

SUSTAINABLE DEVELOPMENT AND THE PROBLEM OF A NATIONAL STRATEGY FOR SUSTAINABLE DEVELOPMENT OF ANIMAL PRODUCTION

Condrea DRAGANESCU

University of Agricultural Sciences and Veterinary Medicine Bucharest, 59 Marasti, District 1, Bucharest, 011464, Romania, Phone:+400212227912, Email: condrag2002@yahoo.com

Corresponding author: condrag2002@yahoo.com

Abstract

The paper aimed to approach the topic of a new strategy for the sustainable and competitive development of Romanian agriculture and especially for animal husbandry. In this purpose, a large variety of studies was investigated and the opinions of well-known personalities were used to present in a critical manner the history of sustainable development concept, principles, causes, reasons, moments, events, institutions involved at international, European and national level, achievements. The study is focused on Romania, starting from the actual situation of animal husbandry and learning from the country own and others experience. During the last centuries, the scientific studies noticed that the growth trends of the world population and resources utilization which could determine complications for survival of human society. The first Report of The Club of Rome (1972) concluded mathematically that " if the present growth trends in world population, industrialization, pollution, food production, and resources depletion continue to remain unchanged, the limits to growth on this planet will be reached sometime in the next hundred years",...that is in the 21 century. As a reply, the international and national bodies adopted recommendations for a sustainable development. This study analyzed the problems of sustainable development of animal production in Romania, taking into consideration that the conversion rate of energy provided by plants to animal products is about 20%, and this decrease of the number of population is supported by agricultural food production. Two production systems are proposed: (1). Intensive production systems, with high forage conversion, in favorable agricultural country area; (2). extensive (free-ranging, transhumance, pendulation, sustainable, biological production) in not or less favorable agricultural area (mountain area, etc).

Key words: animal production systems, civilization, collapse, food production, free-ranging production systems, resources depletion, sustainable development, world population

INTRODUCTION

The economic, social, cultural life of mankind started at once with the appearance of agriculture, vegetal and animal production. The history of mankind developed along its way a series of great civilizations (Summerian, Asiarian, Egyptian, Greek, Roman, Maya civilizations, etc). *Each civilization has appeared, developed and fell. Which was the cause of these falls? How could be assured the surviving, the sustainable development of a civilization?* Referring to the civilizations from the „Fertile Crescent” (Middle East, South West Asia), Diamond (1997, p 411), as many other researchers considers that „*They killed themselves ecologically, destroying their own resources... Large surfaces from the Fertile*

Crescent are deserts, semi-deserts or arid areas or eroded or salted lands, not suitable for agriculture”..He also affirmed (2004) that our problems are like a bomb with a delayed explosion which could take place in less than 50 years”.

“Sustainable Development”

“Before people it was the forest, after them the desert”, Chateaubriand.

The civilization of our era, which has begun in the last centuries, it looks to be at the **peak**. The volume and technical level of agricultural and industrial production, the living standard increased as never before the world population has an exponential growth. All these impose an exponential consumption increase of natural resources of the Earth. Even at the beginning of this development, many scientists warned that **these resources**

could be exhausted, living conditions and the present civilization could be affected.

“A maximum amount of life claims a minimum rate of natural resource utilization”, affirmed Georgescu-Roegen (1979, p.76). *Human behaviour across the last 200 years proved that man is tempted to be waste money*. *“Before people”*, noticed Chateaubriand (1768-1848), *“it was the forest and after them the desert”*. **Has our present civilization the capacity to maintain its structure and functionality for ever, to be sustainable?**

Reves (2005) made a real inventory of the different opinions of the so called “alarmists”. He used even some severe expressions (imminent apocalypse, human cataclysm). He noted that the alarmists might be wrong, might be exaggerated, but they also played a positive role, drawing the alarm signal. This aspect is attested by the so called “caution principle” of UNO (1994): *“When there is the risk of some serious and irreversible disturbances, the absence of some scientific absolute certainties can not be used a reason to delay the measures”*, said the Secretary General. In the last decades, the politicians have begun to be alerted. The problem of “sustainable development” is on the agenda of all the international and national organizations. The “alarm” was taken into consideration at the moment when **a more precise scientific clarification** was needed, more exactly in 1972. Even though it looks to be forgotten, it is useful to remember of it. **We can not set up an efficient strategy of sustainable development if we are not conscious of its significance or importance.**

At the EU recommendation, a **National Strategy for Sustainable Development for the period 2008-2030** has been established in July 2008 at National Center for Sustainable Development of the Ministry of Environment and Sustainable Development (HG 1216/4.10.2007). This strategy was publicly debated. **Ministry of Agriculture and Rural Development** issued a **National Programme for Rural Development 2007- 2013**. This paper is a response to this challenge.

