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THE RATIONALE OF SUSTAINABLE AGRICULTURE

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Introduction

While the need is pressing to feed the world's population that by 2050 will have grown to 9 billion, the world will have to adapt to create a more sustainable agriculture. A vital interests of the multifunctional European agriculture – especially for the *period after 2013* – is not only to enhance the production of an adequate quantity of high quality, safe food in a profitable and competitive way, but also to address social issues, to ensure balanced territorial development and thriving rural areas, to create jobs directly and indirectly, to provide livelihood for farmers, to protect the environment, the European landscape and the cultural heritage and to fight against *the energy crisis.*

The most developed European countries have to make urgent decisions since productivity growth seems to slow down and the slowing rate of development and a critical level of pollution coincide. The thirst for profit, the intensification of agriculture and the ever increasing amount of inputs which have enabled a substantial increase in production, increased environmental pollution dramatically, which in the absence of the necessary market regulations resulted in unsustainable agricultural production practices.

Sustainability in agriculture within the Member States is related to the inclusive growth objective of Europe 2020 and to the aims of social and territorial cohesion. The aim of the European agricultural development strategy is to promote a smart model that coordinates the natural, social and economic aspects of agricultural production with the aim of developing and maintaining longterm *multi-generational* programmes.

This present paper considers this notion, and finally arrives at the critical element of sustainability, at the tool of agricultural policy of vital importance, the institution

of the CAP that will ensure the development of European agriculture. Market mechanisms in themselves do not contribute to the sustainability of agriculture. Extra supports like cultural, infrastructural, and political factors are needed to shape sustainability but on the long-term the results provide benefits for the whole society.

1. Defining the concept of sustainable agriculture

There is an extensive literature about the concept of agricultural sustainability, therefore it is not easy to select the sources containing really innovative, unique concepts and approaches. By definition, sustainable development of agriculture requires comprehensive research.

So far no uniform, interdisciplinary definition standardized for each and every economy and country has been created, although many have dealt with the conceptualization and interpretation of sustainable agriculture.

The idea of agricultural sustainability was published first in 1798 Thomas Malthus' work 'An Essay on the Principle of Population'. Malthus draws attention to an unlimited population growth that might outstrip the ability to produce food, leading to starvation and war[1]. Untill the beginning of the 21st century this has not yet occurred, as the growing needs for food can be satisfied through technological development. Growth constraints and the adverse impact of agricultural productivity have become even more important.

There have been numerous attempts to define sustainable agriculture, in which common features can be observed including the three main interdependent and interactive issues, namely the demand for a viable, market oriented production of safe and secure food, ensuring sustainable management of natural resources, and satisfying the society's needs.

One possibility of grouping the sustainability definitions was provided by Szakál[2] who classified the definitions into four main groups: a group emphasizing the maintenance of human well-being, in a way that the situation of future generations will not be worse than that of present generation, a group with concepts built on the survival of the human race, a group with concepts built on the flexibility of producing systems, and finally the group of non-economic concepts, whose major role is to preserve cultural heritage and communities and maintain the diversity of the ecological system.

Another possible version of grouping is when the three main elements of sustainability are emphasized to different degrees. The role of the technology-centered approach includes strategies that aim to reduce environmentally harmful activities. These are e.g. organic farming, bio farming, extensive or low-input farming. It is a

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1 T. Malthus: *An Essay on the Principle of Population*. Kiadó: Politzer Zsigmond és Fia Sorozat: Nemzetgazdasági Írók Tára, Budapest, 1798.

2 Szakál, F.: A hazai vidékfejlesztés rendszerének EU-konform kialakítási lehetőségei. In: *A vidékfejlesztés szervezési és ökonómiai problémái, a mezőgazdasági és a vidékfejlesztési politikák összefüggése*. Gödöllő, Zöld Belépő, MTA Stratégiai Kutatási Program, 1998. 95.

controversial question whether all of the above mentioned farming methods are truly sustainable. Another broader approach goes beyond the scope of the farming systems and contemplates sustainability as a system that is able to neutralize or tolerate the harmful effects.

