

SUSTAINABLE AGRICULTURE- ROMANIA CASE-STUDY; NEW AREAS FOR RESEARCH

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Abstract

This paper identifies new areas regarding research on sustainable agriculture, assessing the status on sustainability (environmental-social and economic aspects) of the Romanian agriculture sector. The agricultural land reform has influence on agricultural sustainability, as it led to land fragmentation, as the efficiency was not a primary concern.

To understand better the sustainability, case studies can increase knowledge of the ecological importance of certain agricultural management practices and can also draw attention to rural development, to other socio-economic factors. The environmental awareness of farmers, measured by means of agri-environmental indicators is an important aspect to be assessed.

The types of crops, including those that compete to food (i.e. biomass to biofuel) and the degree of fragmentation of land parcels are important factors to be considered. Also, the marginal land, and contaminated one are additional factors to research, as well as areas for policy investigation.

Keywords: *agri-environmental indicator, land reform, sustainability;*

INTRODUCTION

The agriculture sector is the primary employer of the world's poor. As such, agriculture is an important part of any country, particularly developing economies. There are many benefits to the local, rural economy by the expansion of the agricultural sector. On the production side, upstream benefits include farm demand for inputs and services, while downstream benefits include food processing, storage, and transportation. On the consumption side, the increased disposable income of rural household's results in increased demand for goods and services in the local, rural economy (Meijerink&Roza2007). Yet, despite the importance of agriculture to economic development, many countries continue to neglect their agricultural sector. One such country where the agricultural sector has been neglected is Romania. Having once been considered the breadbasket of Europe, agricultural production in Romania is regularly at the lowest in Europe. This paper intends to illustrate the importance of agriculture to the development of the Romanian economy and provides suggestions for public policy that

would encourage growth of the agricultural sector in Romania. In addition, the need for further research is underlined.

This paper is an effort to identify the ideas, practices and policies that constitute our concept of sustainable agriculture. The main reason is to clarify the research agenda, as well as priorities, and to suggest to others practical steps that may be appropriate for them in moving toward sustainable agriculture. Because the concept of sustainable agriculture is still evolving, the intention of the paper is not as a definitive or final statement, but as an invitation to continue the dialogue.

Sustainable agriculture integrates three main goals - environmental health, economic profitability, and social and economic equity.

Making the transition to sustainable agriculture is a process. For farmers, the transition to sustainable agriculture normally requires a series of small, realistic steps. Finally, it is important to point out that reaching toward the goal of *sustainable* agriculture is the responsibility of all participants in the system, including farmers, labourers, policymakers, researchers, retailers, and consumers. Therefore, there is need for

specific strategies for realizing these broad themes or goals, especially in Romania where land is so fragmented. The strategies may be grouped according to three separate though related areas of concern: Farming and Natural Resources, Plant and Animal Production Practices, and the Economic, Social and Political Context (EC, 2010; Nastase *et al.*, 2009).

How sustainable is the development of agriculture in Romania?

Economists have focused on viewing the economy and the environment as a single interlinked system with a unified valuation methodology (Dasgupta, 2007). Therefore, the strategy of development must be a strategy of sustainable development.

The goal of the National Sustainable Development Strategy of Romania is to connect this country to a new development philosophy adopted by the European Union and widespread in the world - sustainable development. Romania, as EU Member State, subscribes the EU sustainable development strategy. EU Sustainable Development Strategy 2006 (EU Council, 2006) presents a coherent and unified plan on how the EU will more effectively meet the challenges of sustainable development. The Romanian agricultural sector needs to be integrated in this broader strategy. Realizing this objective is a real chance for Romanian agriculture in order to increase the competitiveness on the EU market, valorising in this manner its agricultural potential.

MATERIAL AND METHODS

Research on Sustainable Agriculture Innovations and technological advances

Not only is the agricultural sector expected to produce adequate food, fibre, and feed, and contribute to biofuels to meet the needs of a rising global population, it is expected to do so under increasingly scarce natural resources and climate change. Growing awareness of the unintended impacts associated with some agricultural production practices has led to heightened societal expectations for improved environmental, community, labour, and animal welfare standards in agriculture. (Brooks, & Loevinsohn, 2011; Bran *et al.*, 2011).

Several topics of research and projects were undertaken by Romania after the EU accession (2007). For instance, the project "Informed and experienced for sustainable agriculture" (supported by the European Commission), deals with improving the availability of information and consultative capacities of the social partners in the field of agriculture, active participation in working life for sustainable agriculture. Within the project, National Guidelines and Recommendations will be prepared, relating to information and consultation in agriculture unions.

A prerequisite for ensuring sustainable agriculture and rural development is the design and implementation of appropriate and well-targeted policies that take into account the interactions between macro-economic, agricultural and other sectorial policy concerns at national and regional levels. The mobilization of adequate financial resources as well as the skills and appropriate tools that are often lacking is crucial for the effective implementation of these policies.

The CEI (Central-European Initiative) encourages and supports activities and projects aiming at meeting the standards and criteria set by the *acquis communautaire*, thus strengthening the competitiveness of the farming and agri-food sector.