MATERIALS AND METHODS

The paper is a reply to **National Programme for Rural Development 2007- 2013 established by the Ministry of Agriculture and Rural Development**.

It presents the author opinions, based on a critical evaluation of many papers collected across the time due to its interest on this topic. In this purpose, a large variety of important publications belonging to well known personalities was studied. The author contribution consists of his own vision on the logics of the concepts, principles, objectives, techniques, actions, measures a strategy has to include.

The paper refers to important moments in the history of strategies destined to assure the sustainable development of agriculture and rural areas, mentioning personalities, events, important documents, international, European and national institutions involved.

The main instruments used to set up this paper have been: the large information collection, the logical connections between facts and events, critical analysis and logical synthesis, logical deduction and critical approach.

The ideas presented in the paper belongs to the author, but many of them are supported by strong arguments provided both by his own research and articles published across the time, but also by other personalities in the field.

RESULTS AND DISCUSSIONS

Is there a danger as the present civilization not to be able to maintain its structure and functionality ?

In April 1968, Dr. Aurelio Peccei, an industrial manager, economist and an open minded and visionary person invited 30 and later 75 scientific, cultural and political personalities, even from Romania (Malița, Isărescu) from 10 countries and further from 25 states in order to discuss the present and future of mankind. After this meeting, the Rome Club was founded. As we know it is an non formal international association whose goal is to clarify the interdependence and

effect of various economic, political, social, natural factors on the evolution of human society. A project on “**The Future of Mankind**” was proposed that time.

The Rome Club called a series of scientists, including also personalities from the field of **mathematical modelling** like Professor Jay Forrester, from the Institute of Technology in Massachusetts, USA. We have to underline that “mathematical modelling” is the basic method used to study a system for decision making optimization at present.

At the meeting of the Commission in **1970**, **Forrester**, who studied the dynamics of systems, presented “**a global dynamic model**”, an equation reflecting the evolution and prospects of mankind. “The mathematical calculus is a more precise “language” than the spoken one”, affirmed Forrester”. He started from the premise that along its history, mankind was marked by the continuous growth of population, living standard and geographical thresholds. Simplified, Forrester model includes the peculiarities and effect of the interaction between **5 components of world system**: 1. Fast global population growth; 2. malnutrition, food production per inhabitant; 3. accelerated industrialization; 4. non-renewable resource exhaustion; 5. Environment degradation.

It seems that Forrester left the working team and applying his model, he wrote a book entitled “**World Dynamics**” (1971). A group of 4 scientists, having as leader Donella H. **Meadows**, from the same institute, wrote, based on Forrester model, the first report of the Rome Club entitled “**The Limits to Growth**”(1972).

It presented in figures the evolution of the five components of the world system, the effect of their interaction and the possibility to control this effect. The conclusion of the report, mathematically demonstrated, was: “**If the actual trend of population growth, industry growth, pollution, food production, resource exhaustion will continue to be unchanged, the limits of the development on this planet will be attained in the next 100 years**”... . Therefore it is about the 21st century.

Meadows report represented the basic material for numerous discussions and probable for the **measures which are taken at national and international level**. The coming reports of the Rome Club and other works, including the ones written by Brown, Director of Worldwatch Institute, founded in the USA (1975) in order to study this problem, were translated into Romanian. Numerous Romanian papers (Iliescu, Puia, Gruia, Gheorge (ed), Hera (ed), Răuță, Otiman a.s.o. debated this problem. This paper does not intend to present the report and analyze it, but two diagrams look to be of high interest (Fig.1 and 2).

The first figure presents the standard model of the effect of the simultaneous actions of the 5 factors in the period 1900-2100, supposing that each factor will evaluate like in the period 1900-1970. It can be notice the danger of a fail of the actual civilization after 2050-2060.