The concept – in line with the broader concept of the three pillars of sustainability – integrates three pillars: the economic, environmental and social pillars. Among these, the environmental and ecological dimension received the greatest emphasis; sustainability itself can be interpreted as an environmental problem. It deals with the impacts of negative externalities of agricultural activity, preservation of biodiversity and impacts of positive externalities of agriculture. It is a fact that agriculture is the most important user of environmental resources, and sustainability depends upon their availability[3]. Increasing level of production causes significant environmental problems. The economic pillar deals with the following: subsidies, impacts of competition, indication on profitability and competitiveness; while the social pillar deals with the preservation of cultural values, the continuing existence of rural communities and the role of local institutions. Besides, agriculture fills a part in guaranteeing food supply and food quality, and in creating intergenerational equity.

The three-pillar integrated approach of sustainable agriculture was formulated by the UN Food and Agriculture Organization (FAO) as follows: "the management and conservation of the natural resource base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations. Such development (in agriculture, forestry and fishing) conserves land, water, plant and animal genetic resources, is environmentally non-degrading, technically appropriate, economically viable and socially acceptable."[4]

The U.S. Congress provides the following definition: "An integrated system of plant and animal production practices having a site-specific application that will, over the long term, satisfy human food and fiber needs; enhance environmental quality and the natural resource base upon which the agricultural economy depends; make the most efficient use of non renewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls; sustain the economic viability of farm operations; and enhance the quality of life for farmers and society as a whole."[5]

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3 DFID: *Sustainable Agriculture*. [Resource Management Keysheet 10.] London, DFID, 2002.

4 FAO Sustainable agricultural resources development. FAO (1991): The Food and Agriculture Organization of the United Nations (FAO) - Sustainable agricultural resources development.http://www.nationsencyclopedia.com/United-Nations-Related-Agencies/The-Food-and-Agriculture Organization-of-the-United-Nations-FAO-SUSTAINABLE-AGRICULTURAL-RESOURCES-DEVELOPMENT.html

5 Congressional Research Service: *CRS Report For Congress,* 2008. http://www.fas.org/sgp/crs/row/RL32294.pdf

The Sustainable Agriculture Research and Education program[6] embraces three broad goals for sustainable agriculture: stewardship of the environment; long term profit and realization of social and economic equality.

Sustainable agriculture's mission – besides taking into account the sustainability of global economy – is to provide copious amounts of nutrients for inhabitants of the earth so as not to contaminate the environment and natural resources. Sustainable agriculture is a system of crop and animal production, which operates under the law of nature meaning that similarly to nature it is self-supporting. Sustainable agriculture also takes into account social values, namely bearing in mind the existence of rural communities. Sustainable agriculture is a complex system similarly to natural healthy ecosystems.[7]

Besides the general approach, the problem's inverse (negative) observation i.e. observing what is not sustainable is a more prevalent. The inverse approach, "unsustainability" can be easier diagnosed – though many times only retrospectively or too late – and measured more precisely and not only allows the possibility of evaluating the current situation by applying the sustainability indicators, but future situations will also be predictable. Interpretation of unsustainability can be found among others in the works of Douglass[8], Yunlong and Smit[9], Hansen[10].

Mostly everyone agrees on the guiding principles of sustainable agriculture, i.e. stewardship (the importance of environmental protection), and economic justice (profitability and social impacts). However, because each farm is different, *it is very difficult to create a single formula for success or to define the practical guidelines* which may serve as a standardized, acceptable guidance on farming issues for every farmer. Farmers optimise their behaviour subject to the local market and societal rules and farm policies should be able to support their efforts.

However, as Green[11] points out, many farmers consider sustainable agriculture to be offensive; attacking criticism, because its principles – contrary to the theories of traditional or also known as modern, maybe large-scale or industrialized agriculture – would assume that their operations so far have not been sustainable. Farmers feel, Green continues, that they are the ones to be blamed for contaminating the environment by extreme 300-400-fold productivity growth achieved.

