and economic food needs.[5] After that, the World Bank report "Poverty and Hunger" [6] was drafted, which distinguishes between the concept of chronic malnutrition and temporary malnutrition connected to the loss of crops for a given period.

FAO in elaboration with World Health Organization, International Labor Organization, United Nations Development programs and the World Bank, IMF, USDA over the years have enriched the concept of food security with new issues and elements dictated by the daily practices. A special place in this elaboration is occupied by the Consumers Rights Act - the doctrine developed by the White House under the leadership of US President John Kennedy and the field scientists from different universities and research institutes.

In present time there is a whole range of concepts and definitions of food security on an individual, family, community, national, regional, and global levels. Currently food security is no longer a simple concept that is seen only in conditions when consumers constantly have physical, social and economic access to food in sufficient volumes, security, but when its nutritional structure meets the needs and preferences of a sufficient food to lead a healthy and active life.

3. Land Resources and Manifestation of Drought and Desertification Processes

Agriculture is the main source of food production. The agricultural land resources form the starting point of the agricultural production process. Global land fund (Earth's surface excluding the surface of Arctic glaciers and Antarctica) is 134 million square kilometers. In turn, the cultivated land (arable land, orchards, plantations) makes up 11%; hayfields, pastures - 26%; forests, shrubs, bushes - 32%; sparing land allocated for housing, industry, transport - 3%; less productive and unproductive areas (swamp, deserts and areas with extreme weather conditions) - 28%. Overall, agricultural areas (cropland, pastures, meadows) constitute only 37% of the total land constituting 4.8 billion ha. Arable land in the structure agricultural land constitutes 28% (1.3 billion ha), pastures - 70% (3.3 billion ha), surfaces with multi plants - 2%. China, Australia, USA, Russian Federation are the countries with the greatest agricultural areas.

As the world population increases, the agricultural land per capita is decreasing. In 1980 this index was 0.3 ha of arable land in 1994 to 0.24 ha, and in 2004 to 0.21 ha. Russian Federation - 0.9 ha in the US - 0.7 ha, Japan - 0.03 ha, Germany - 0.12 ha, UK - 0,11ha. As incumbent agricultural land per capita, employed in agriculture in Australia was 671 ha, 155 ha US-, New Zealand - 69 ha. In Latin America this index was 13.8 ha, in Western Europe - 12 ha. In the global environment a person employed in agriculture rested with 3.7 hectares of agricultural land. [7, 139-140; 195-206]

The land share of the total land processed by country was as follows: India - 57.1%, China - 10.3%, Poland - 46.9%, Russian Federation - 7.8%, Italy - 40.3% France - 35.3%, Australia - 6%, Canada - 5%, Germany - 33.9%.

Land resources are the fundamental element of agricultural global and national development without which human existence is impossible.

Contradictory processes are constantly influencing the global land structure. Mankind activities designed to expand areas of land are being inserted into the agricultural use. Large spaces consisting of pasture, meadows, valleys, land slopes, and swamps are counted as accretion surface reserves which can be planted with crops in perspective. The immense land designated for pastures are in Australia - 414 million hectares; China - 400 million hectares; US - 240 million hectares; Brazil - 185 million hectares; Argentina - 142 million hectares.

In addition to these lands are added surfaces of polders and drainage works produced by the desertification and dam constructions. Successes in this area are obtained by the Netherlands, Japan, Singapore, Canada, Portugal, Belgium, and France. According to expert assessments, the overall land that can be introduced into the economy in perspective, is constituting 13.4 billion hectares, *but the overall trend is dominated by factors leading to the diminishing of land fund*. According to forecasts, only in the first decades of the XXI century the agricultural land fund will decrease by 15% or 700 million hectares.