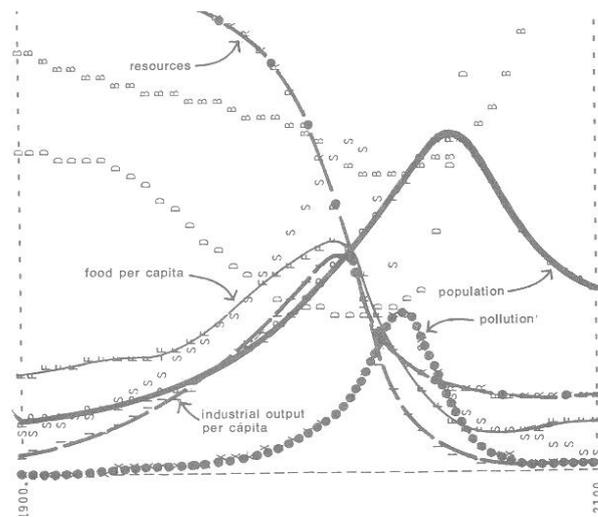


Fig. 1. The possible fall moment of the present civilization, if the growth rate of the 5 essential components of World System in the period 1900-1972 is maintained (Meadows, 1972)

Looking for an economic and ecological sustainable solution by stopping population growth in 1975, stabilizing industrial capital starting from 1990, the resulting funds being directed to education, health, agriculture, reducing pollution by one third in 1970, recycling resources etc, the authors have drawn the conclusions presented in Fig.2.

The 1st Report of the Rome Club, contested and even passed in silence, **determined a real**

“earthquake”, as Puia said (2001). Do we destroy our own existence basis? The fear of panic was probable the explanation that this report was not translated into Romanian. It is rarely mentioned even at world level and a few people know it.

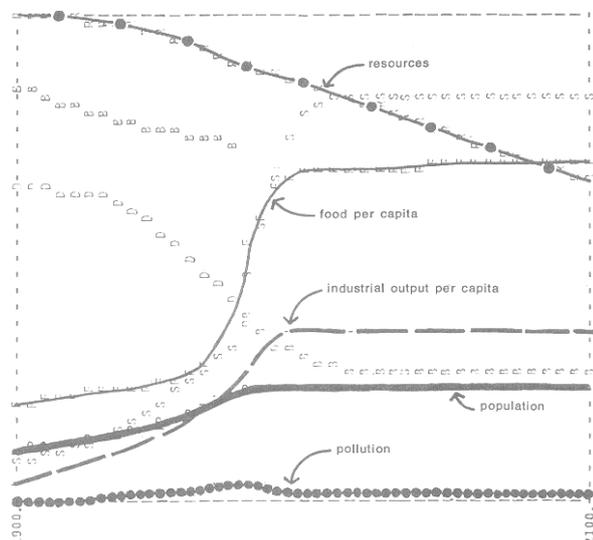


Fig. 2. Solution to avoid the fall of the actual civilization by controlling in time (1975-1990) the growth rate of the 5 components of the World System (Meadows, 1972)

The measures of sustainability proposed in this report have never been applied. In fact, they could not be applied in the provided times and also some measures were non equitable (stopping the industry development which could affect the less developed countries). Valery Giscard d'Estaing, ex-President of France affirmed: “Mankind is unhappy because it does not know where it is going and because it guesses that, if it knew, it would discover that it is going to a catastrophe”. Forrester said in 1971: “The global balance is theoretically possible. If it could be achieved, it is another problem”. Pecei (Botkin, 1981) was more severe and affirmed: “we could suppose that mankind is lacked of wisdom, despite its greatness”, men and women of nowadays are not able yet to fully understand the sense and consequences of their actions”. Brown (2001, p.311) has warned: “Could we join to build an supportable economy? Or we stay with our unsupportable economy by environment till the moment when the decline will begin? A way or another, the choice has to be made by

our generation. It would affect life on the Earth for all the next generations.”

The chance of sustainable development

Future looks to be uncertain. But there is a hope that our mind could find solutions. In fact, man is looking for them. Thousands of researchers, who are working in the strategical institutes of some countries, study these problems. May be it wise to pay attention to Oysten Dahble (cited by Brown (2001), who said: “The socialism collapsed because did not allow as prices to say the economic truth. The capitalism could collapse because it does not allow prices to say the ecological truth”,.. though we think that they start to tell it (the oil case).