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6 SARE: *What is sustainable agriculture? Sustainable agriculture research and education*. 1997. http://www.sare.org/publications/whatis/whatis.pdf

7 ATTRA: *What is sustainable agriculture?* 2005. http://www.sare.org/publications/whatis/whatis.pdf

8 G. K. Douglass (ed.): The meanings of agricultural sustainability. In: *Agricultural Sustainability in a Changing World Order*. Boulder (Colorado), Westview Press, 1984. 3–30.

9 C. Yunlong – B. Smit: Sustainability in agriculture: a general review. *Agriculture, Ecosystems & Environment*. Volume 49, Issue 3, July 1994, 299–307.

10 J. Hansen: *Udvikling I produktivitet og bytteforhold i dansk landbrug 1980/81-92/93*. Copenhagen, Statens Jordbrugs- og Fiskeriøkonomiske Institut, 1995.

11 J. Green: *Sustainable Agriculture: Why Green Ideas Raise a Red Flag*. Farming Alternatives Newsletter, (Cornell) 1993.

Sustainable farming ensures both the increase of profitability and the improvement of life and food quality. There is increasing intention for a change over to sustainable farming where farming practices are harmonized with natural resources and the special characteristics of ecosystems. Many practices, as alternatives to industrial agriculture, have been consistent with sustainable agriculture. e.g. extensive agriculture, low input, alternative, regenerative, holistic, biodynamic, biointensive or organic agriculture. All of them, representing thousands of farms all over the world, have contributed to our understanding of what sustainable agricultural systems are, and each of them shares a vision of "farming with nature". In an attempt to be sustainable, such farming practices minimize the amount of pesticide residue on the products, particular pest control practices and renewable resources are used as much as possible. Diversification, green manuring, crop rotation, cover cropping are key startegise for soil building. Low-input farming refers to using less off-farm inputs, while extensive agriculture combines practices like crop rotation and green manure crops, weed management with careful use of current technology. There is no single solution; farmers are required to pursue farming to ensure sustainability that is suitable for local circumstances and is profitable amongst an ever changing structure of the economy.

2. Measurement and indicators of sustainable agriculture

In modern agriculture, particularly in the developed countries, attention is focused on the positive and negative externalities of agricultural production. The reason, on the one hand, is that environmental pressure (soil, water and air pollution), as a consequence of intensive production, became measurable, while social tensions (rising unemployment, deepening of income disparities) have increased as a result of the slowdown in economic growth rates and especially of today's crisis.

The changing structure of the economy is manifested in the growth rate of the service sector, and in this expanding tertiary sector rural areas have to find their place by the diversification of activities, such as by the development of tourism or maintaining traditional rural activities and preserving the landscapes.

Sustainable agriculture must be regarded as more than the collection of idealistic principles or theoretical questions. To facilitate decision-making it is essential to study the actual state of the complex, dynamic environment and to define the ways and conditions of changes. Sustainable agriculture can be described and measured by cost-benefit analysis, risk analysis, charts of ecosystems, and indicator systems.

Sustainability indicators support decision-making, they describe and quantify human activities and the state of the environment. Agriculture is a complex and complicated system, therefore systems approach is the most reliable way to describe inter-relations between agriculture, society and environment. When defining indicators, on the one hand, systems approach should be applied, and on the other hand a differentiated approach focusing on regional differences is needed. The available aggregate data are often misleading, non-specific and do not support effective decision-making.

Sustainable agriculture in itself is a dynamic rather than static concept. What may contribute to sustainability today may not work a few years later, thus it is extremely difficult to monitor and measure. Besides, data are often difficult to gather or are missing and it must be highlighted that the effects of sustainable practices are long term. Therefore, the indicators have to be associated with behaviours years or even decades earlier, when societal valuation, local and global contexts of sustainability might have been different.

The implementation of the European agricultural model can be determined by the development of an indicator system that facilitates the accurate measurement of agriculture's sustainability with three interdependent and interactive components. A number of indicators are currently available to assess the components of the three pillars of sustainability, but these indicators are difficult to aggregate, and they are not useful for assessing the interactions and interdependencies among the three pillars of sustainability. In addition, the trade-offs of pursuing one component at the expense of another is also problematic and there are cases when exceeding one indicator threshold undermines the sustainability of the whole system. The measures currently available are not particularly useful to farmers to monitor location or situation specific progress or to help assess current problems and provide ideas on what needs to be done.