Rapid population growth forced deforestation and plough of valleys and rolling terrain that are subject to erosion due to strong wind and water washes. It is estimated that annually the wind manipulates over 26 billion tons of topsoil rich in humus. Farmland erosion degrades huge soil surfaces. Around 6-7 million hectares annually turns into deserts. 16% of all agricultural land has a high level of soil degradation, but the biggest danger comes from the changes of global climate that continues to warm the atmosphere, reducing regular rainfalls, increasing significant droughts, compromising or completely destroying the crops.

The increasing occurrence of drought causes desolation of soils, the disappearance of many water resources; the farmland becomes dry, and all biomass crops lose their green sap, the vital substance of life. Fertile land gradually turns into huge dry soil surfaces free of water, unproductive, and barren. In conditions of suffocating heat and drought stresses regularly manifested the farmland turns into a desert.

Poor management of agricultural land, deforestation without limitation, the timber cutting, which far exceeds the accretion in a given period, accelerates the expansion of desert areas.

In the second half of 20th century the massive and irrational exploration of forest resources has increased significantly. For example, the consumption of timber in 1979 exceeded 3 billion m³ and the capacity for natural regeneration of the forest was only 2.7 million m³ per year. On a global scale 900 million ha of forest areas were cleared in this time period.

The negative impact of deforestation reflects over a billion people in 110 countries, and annual material losses constitute 42 billion US dollars. [8, 113-121]

Deforestation produces negative effects on soil and water. Thus, the cleared lands are prone to natural disasters, causing serious damage to the plant cultivation, livestock, significantly reducing resources for food and freshwater, causing soil erosion of hundreds of millions of hectares of land.

Land areas prone to natural disasters and flagella in 2003-2013 have affected 1.9 billion people. In this research conducted by FAO in 48 developing countries has been founded that 22% of the total material losses amounted to 0.5 trillion US dollars to these countries are pertaining to the agricultural sector. [9, 40]

In some regions of the world resources of fresh water are used up, which imperatively requires recycling. 1 m³ of wastewater pollutes 60 m³ of clean water, but even the developed countries on the European continent treat only 60% of the wastewater before the discharge. Overall, 700 km³ a year of

wastewater is discharged. The great metropolis with developed industries and densely populated, pollutes fresh waters to the extent where they cannot be reused in irrigation or industry. In 1998-1999 and 2000 in high temperatures the drought has manifested in India, China, Pakistan, Afghanistan and in Europe – in Bulgaria, Czech Republic, Poland; in 2002- in the US, Canada, Australia; in 2002-2003 - in some Eastern European countries: Russia and Ukraine. Crop losses amounted to tens of millions of tons of grain, and in this case, substantially decreased yields of wheat, rice, corn for food-based sources for two out of three people around the globe.

According to the World Bank, small island countries are subject to special risks, as they are 2/3 of the countries suffering from the natural disasters annually. In small countries of the Pacific Islands region only the losses of infrastructure, buildings, and agricultural crops were 112 billion US dollars in the research time period. [10]

In the Caribbean Basin annual losses to the infrastructure of natural flagella are valued from 0.5 to 1 billion US dollars. FAO specialists' assessments indicate that climate changes multiply the risks of deepening and intensification of natural disasters, caused by the decreasing levels of precipitation, high temperatures, droughts, and floods. High level of food insecurity is characteristic for these island countries in such conditions. Millions of farming families, small farmers, fishermen, foresters, whose share is 30 to 80% of the total number of people employed in these countries, are directly subjected to natural disasters. In 2003-2013 losses provoked by the large natural disasters, such as disastrous storms, hurricanes, floods in a limited number of countries constitutes 13 billion USA dollars in plant cultivation and 11 billion US dollars in livestock, and overall, these represent a small portion of the total damages. [11]

4. Achieving the Millennium Development Goal (MDG1)

World economy went through multiple profound changes in the 1990s, and was accompanied by the emergence of new problems that had to be solved to save the world from food insecurity and malnutrition in all forms. The problems appeared faster than their solution. The natural flagella intensified: drought, disappearance of small rivers with fresh water, floods, landslides, catastrophic earthquakes. The population continued to increase at the significant rate and simultaneously the geographical expansion of hunger and undernourishment with the increase of the number of people falling into this incidence.