Usually, when sustainable development is approached, it is mentioned **the definition given by Brundtland**, President of UNO for Development in 1987 („Sustainable development is that development which satisfies the needs of the present generation without compromising the chance of the next generations to satisfy their own needs”). Without denying this, we consider that the definition is too pathetic and shades **the complex core of the problems** mentioned by Meadows’ Report.

United Nations actions

“Every civilization died isolated, without affecting the others. But today, in a global integrated economy, the collapse of a country or region will affect all of us” Lester Brown 2001.

The alarm regarding the fragility of the world ecological, economical, social system was received by UNO and may Governments. Meadows’ Report was presented in UNO General Assembly, together with other reports of the Rome Club (Session XXXI), attentive to these problems. After the World Environment Conference (1972 -Stockholm) and the foundation of UN Programme for Environment (UNEP-1972), a World Commission for Environment and Development was set up (WCED-1983) and a Commission for Sustainable Development as well (1992). Two UN World Conferences on Environment and Sustainable Development („Summits”) took place (UNCED). **The first**

Conference in Rio de Janeiro (1992), includes especially the **Agenda 21** (Action Programme for the 21st century) and Convention on Biological Diversity (**CBD**). The 2nd World Conference was on Sustainable Development and took place in Johannesburg (**WSSD**, 2002).

Among the numerous conferences and reports of UN Commission for Sustainable Development we mention the one regarding Sustainable Development of Agriculture and Rural Development held in 1998 and 2000 and the one which took place in 2008. Normally, the documents of these meetings should be on the table in all the countries which signed them and when any decision is drawn.

The essential objectives of a sustainable economical, ecological and social development have to be three: **1.** Poverty eradication, **2.** Change of unsustainable production and consumption manner, **3.** Protection and management of natural resources needed by the economic, ecological and social development. Obviously, all of them also regard agricultural production, including animal husbandry and rural development. They are obviously compulsory for Romania too.

European Union. Sustainable development has become an EU declared objective starting from (**Maastricht Treatise**). The summit from Goetheborg (2001) and the Agenda from Barcelona (2001) have developed the principles established in Maastricht. A clear and concrete vision upon these principles was achieved in the Strategy for Sustainable Development for an European Union, approved in June, 2006. The core of this strategy is the long-term viability of the European society which deserves to be analyzed in more details. Agriculture is a part of the socio-ecological-economical responsibilities regarding all the sectors (rational use of resources, environment protection, rural development etc). This evolution corresponds with the change of Agricultural Policy from the one based on large subsidies to the one more oriented to the market economy aiming to modernize and

maximize production, to keep pace with the open competition in the world market. The economic competitiveness is on the top position on the political agenda, which also happened in Romania. Even though the main goal is the sustainable world development, each country has to be focused on its evolution and surviving.

Romania. It is probable that in the 1970s some measures for a sustainable and competitive development were taken (waste recycling, energy assurance etc), even though they were not declared. In 1998, the 1st strategy for sustainable development was established by Law. At the EU recommendation, it is under review. The new National Strategy for Sustainable Development (SNDD) will be finalized by the end of the year 2008. Its objectives have to be finished by the end of the year 2013, its engagements regarding adhesion by the end of the year 2020 when the development level has to suit the EU level in 2007. By the end of the year 2030, Romania has to reach the average EU-27 development.

Agriculture, animal production- major component of sustainable development

“The right to food” is a right recognized for all the people, therefore, agriculture is a major problem. Declaration on Human Rights (1948) and other UNO documents mentioned this. The day when FAO was founded, October 16, 1945 is the world food day. **Food assurance is the first guarantee of internal and external security of any country.** Its absence leads to internal and external conflicts and affect its surviving. Agriculture is a major factor of mankind longevity. Its moment of appearance is the moment when civilizations were born. (Diamond, 1997).