International organizations like the UN, OECD, World Bank or the Agricultural and Rural Development Committee of the European Parliament have launched research programs in order to establish a comprehensive indicator system. The systems developed by these organizations however, did not take into account the three dimensions of sustainability, their studies applied merely the environment or economy based approach. The present study introduces only the most comprehensive indicator systems.

2.1. The ELISA project

The results and evaluation of the Environmental Indicators for Sustainable Agriculture (ELISA) program were published in 1998-1999 within the framework of the project. ELISA[12] aimed at measuring the sustainability of agriculture and the effectiveness of agri- environmental protection.

The central purpose of the program was to provide adequate tools for evaluating the effects of agricultural practices on the environment, determining Community programs, moreover identifying the potential resources for a European agricultural model.

This project identified 22 state and 12 pressure (driving force) key indicators. State indicators encompass soil, water, biodiversity and landscape, while driving force indicators are land use intensity, nutrients, pesticides. The authors consider the

[12] ELISA (1999): Environmental indicators for sustainable agriculture http://www.ecnc.org/programmes?action=detail&id=85

exclusive examination of sustainability's environmental aspects as a disadvantage of this framework of indicators therefore, it is inadequate for measuring agriculture's sustainability as a whole.

2.2. PAIS program of the European Union

The PAIS program was launched in the year 2000. It aimed at developing a framework for agri- environmental indicators in order to contribute to the EU system of agri-environmental indicators. The project covered the fields of landscape protection, agricultural practices and rural development including a proposal for almost 500 indicators. The project partners intended to classify these different indicators into categories, they distinguished 35 landscape, 23 agricultural practice and 58 rural development key indicators[13]. Involving a great number of components the indicator system is rather complicated, inappropriate and unmanageable.

The Institut de l'Agriculture Durable (IAD)[14] indicators measure the results of sustainability from a series of 26 indicators. Of the 26 IAD operational indicators, 19 deal with the results of ecological services and 10 of them measure the agricultural carbon sink.

According to the data collected from the 26 indicators, IAD created seven basic themes, such as economic, social viability, input efficiency, soil quality, water quality, GHG emissions and biodiversity, thereby showing that agriculture can produce a number of important ecological services: increase in biodiversity, water purification, biomass production, generation of energy, landscape maintenance, etc. IAD considers ecological services of farming practices easily measurable. Whilst keeping the two Common Agricultural Policy pillars, they provide guidance for the creation of the future agricultural policy.

2.3. OECD Sustainability Indicators

The 2001 three-volume publication of OECD[15] about agri-environmental indicators aimed at providing information to policy-makers on the current state and changes in the condition of agricultural environment, focusing on agri-environmental impacts and promoting sustainable agriculture.

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[13] G. Geniaux – S. Bellon – C. Deverre – B. Powell: Sustainable Development Indicator Frameworks *and* Initiatives. *Framework* Programme *for Research, Technological Development and Demonstration*, *Report* No.49, 2009. SEAMLESS integrated project http://www.seamless-ip.org/Reports/Report_49_PD2.2.1.pdf

[14] Institut de L'agriculture Durable : *Agriculture 2050 starts here and now.* 2011.http://www.institut-agriculture-durable.fr/images/fichier/86_L-agriculture-de-2050-commence-maintenant-VF-ANGLAIS-19012011.pdf

[15] OECD (2001): Environmental Indicators for Agriculture, Concepts and Framework, Volume 1.
OECD (2001): Environmental Indicators for Agriculture, Issues and Design, Volume 2.
OECD (2001): Environmental Indicators for Agriculture, Methods and Results, Volume 3.

Sustainability indicators are structured into four parts. The first part of indicators considers the influence on agricultural relationships of economic forces, societal processes and environmental preferences. The second part of indicators examines the relationship between different farming practices and systems and their impact on the environment, the third part tracks the trends in the use of farm inputs (eg. fertilizers, manure) and agricultural water use intensity, while the fourth part monitors the extent of agriculture's impact on the environment covering soil quality, wildlife habitats, landscape, etc.