Under such conditions at the 1996 World Food Summit, representatives of 182 states and governments assumed the obligation to eliminate hunger in all countries, setting the goal to halve, between 1990 and 2015, the proportion of people whose income is less than \$1 a day. The UN Millennium Development Goals (MDG) statement reaffirmed this goal, as well as the reduction of the population living under the incidence of poverty.

In order to achieve the proposed objectives were developed and finalised eight Millennium Development Goals (MDGs) to:

- Eradicate extreme poverty and hunger;
- Achieve universal access to primary education;
- Promote gender equality and empowering women;
- Reduce child mortality rates;
- Improve maternal health;
- Fight HIV/AIDS, malaria and other diseases;
- Ensure a sustainable environment;
- Create a global partnership for development.

Poor people suffer from hunger, because they have no access to food and resources. This vulnerable category of people has low levels of education and income, higher rate of poverty, also inadequate infrastructure, lacking basic services to their habitat, such as sources of food, electricity, drinking water, sanitation, education, health. Therefore, in addition to MDG1, the Millennium Development

Declaration guides the community to compulsory education, promoting gender equality, reducing child mortality, improving maternal health, ensuring sustainable environment and so on. Basically, this document is a comprehensive program for accountability of state leaders and governments to mobilise the necessary resources aimed at reducing poverty, ensuring human rights - to being sufficient and healthy by creating decent jobs, opportunities for appropriate access to education and health, liquidation of the differences between men and women etc.

The Group of Eight (Go8) in 2009 decided "to act with the scale and urgency needed to achieve sustainable global food security."

The notable US assistance should also be mentioned in both, domestic and external fight of chronic malnutrition and issues' management to implement healthy food for the population.

Hunger was felt unexpectedly in the US in that period, but the size and opportunities to fight it in the US are totally different comparing to underdeveloped countries. 15% of the US population lack food because of poverty, published in the report of the US Government on this issue. Over a half million families with children have reduced food consumption. According to CNN Money, 17 million families blame the lack of food compared to 13 million families in 2007 and this happened despite the enormous land, economic, financial, technical, scientific, technological resources.

To protect people from these negative phenomena, the Government has developed a national plan worth 20 billion US dollars, under which there were developed programs, vouchers, food banks and feeding programs in schools. In this context, it is worth the note, the efforts to achieve the initiative of the First Lady in the period Michelle Obama to raise a generation of healthy children. In order to reach this, „The Healthy, Hunger-Free Kids Act” was drafted on improving the food environment and food safety based on research done on serving daily school lunches for 12 million students.

Nutrition Standards in the National School Lunch Program (NSLP) provided increased consumption of vegetables, fruits, dairy fat, reduced fat, sugar, sweet pastry and, therefore, daily nutritional balance. The implementation of these standards in each school for healthy eating imposed, for the first time in 30 years, an increase in financial funds intended for pupils.

Supplemental Nutrition Assistance Program (SNAP) included a set of 15 Nutrition Assistance programs at home for families whose members are employed and presented a vital supplement to monthly nutrition budget for 47 million people with the reduced income. 45% of participants in these programs were children and 9% were senior citizens.

The Special Supplemental Program for Women, Infants and Children (WIC) established by Congress in September of 1972 under Public Law 92-433, was created with the intention to safeguard health for a low-income, nutritionally at risk population, such as pregnant and breastfeeding women, infants and children up to 5 years. In 2015 under this program, nutritional assistance was provided for 8 million people monthly, worth \$6.2 billion.