To promote a sustainable agriculture and rural development is a complex problem and also important, as mentioned in the Agenda 21 and CBD. Chapter 14 of the Agenda 21 is entitled “**Promotion of Sustainable Agriculture and Rural Development**”. World population is still exploding from a demographical point of view, and what is sad is the fact that a part of it suffers of malnutrition. **Klatzman (1985)** said that only 5 % of the earth population is

normally fed (2,700-2,800 kcal, 40 g. protein); about 20 % is overfed (over 3,000 kcal and 50 g. protein), about 15 % suffer of general malnutrition (2,500 kcal, protein and vitamin deficiency etc), about 20 % suffer of protein malnutrition, about 30 % is underfed (about 2,000 kcal, protein and vitamin deficiency etc), about 10 % is hungry (about 1,500 kcal=1.2 metabolism of 1,200 kcal; hungry people (less than 1,200 kcal). Food security, poverty eradication is a major component of sustainable development. Besides the demographical explosion, the increased urban population is a critical eco-socio-economical problem which complicate food assurance and sustainable development. That is why rural development is so important nowadays. It is compulsory to stop migration from villages to cities. The rich countries can not ignore the poor ones. Social movements, emigration caused by poverty could affect them. Besides the encouragement of the poor countries development, immigration has also to be stopped. Food problem involves many aspects. It was said that "USA food gun" could be compared to "OPEC oil gun" (Batie, 1980). ..Paraphrasing Brown, the collapse of a country will affect all of us but not in an equal measure. The ones who know to protect themselves (Diamond, 2004, Chap.9) and are more competitive would be less affected. We hope that Romanians will understand this. In this complex context, we have to look for the answers to two questions.

-Could food be assured for all the globe population?

The present civilization is especially a civilization of energy. The most sustainable energy source is the sun, and plant cropping is the major way man can accumulate and use. The maximum use of sun is not a simple problem and the duty of agriculture is very difficult. The proportion of solar energy retained in plants is small. **Agriculture has to produce food in a sustainable way (without rainfalls, pollution, environment degradation and natural biodiversity) in order to eliminate undernutrition and**

malnutrition, to assure food for a population in a continuous demographical explosion, to compensate the loss of agricultural land due to buildings, degradation etc.

All these suppose **substantial increase of production per unit of agricultural land and animal.** Meadows report some aspects of this dramatic task. Accepting a high growth of food production per ha (2-4 times more than in 1972), it looks that after the years 2000-2050 it is the danger as food production not to be able to keep pace with the demographic gain and food improvement requirements (Fig.3). There are some different opinions about the number of people who could be fed by Earth. Georgescu Roengen (p.75) opined between 5 and 45 billion people. Other experts consider that Meadows report is right. Klatzman **estimated about 11 million for the middle of this century. He also said that:** "world food in the next decades is a delirious utopia". It is clear that the duty of agriculture and animal husbandry is to assure its increase of production per ha and animal for long-term and in a sustainable way. This is the big problem to which each development strategy has to answer at national and world level. **The paradox is that the intensive production system, often a non ecological one, has to be maintained and transformed into a sustainable one!!**

-How could food be assured for the world population?

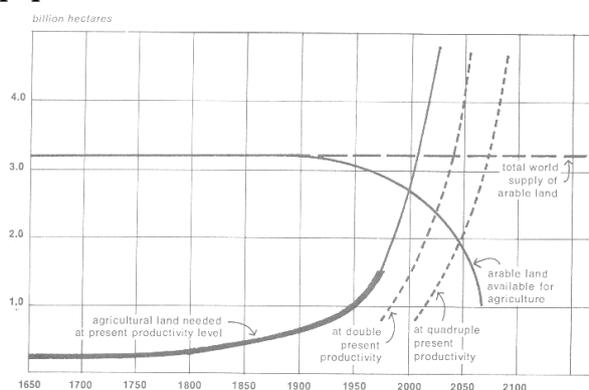


Fig. 3. The possible moment when agriculture would not be able to assure food for the globe population in demographical explosion growing even 2-4 times production per ha or animal compared to 1972.(Meadows, 1972)

Agriculture covered food need in the years 1950-1990 and to continue to cover it involves a high production intensification. Strategic reasons stimulated after 1945 the application of many measures destined to grow agricultural production. The “green revolution” (1943-1973) and the EU Common Agricultural Policy (Treatise from Rome, 1956, Art. 39).

They are based on a new thinking about a new model of agriculture - **(High-Payoff Input Model)** as Ruttan mentioned (cited by Drăgănescu, 1998) **(1)**. Capacity of scientific research institutes to produce new techniques; **(2)**. Capacity of industrial sector to produce technical endowment able to use fertilizers, pesticides, equipment etc), **(3)**. Farmers’ capacity to assimilate knowledge and technical endowment **(4)**. Vertical integration directly or by cooperation of enterprises across the product chain. It is expected a maximization of production per ha and person, agriculture and animal husbandry industrialization. It is a certain renunciation to the old political principle of the market economy -“laissez faire”, and direct state intervention, what it was done.