At the core of OECD's 2008 definition[16] of sustainable development is the need to consider three pillars: economy, society and environment, which are inter-related and have mutual impacts on each other. A balance must be achieved among the three pillars, as they are all vital to sustainable development. Sustainability can be defined as a process and a fundamental idea, a goal and an ultimate objective simultaneously. The concept of sustainability refers to the need to strike the right balance between its three pillars, where the ultimate purpose is to enhance the overall well-being.

2.4. The four-pillar aspect

Many Hungarian researchers have investigated potential ways of measuring the sustainability of agriculture and rural development. Remarkable studies were conducted by Farkasné *et al*. since they defined sustainability as having not the conventional three, but four dimensions adding institutions as a fourth pillar of sustainability. According to Farkasné *et al*.[17] agriculture's sustainability should be measured by a four-dimension matrix system of indicators, which is rather a regulatory than a descriptive model. Indicators describing the role, effectiveness, competitiveness and viability of agriculture are included in the economic pillar. Social indicators are related to human resources, income distribution and equality. The environmental dimension contains soil, air, water, landscape and biodiversity indicators. In this model the institutional pillar indicators are related to land property, land lease, environmental protection regulations and taxes, which exclude agricultural policy or institutions like rules and governance structures. In this present paper however, the authors suggest that the existing three pillar model of sustainability should be completed with a fourth pillar, a so called political pillar. The political pillar/dimension could comprise a supranational (EU) institution, the Common Agricultural Policy.

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[16] OECD (2008): Environmental Outlook - How much will it cost to address today's key environmental problems? http://www.oecd.org/document/22/0,3343,en_2649_201185_40221270_1_1_1_1,00.html

[17] Farkasné Fekete, M. – Molnár, J. – Szűcs, I.: Fenntartható fejlődés és mérési lehetőségei a mezőgazdaságban. XXX. Óvári Tudományos Napok, Tudományos Konferencia, Mosonmagyaróvár, (CD lemezen), 2004.

2.5. Evaluation of agricultural efficiency with the integration of environmental indicators

Beke[18] studied the possibility to introduce some of the environmental indicators that could be integrated into the measurement of the performance of the agricultural sector. Beke presented some previous attempts to integrate environmental factors into national accounts and then compared the performance of the agricultural sector of selected countries by applying environmental indicators. To measure the sector's performance Beke[19] examined broader spectrum of inputs. To calculate the sector's output she took into account the application of a number of indicators that express negative environmental impacts (externalities), such as nitrogen balance, water contamination, water abstraction, air pollution and waste generated by agriculture with the emphasis of institutional environment. Although an increasing number of environmental indicators are available, there are limited options to apply them to evaluate agricultural sustainability due to their high degree of integration. At present, the exploitation of natural resources and environmental degradation is one of the biggest global challenges; however, their integration into economic statistics is not justified in Beke's study[20].

3. Indicators from the inverse approach to agricultural sustainability

The logic to approach to sustainability in an inverse (backward, negative) manner is, that it is easier and quicker to identify constrains of economic progress rather than identify all the factors that contribute to that progress.

The creation of *indicators of unsustainability* is desirable for a number of reasons, they are normally already available and measurable; from past experience, cause and effect are usually known; and may be used in place of explaining the complex concept of sustainability.[21]

Directly visible indicators of unsustainability are listed such as land degradation, changed botanical composition of forest and pastures, prolonged negative trends in yield, lower per capita availability of agricultural products, increasing use of sub-marginal lands, high intensity of input use and reduced biodiversity. Other indicators of change are the substitution of deep-rooted crops by shallow rooted crops and excessive dependence on outside resources such as fertilizers and pesticides.[22]

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[18] Beke Lisányi, J.: Integration of environmental components in measuring the performance of the agricultural sector in selected countries. *EU Working Papers*. A BGF KKFK szakmai folyóirata, XIV/1. (2010) 77–88.

[19] Beke Lisányi, J.: Statistical and "green" evaluation of agricultural efficiency in Denmark and Hungary. *Regional and Business Studies*, Vol.2, No. 2, (2011) Kaposvár, 31–40.