In addition, the McGovern-Dole International Food for Education and Child Nutrition Program was established in 2002 to support health and food security for 16 million of the poorest children in the world. The program provided more than 22 million meals to children in 41 countries over its first eight years. [12]

US helps to address development issues and helps the implementation of agricultural, food problems since 2010 in Eastern Africa, Kenya, Bangladesh, Ghana, Guatemala, Haiti, other countries in Central America. It benefited over 34 million participants worth 1.6 billion US dollars.

This gives only a short glance, only a few examples of the US government assistance in the fight against poverty and chronic malnutrition presented by USDA. Also, it shows that the country has

sufficient food and undertakes adequate measures, consistently targeted to assist vulnerable people to gain access to food needed to maintain a healthy and active life throughout the entire nation.

USAID, having representatives in over 80 countries, constantly monitors developments in agriculture and food production worldwide, allowing the US to assist for sustainable nutrition in the poorest countries. If every economically developed country would grant (just as US does), it would nutritionally help countries that have accumulated financial liabilities, reduced standard of living, poverty, chronic hunger, infant death, daily energy nutrition problem, the world population would be healthier and safer.

FAO has carried out the monitoring of the way the MDG1 is implemented, according to developed criteria for determining this progress, and reports were published in the "State of Food Insecurity in the World" (SOFI).

SOFI 2013 report mentioned, for example, that the number of people suffering from chronic undernourishment has been reduced from 868 million between 2010 and 2012 to 842 million in 2011-2013. Every 8th person in the world at that time continued to suffer chronic hunger, while in sub-Saharan Africa one person in five continued to suffer from hunger. In most of the countries in South-East Asia was noticed a decrease of people suffering from a chronic undernourishment from 31% to 10.7% over a period of 20 years. Mostly accusing chronic malnutrition populations were found in South Asia and Sub-Saharan Africa (295 million to 223 million people).

In the report on the state of food insecurity in the World 2015 (SOFI 2015), FAO assessed the number of people that continue to suffer from chronic malnutrition declined between 2015-2016 to 795 million (10.8%) compared to the 1990-1992, when their number amounted to 1010.6 million people (18.6%) (see Table no. 1).

Table no. 1
Achievements of MDG1 during the 1991-2015 period (official data)

Year	Value on year's average (%)	Year	Value on year's average (%)
1991	18,6	2004	15,0
1992	18,5	2005	14,77
1993	18,2	2006	14,3
1994	17,8	2007	13,7
1995	17,2	2008	13,0
1996	16,6	2009	12,5
1997	16,1	2010	12,1
1998	15,7	2011	11,8
1999	15,3	2012	11,4
2000	15,0	2013	11,2
2001	14,9	2014	11,0
2002	15,0	2015	10,8
2003	15,1		

Source: FAOSTAT, date: July, 2016

The areas of poverty were shrinking. Reducing the share of those who suffered from hunger from 18.6% to 10.8% in the period 1991 to 2015 was significant, especially when taking into consideration the simultaneously increasing world population by 1.9 billion people, the crisis in food prices in 2006/2007 and the 2008/2009 financial crisis. In some developing countries where birth rate showed a significant increase, the reduction level of hunger and poverty was found in 72 developing countries that accomplished tasks set by MDG1 out of the 129 monitored countries. Out of these 72 countries, 12 succeeded in reducing the number of people who suffer from chronic or temporary malnutrition, meaning around 5% of the population. All of this means, FAO experts conclude, that the obligations arising from the program MDG1 were met worldwide.

Conclusions

1. In spite of the planet's rich natural resources, the economic and techno-scientific potential of the international community, the affordability to produce food for all consumers regardless of age, sex, origin, religion, race, colour, so far mankind has not shown such capacities.

"We don't have food shortage problem, but lack political initiative" established by the United Nations 25 years ago is still valid today. In practice, this problem occurs as insufficient food crisis and it is highlighted by hunger, chronic malnutrition or unbalanced consumption. The UN has a leading role in solving this problem. The leadership includes FAO, WHO, ILO, UNDP and other specialized organizations, nation-states and primarily economically developed countries with significant economic potential, as well as the transnational corporations.