Rockefeller Foundation together with the Mexican Government initiated an agricultural programmes aiming production maximization by using the new model of agriculture **(Green Revolution)**. In fact, the model also aimed to stop illegal immigrations in the USA. In 1957, Mexico assured the need of grains for the 1st time. The programme was extended in other countries too. The agronomist Norman Borlang received Nobel Prize. The increase of oil price by 1,000% since 1973 (fuels, lubricants, fertilizers) blocked the Green Revolution in the underdeveloped countries.

Under **the impulse of the Green Revolution success** (1940-1973) and of **strategic competition** between the military blocks, animal and vegetal production contributed to the increase of production per ha and animal by 300 % in the NATO countries. The mechanism of this development has clearly appeared from the EU documents and actions. The major objectives of the EU CAP included

in Art. 39 of the Treatise of Rome (1956) and finalized by the Conference in Stressa (1958) are:

-To increase agricultural productivity by encouraging the **modernization of holdings** (a French paper since 1965 was entitled “Une France sans paysans” !);

-To guarantee **an equitable living standard** for the agricultural population comparable to other sectors;

-To guarantee **food supply security at reasonable prices for consumers.**

The objectives were fulfilled by a severe intervention (**1/2 of the EU budget for subsidies, guaranteed prices** etc.) in the market economy (in fact the abolishment of the “laissez faire”). The French agricultural production increased by 3 %, meaning that it become double in 25 years, active population in agriculture decreased by 3-4 % (50 % decline at every 20-25 years), labor productivity increased by 6-7 % per year (it doubled its level every 10 years). The treatise of Rome (1956) has led to a remarkable prosperity. An insignificant minority of population, 5-20 times smaller than in Romania, is **able to produce too much food, it is true that at a higher cost compared to the world one.**

Romania succeeded to modernize animal production in the period 1965-1989. Despite that pig industrial complexes assured only **60 % of meat production in the country in 1985**, and the poultry farms only **44.7% of poultry meat production and 42% of egg production**, the difference being supplied by the private sector, **Romania was situated among the top 10 countries in the world** taking into account production modernization in these fields of agriculture. More than this, in the field of pig production modernization Romania was a “pioneer” as the well known British expert M. Bichard affirmed.

Facing an expensive overproduction, subsidized and non competitive in the world market, **the EU agriculture is obliged to change (Mc. Shary Reform, 1992, Agenda 2000)**. The EU subsidies used so far for production intensification will be reduced and reoriented to the protection of resources

(environment, nature, genetic resources etc.), rural development, animal welfare and health, food quality. Production extensiveness is encouraged, but farm modernization continue to remain a major objective in the free market, without any subsidies. The CAP deserves a special attention for our country. This will raise serious problems for the sustainable and competitive development of animal production in Romania.

UNO Commission for Sustainable Development, discussing about Sustainable Agriculture and Rural Development (2000) has warned that in 2020 about 40 % more cereals should be produced in order to nourish the world population, but cereal production has begun to decrease after the green revolution. **The solution recommended by the Conference was: sustainable production intensification, vertical and inter-sectorial integration. For Romania, this means revitalization and sustainable development by innovation and high productivity of the ex industrial animal complexes which are privatized.**

The need of animal production growth -a dilemma or a certitude?

Animal production has a difficult position in the human being trophic chain (Drăgănescu, 1984, p.31,32). The conversion rate of the plant energy to human being is about 20 % (varying from a product to another). This would mean that **animal production could reduce 5 times the number of population who could be fed on the Earth.** Of course, it is an exaggeration. In human diet, the share of animal products is not 100%, some domestic animals, especially ruminants, consume plants or plant parts which can not be consumed directly by man and human diet needs animal protein.

The reasons presented above made some people to doubt in this moment of demographical explosion about the perspectives of animal production or at least of the species competing with man for food ...However, **a FAO study forecasted that in the year 2020, it will be a world explosive demand for animal products and a need to**

increase it more. The European food system is taken from the ex-underdeveloped countries. Together with urbanization, this determined a high growth of animal products in the world market. The countries with a strong animal production, it is not about Romania in this moment, had a large market and high profit. It is sure that, today, the dilemma of the existence of animal production supports its development. How? This is the problem!