[20] Beke Lisányi, J.: Magyarország és Dánia mezőgazdasági fejlődésének tanulságai. In: *A falu*. Agroinformkiadó, XXV/1. (2010 tavasz) 49–60.

[21] M. Svendsen: *Sustainability in irrigated agriculture*. http://publications.iwmi.org/pdf/H_2853.pdf

[22] N. S. Jodha: Sustainability of mountain agriculture: some imperatives. *Entwicklung und Landlicher*

4. The future of agricultural sustainability

In the 21st century, the transition to agricultural sustainability depends on the changes of the institutional environments in both the developed and low-income countries[23]. Ruttan presented three basic scenarios. The *Conventional Worlds Reference Scenario* assumes that the economies of the developing countries grow rapidly and advance to the level of the developed economies. The ratio of per capita GDP of the rich OECD countries and the rest of the world declines, but the absolute difference continues to widen and the rapid population growth could become a serious source of economic stress. This world is richer but dirtier than the world we live in at the threshold of the 21st century, and is defined by frequent social conflicts. The institutional reforms would improve environmental quality and ease the socio-political stress.

The *Barbarization Scenario* arises out of failure to realize to achieve the institutional reforms necessary. The most significant element of this scenario is the major decrease in the standard of living while the gap between rich and poor grows, both within and among countries, and conflict over access to natural resources intensifies. Population, level of technological development and economic growth reduce.

It seems unlikely that the progress projected in the Barbarization Scenario will materialize, yet the New Sustainability Scenario is partially realized. As stated in Ruttan's study, it is also unlikely that soil loss and the lack of water resources would become a severe constraint on global agricultural production; however, the global climate change and the spread of pests and pathogens facilitated by international trade represent a greater threat. The problem of the growth of agricultural production appears at regional and local level, and the solution depends on the maintenance and enhancement of institutional innovation.

In the third scenario, the global economy *shifts towards sustainability*. As the result of the New Sustainability Paradigm, to sustain economic and agricultural growth, the governments and economic systems reflect a stronger will of environmental preservation. The developing regions of the world converge more rapidly and the quality of life improves for the people living in the increasingly urbanized world. The transformation of institutional conditions is the key to success. If the world fails to meet the challenge of a transition to sustainable growth in agricultural production, the failure will be at least as much in the area of institutional innovation as in the area of resource and environmental constraints. The design of institutions capable of achieving compatibility between individual, organizational, and social objectives remains an art rather than a science.

Raum 3/90, 16–19.

[23] V. W. Ruttan: The transition to agricultural sustainability. *Proc. Natl. Acad. Sci. USA* (Colloquium Paper) Vol. 96, (May 1999) 5960–5967.

5. Institutional system of sustainable agriculture: the common agricultural policy of the EU

The creation of a Common Agricultural Policy (CAP) was proposed in accordance with the objectives of the Treaty of Rome to meet the economic and social challenges after the years of war. Its aims were to achieve sufficient production of food supplies, to increase agricultural productivity, to ensure fair income and standard of living for the farmers, as well as market stabilisation. The industrial production did not accomplish agricultural self-sufficiency and caused significant environmental damage, and became the centre of controversy with particular emphasis during the CAP reform in 1992.

The individual steps and reforms after the proposed changes of the CAP in 2013 emphasize the three pillar approach to sustainability. In his proposal George Lyon[24] states that the post-2013 agricultural policies should subsidize the farmers who provide eco-system services (positive externalities) beyond production. Lyon highlights three main challenges the future CAP has to respond to the economic needs (competitiveness, food security), social expectations (farmers' income stability, the development of rural areas and to tackle rural unemployment), and delivering benefits in terms of public goods. To achieve these aims in the future, strong agricultural policy and the maintenance of the existing budget is needed, where the focus is on environmental protection. Lyon also insists that the only way to reach the aims of the CAP is to survey and measure the benefits of the eco-system services. The background to the CAP reform is one of economic crisis and serious financial difficulties facing all European taxpayers, farmers and consumers.