2. By 2050, as mentioned above, the predicted world population will grow to 9 - 9.2 billion people, i.e. people's incomes will increase and that will stimulate increased demand for food, the amount of which, calculated by experts, will have to increase by 70%. World's experience shows that this volume can be achieved with current agricultural potential, which according to experts, is currently used at 60% of its capacity.

3. Another options are available to save the world from hunger. According to World Bank statistics, in order to meet the daily requirement of nutritional energy of the entire globe population with an adequate distribution of agricultural production, it is necessary to exploit the 1.5 billion hectares of arable land (currently used 1.38 billion ha). Grubbing of around 200 million hectares of agricultural land and the introduction of it into cereal circuit would allow an annual harvest of 150-160 millions tons. That additional harvest would be sufficient to feed 1 billion people which currently suffer from hunger. The problem lies in the good will of the people and governments of the world, it is a political and economic problem.

4. Becoming increasingly dominant in the second half of the 20th century, hunger and poverty can be overcome through the development of large wholesale complexes agro-industrial complexes, using machines and developed aggregates, high-yielding hybrids sprayed with chemical fertilisers and pesticides, intensively combined with irrigation of large areas. In biological, technical, and organizational terms, hybrids with high and stable yield can probably defeat global hunger. High yields can be obtained by utilising chemical fertilisers, pesticides and other chemicals, and, unfortunately, that leads to the degradation of soil, freshwater and human habitat.

5. An alternative to this imperfect system is represented by the family farms, based on agro-technical, classical, organic and biological techniques. Global economy consists of about 570 million active farms and, according to FAO, 90% are managed by the families or by a person, and produce 80% of the total amount of food on the planet. 84% of these farms have areas of land less than two hectares, thus processing the 12% of agricultural land.[13, 31] As a rule, these farms provide the workforce with jobs and access to food for population through local rural markets. Yields on these farms are larger compared to smaller farms, which remained poor, where people usually suffer from malnutrition.

There is a requirement for the State to intervene in order to manage the land and water resources, including for the poorest, by using stimulating tools, because each farmer wants to manage those sources more effectively.

6. A special role in solving this issue belongs to the international trade. According to the 2014 WTO data, the agricultural exports amounted up to \$1.765 billion, and the food has reached \$1.486 billion. [14; 71, 76, 80] Trends in these sectors appeared to stabilise excessive state support for agricultural producers, and to reduce protectionist tendencies of the developed countries in particular. At the same time, there is a tendency of transforming the equivalent of non-tariff barriers in tariff ones, accompanied by their reduction, and the reduction of subsidies for export. Implementation of these changes may contribute to decreasing volatility of the world prices, which would have a direct effect on the prices in the domestic markets. World prices have a significant impact on poverty and food security in the world due to the price transmission mechanism.

7. SummaryThe eight MGDs from 1996 were aiming to solve both local (country-specific based on economic development) and global challenges and needs related to poverty, hunger mortality, gender quality, health and education, and provided the framework for international collaboration between governments, foundations, businesses and civil groups. Although this Campaign was considered a success, and the movement has gained a momentum, the registered progress was very unequal. Most recent SOFI report from 2019 confirms the hunger is growing globally after decades of steady decline, recording the number of 811.7 million in 2017, and 821.6 million chronically undernourished people in 2018. [15, 6] The upward trend was recorded in many countries where the economy has slowed or had a downturn.

The **Sustainable Development Goals** (SDGs) replaced the MDGs in 2016 and intended to be achieved by the year 2030. Among the 17 goals with 169 targets are **no poverty** and **zero hunger**. International Food Policy Research Institute (IFPRI) of 2013 emphasizes SDGs should not be on ending poverty by 2030, but on eliminating hunger and under-nutrition by 2025. [16]

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