We discussed the lessons from the past and the requirements for the future in the systems of animal production (Drăgănescu, 2003, 2005). We think that at present, it is useful to present some FAO conclusions (2007). **Animal production of the year 2020: the next food revolution!** This is the title of a paper carried out by Delgado et al., (1999), published under the auspices of Research Institute for Food Policies (www.ifpri.org). We do not discuss the details of this problem for the moment, mentioning only a few remarks upon its dynamics presented in the FAO Report (2007).

-The engine of animal production systems is at present: increased demand and evolution of animal products; technological evolution, trade development; environment changes; political decisions. *"The large-scale industrial production is rapidly extending in the developing countries"*

-Subsistence and small commercial production systems remain important especially for poor people and in the marginal areas. They require a special attention.

-New functions appear for animal production regarding landscape and vegetation management by grazing.

-Consumer demand is more and more influenced by reasons related to raising conditions, animal welfare, product taste.

-The main negative ecological influences of the domestic animals are: gas emissions with greenhouse effect (ruminants); deforestation for agriculture; soil and water pollution by dejections.

The problem of a new strategy of sustainable and competitive development

Vegetal and animal production of Romania is not sufficient and efficient from an economic point of view, and often not competitive. From an exporting country, Romania has become an importing one. Food security is a problem. Food cost represent up to 50 % in the home costs in Romania compared to 9.5 % in United Kingdom! Economically and socially, this means poverty, lack of political viability. May be the dissatisfaction of UNO General Secretary, expressed at the 3rd meeting of the Commission for Sustainable Development (1995) and discussed again at the 8th meeting (2000) that "evolution to a sustainable agriculture and rural development is going slowly in many countries". Is Romania among these countries?.

The actual situation imposes **a new strategy of sustainable and competitive development of animal production in Romania, with principles, methods and efficient techniques, clearly formulated.** The three principles of the Treatise from Rome (1956), presented above, first of all the **modernization of holdings, have to remain major objectives for Romania.** The technical and financing aspects destined to support the implementation of these principles by FEADR are the main goals of **National Programme for Rural Development** (Measure 121-Agricultural holdings modernization). **National Strategy for Sustainable Development can** not avoid the problems of the development of agricultural production, implicitly of animal production. The manner how the **strategy of sustainable and competitive development of animal production is formulated in these documents must be discussed and analyzed,** as the ones who elaborated it asked. It is needed to clarify the objectives, the causes of the lack of efficiency and how to eliminate them. **Treating the symptoms and not the causes, the problem of the actual "disease" of the animal production is not solved.** The CAP has clearly mentioned that the small and non modernizable farms are not efficient, they have to be replaced by large modernized farms and in this respect it a provided clear

actions, it is true using high financial resources (replaced with terror in some countries).

The problem of setting up such a strategy is not quite simple. This paper tried only to open a door to this problem. It is not enough space to present and sustain opinions (in fact, presented by us in other previous papers). But ..a few of them deserve to be mentioned here..

Some imperatives of the sustainable development of animal production

For short-term, Romania should increase production at least at the level required to cover consumption under the free market. This imposes the following:

-In the agricultural area and optimal from a social point of view, farms must be modernized; the share of the **large commercial, industrial-intensive and commercial-extensive farms** has to increase by **revitalizing in a sustainable and competitive manner industrial farms, but also stimulating other systems ("part time"etc).**

-In the marginal areas of the country (mountain and submountain areas, etc) with semi-natural vegetation, "natural value areas" as they are named by EU, because they allow the preservation of natural biodiversity too, it has to stimulated and even subsidized the development of the extensive systems of animal production. First of all, it is about "pastorship" (moving, transhumance, sedentary), but also the so called "organic agriculture" (also named "ecological", „biological"etc) and forms of subsistence agriculture. In fact, some of them keep the history of the Romanians alive and offer key proofs of the nation existence.

-It is required a study in order to clarify the extent of the areas. The problem is a complex one. **The EU finance research projects destined to establish classification indices (E. Bigal, 2007).**

-Vegetal production has to increase the fodder production at the world market price or animal production should assure the fodder import covering the export expenditures by animal products.