Finally, the fact that global agriculture and food production will need to increase 70% to feed the world population predicted to grow from 6 billion today to 9 billion by 2050 emphasizes the importance of sustainability[25].

6. The viability of eu agriculture in the 21st century

Recent months have brought an increasing number of studies and professional events concerned with changes expected in the sphere of Common Agricultural and Rural Policy following 2013. The 2008 CAP "Health Check" indicates significant changes, therefore the preparation for the next planning period should result in actual changes of the CAP regulation. In reality it must be acknowledged that the findings of the "Health Check" have not substantially improved the payment scheme, although

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[24] G. Lyon: *Working document on The Future of the CAP after 2013*. Committee on Agriculture and Rural Development. 2010. http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+COMPARL+PE-439.305+01+DOC+PDF+V0//EN&language=EN

[25] Fehér, I.: European policy context for sustainable agriculture. Safeguarding and Promoting Interests in the Agro-Food Industry – Experience and Perspectives in Europe. Erasmus IP programme 19th June – 2nd July 2011, Szent István University, Gödöllő, http://www.sziu.hu/node/44

they foreshadow the direction of post-2013 reforms, which is reflected by the views relating to budget.

It may be established that the subsidised sectors have mostly preserved their favourable position. However, cross-compliance with its costs involved as well as the estimation and accountability of its benefits have been brought into focus. Assessment and incorporation into the scope of research priorities of the conditions of long-term climate change adaptation have become key issues. Various analyses establish the unsustainable nature of the current system. With major changes to be implemented, frequently quoted cost-benefit correlation being more thoroughly examined, spending of money being replaced by the evaluation of costs and benefits of investments, and permanent value creation becoming a vital issue, the CAP still remains in effect after 2013. The frequently arising questions are how to abolish the distorted and unfair current CAP system and the untraceable and inexplicable distinction among specific sectors and regions based on historical reasons.

The players of agriculture and rural development should expect that more emphasis will be placed on certain objectives such as the concept of public goods becoming a primary focus in the hierarchy of priorities. Decision makers are also expected to concentrate on addressing environmental, cost-benefit efficiency and good governance issues.

The changes require gradual and careful preparation allowing time for the elaboration of adaptation conditions. Transparency is to be improved both in terms of beneficiaries and the impacts of subsidies. The CAP is certainly expected to be turned "greener", also enabling the social issues of the European model to remain in the focus of attention. Changes may also involve the introduction of simpler CAP measures and stricter methods of evaluation relating to measurable effects and indicators.

Sustainability should form an integral part of the adjusted agricultural policy. The alteration of basic principles should be carried out in a way that the environmental, economic and social aspects of sustainability contributing both to environmental values and competitiveness are brought into focus. The transformation process of the agricultural policy has already been launched by an increasing proportion of resources spent on specific axes of the "second pillar" of the CAP (rural development policy) promoting sustainability.

Therefore it is our vital interest to improve the functioning of the CAP, for the accomplishment of which the following conclusions must be highlighted[26]:

- A balance must be struck among intensive farming, sustainability and environmental concerns, raising the dilemma of how to measure the effects thereof.
- Consideration of new aspects and reaching agreements of a broader scope are necessary for adjudging the role of rural areas, cities and suburban areas, especially in respect of issues relating to sustainability. The spread of direct

[26] Fehér (2011) i. m.