-When livestock needs to be improved, we have to take into consideration that animals are a component of an ecosystem. For this reason, **import of animals has to be done when it is required and must take into account their ecosystem of origin as well** (this is available only for poultry and pigs which could be industrially raised). It has to be avoided the import of reproduction animals based on advertising, affecting the existence of the adapted local populations and ongoing the crises of acclimatization, implicitly of lack of economic efficiency. We proposed to limit the imports in close relationship with the sanitary-veterinary legislation.

- **Vertical integration** has to be encouraged by cooperation or directly on the product chain: supply, production, processing, commercialization, in order to distribute in an equitable manner the benefits, to avoid the pressure on production and consumers from the side of processors, traders and suppliers assuring farm inputs.

-Farm orientation for **maximizing the biological efficiency** (production/animal) and **mechanical efficiency** (production/worker), for **minimizing the consumption of exhausting resources, pollution minimization, preservation of cultural landscape and assuring a normal animal comfort, for rural development.**

-Development of farm capacity to make innovations and continuously assimilate new efficient technologies.

-Stimulation of the capacity to be **competitive** in the world market not only for the delivered products but also for producing and selling reproduction animals; accent on the professional and social deontology.

-**The use of the qualified labor in the intensive and extensive animal production**, assuring a competitive training for farmers and workers, the development of scientific research including the operational one, assuring the participation of experts in the decision making as it happened in case of the national strategy for sustainable development.

-**The use of well trained farmers**, with high knowledge, practical experience and managerial abilities.

- The increase of labour productivity will change the structure of the rural localities. Many of them will be rural localities, but not primarily agricultural localities, as many mountain localities are at present. It is needed to create jobs for the rural population and this agro-urbanization will increase the difference between rural and agricultural.

The setting up of a strategy of sustainable development is a difficult problem. First, it requires high human competence in the place where they are. The underdeveloped countries are underdeveloped because the scale of human values is not understood. This affirmation made in Curry Report is available for Romania too, regarding the difficulty to change at present the Common Agricultural Policy in United Kingdom (Drăgănescu 2003,2004): „ **The actual system is not sustainable for long-term** “: but **“To change the way of a large industry like agriculture is like you try to turn around a boat in high speed. It requires time, courage, vision and cooperation from the part of the whole crew”** (of all the scientific, technical and political factors).

CONCLUSIONS

The civilization of our era, characterized by an exponential growth of consumption and world population, will exhaust the Earth resources, including food, leading to a major crisis of mankind, which could affect Romania too. In this context, it is required a profound analysis of agricultural production and animal production as well. Animal production occupies a difficult position in the human trophic chain.

The conversion rate of energy coming from plants to human being is about 20 %. This means that animal production could reduce up to 5 times the number of human population which could be nourished on our planet. However, the demand of animal products is continuously increasing. In this complex situation, Romania looks to be able to carry out food of animal origin in a sustainable and competitive manner. They are demanded both in the internal market but also for export. In

this respect, the following measures are imposed: (a) In the optimal agricultural and social area, intensive farms have to be developed; the share of the commercial, industrial-intensive and commercial-extensive holdings has to grow up, by the sustainable and competitive revitalization of the industrial farms and also stimulating other intensive production systems (“part time” etc); (b) In the marginal areas of the country (mountain and submountain areas) with semi-natural vegetation, “areas of high natural value” as named by the EU, because they allow natural biodiversity preservation, and also the maintenance and development of the extensive systems of animal production has to be stimulated and even subsidized. Firstly, it is about pastorship (swinging, transhumance, sedentary) and also about the so called organic agriculture (“ecological”, „biological” etc) and other subsistence forms of agriculture.

ACKNOWLEDGEMENTS

This article is an extract from a post graduate course taught in the years 2003-2006 at the Faculty of Animal Science, University of Agricultural Sciences and Veterinary Medicine, Bucharest, Romania. The author addresses sincere thanks the Faculty because it offered enough time to reorganize his thoughts of amateur in this area. Also, the author thanks Paul Caramida (Carahan), his ex-student because he warned his professor and offered him Meadows and Forrester’s works in the years 1970-80. At last, the author thanks his son, Andrei, for Meadows’ works in original and also for Diamond’s books, as well as a few professors, colleagues and disciples who morally encouraged him.

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