sales methods and diversification mechanisms is expected to take place in the field of food supply for towns and villages.
- Investigating the methodology of good governance, the reserves of simplification, the operation of institutions as well as utilising partnerships and applying innovative solutions have become essential.
- The success of agriculture and rural development depends on decision makers as well as people influencing and executing such decisions, therefore the role and activity of agricultural sector institutions must be pointed out.
- More efficient tracking of market signals as well as opportunities and tools of risk management will come into view.
- The management of the CAP adjustment requires a transitional period the length of which is to be chosen wisely. Gradualness is inevitable in making the planned actual changes successful, therefore it is recommended to introduce a transitional period lasting until 2019.
- Special attention must be paid to attracting young farmers and addressing the problems of old age in rural areas, particularly in terms of social services.
- Establishing a partnership between the representatives of the civil society and the private sector is an important element of networking the new institutional philosophy. Networking activities are to be characterised by a mutual cooperation approach especially during the process of integrated regional development, taking into account the incorporation of economic, social, cultural and environmental considerations into future projects.
- We should aim at producing the largest possible amount of foodstuff in the most effective way, while protecting our environment and implementing a more equitable distribution of income both among countries and regions. This objective would contribute to the ideal allocation of community budget funds devoted to the agricultural sector. A brief summary of our proposal includes the allocation mechanism of CAP subsidies to be aligned to the individual characteristics of each country, paying utmost attention to the basic principles of solidarity, equal access, justice and fairness.
- The aims of the CAP clearly emphasize the environmental and landscape protection and awareness as the main advantage of European agriculture. Complying the environmental requirements, crop protection and animal welfare standards is hard to compensate, therefore for the EU farmers it represents a disadvantage to global competitiveness.

Conclusion

The above *detailed system of EU funds could serve as the fourth pillar of sustainability* and it may also be considered as a crucial element of agricultural efficiency[27]. Sustainable agriculture appears to be remote and hard to achieve at

[27] Lisányi (2011): A fenntartható mezőgazdaság kritériumrendszere és eredményei Dániában és

this stage. Agriculture must be subsidised due to the lack of market mechanisms contributing to its sustainability. The activities of politics, the government and local municipalities also have an impact on sustainable agriculture and rural economy including food production, background industry and services, commerce, but also agricultural research, university education and vocational education. *Consequently the existing three pillar model of sustainability should be completed with a fourth one, a so called political pillar, comprising namely an institutional background, perhaps a supranational EU institution* (Figure 1).

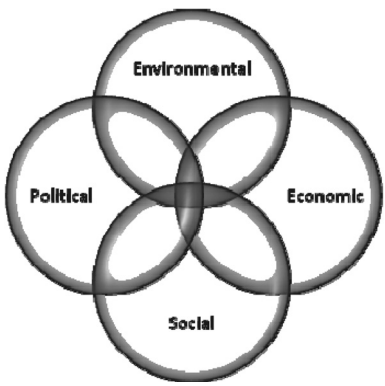

Figure 1: Diagram depicting the four-pillar approach of sustainability

Source: Lisányi, 2011

Sustainable farming may not be accomplished by traditional market incentives. A single way to its development is leading through political decisions and will, through regulation as well as the involvement of government and international resources. *The evolution of an adequate regulation system would be enabled by the introduction of an innovative political pillar, which is a broader concept as the previous ones,* since besides land property, land lease, environmental protection regulations and taxes it includes the agricultural policy (subsidy system, rules and regulations, governance structures). Although agriculture has always been incorporated into agricultural institutions, these were characterized by infrastructural and fiscal constraints. In the absence of innovative regulations, decision-making is based on short-term interests, decision makers are unmotivated due to the lack of tangible political gains and guaranteed results. This may lead to the short term overexploitation of natural resources generating a social trap situation as described in Garrett Hardin's often-cited article of 1968 titled "*The Tragedy of the Commons*"[28]. It is only in the long term that the outcomes of sustainability may prove beneficial for the society as a whole.

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[28] G. Hardin: *The Tragedy of the Commons*. Science. 13 December: Vol. 162, no. 3859. (1968) 1243–1248. *DOI:*10.1126/science.162.3859.1243 http://www.sciencemag.org/content/162/3859/1243.full

The CAP should promote core values such as preserving the quality of soil, water and environment, producing healthy food and retaining markets and jobs in the long term. It is obvious for everyone that, due to the contradiction between effective interests and promoted core values, the allocation of subsidies may not be based on anything else but political decisions. The amount of EU resources showing a decreasing tendency instead an increasing one, in parallel with more and more newly-joined countries requiring additional resources, may result in a serious struggle among interests. Our proposal will be aimed at underlining the following mainstream principles: (i) countries' *individual characteristics are to be taken into account* when making decisions on the granting of subsidies and (ii) *environmental and sustainability concerns are to be treated as priorities.*