Funding opportunities

With its EU accession in 2007, Romania has gained access to much needed financing alternatives in agriculture; the main sources of funding are the direct payments and those through the National Program for Rural Development. The proper use of the financing for the farming sector could trigger a more competitive Romanian agriculture, the increase in the number of jobs in rural areas, as well as the sustainable development of rural areas (Ministry of Environment, 2008).

New areas for research

More research is needed, in order to contribute to a deeper understanding of sustainable agriculture and rural development. Thus, focus is need to draw a more comprehensive picture of the rural economy through integrating various determinants of rural development and several methodologies, which allows the evaluation of linkages and interaction effects.

Decreasing soil fertility implies decreasing yields over time and hence lowers the real incomes of already poor farmers even further. Sustainability in agricultural production depends on various interdependent aspects that require integrated analytical approaches to address the complexity involved. Smallholder production of food crops in poor countries is particularly vulnerable to hazards that are related to (i) production technologies as well as (ii) factor and commodity markets. The former aspect includes appropriate input use and land management, while the latter particularly considers rural labour markets, intermediate input markets, and commercial output markets. All these topics can constitute further research areas.

For instance, in this context, a project may focus on three crucial aspects, namely (i) institutional and other determinants to foster the degree of commercialization of agricultural small-scale produce, (ii) alternative occupational choices in rural labour markets with respect to agricultural and non-agricultural employment, and (iii) biophysical aspects concerning soil-conserving production technologies. The main hypothesis is that all three aspects need to be addressed sufficiently and simultaneously in order to promote sustainable smallholder agricultural production that is able to contribute to overall economic growth and development and, consequently, to food security.

As methodology involved, this kind of research follows an interdisciplinary approach, which combines several methodologies within economic and social sciences.

Other research additional topics may be constituted of: energy; air; soil; election of site, species and variety; diversity; soil management; efficient use of inputs; consideration of farmer goals and lifestyle choices, etc.

The Economic, Social & Political Context

In addition to strategies for preserving natural resources and changing production practices, sustainable agriculture requires a commitment to changing public policies, economic institutions, and social values.

Food and agricultural policy. New policies are needed to simultaneously promote environmental health, economic profitability,

and social and economic equity. For example, commodity and price support programs could be restructured to allow farmers to realize the full benefits of the productivity gains made possible through alternative practices.

Land use: conversion of agricultural land to urban uses is a particular concern, as rapid growth and escalating land values threaten farming on prime soils.

Labour: in many parts of the world, the conditions of agricultural labour are generally far below-accepted social standards and legal protections in other forms of employment.

Rural Community Development: rural communities are currently characterized by economic and environmental deterioration. Many are among the poorest locations in the nation. The reasons for the decline are complex, but changes in farm structure have played a significant role.

Consumers and the Food System: consumers can play a critical role in creating a sustainable food system. Through their purchases, they send strong messages to producers, retailers and others in the system about what they think are important (EC, 2010; IESA(2012).

Agri-environmental indicators

As presented in COM(1999) "Directions towards Sustainable Agriculture", the reforms undertaken as part of Agenda 2000 provide a powerful impetus for the integration of environmental concerns into agriculture policy. The Commission, Member States, local authorities and agricultural and rural communities now have a considerable range of instruments at their disposal to achieve sustainable agriculture.

Appropriately developed agri-environmental indicators will be particularly important in improving transparency, accountability and ensuring the success of monitoring, control and evaluation. This will contribute significantly to the effectiveness of policy implementation and will feed into Global Assessment processes.

Member States may use agri-environment programmes to protect or enhance the environment beyond good farming practice. Furthermore, while the CAP (Common Agriculture Policy) is a common European policy, Agenda 2000 recognises that the diverse nature of the farmed environment across Europe means that the policy has to be applied

in a decentralised way. Agenda 2000 has made a strong effort to correct the most apparent negative environmental effects of the old CAP by providing Member States with a range of instruments, including indicators.

However, in Europe, much of the valued rural environment is the product of agriculture and is dependent on it. Appropriate farming systems help to preserve landscapes and habitats as well as a range of conditions favourable to beneficial environmental processes. Some of these processes can be summarised below:

Relationship: Processes of environment: build-up of nitrate and other mineral residues, pesticide residues, salination, ammonia and methane emissions.

Depletion of environmental resources: inappropriate use of water and soil, destruction of semi-natural and natural land cover.

Preservation and enhancement of the environment: creation/preservation of landscapes, habitats, land-cover, preservation of genetic diversity in agriculture, production of renewable energy sources.

Potential for certain types of agricultural activity to make a significant contribution to environmental objectives should not be underestimated, particularly within a favourable policy context. The production of biofuels can, for example, make an important contribution to combating climate change. Under these subject areas, about thirty actual indicators have been selected for short-term development while more than twenty indicators will need further refinement in a medium/longer term. For instance, some indicators to address agri-environmental issues of relevance to policy-makers are:

- Agricultural nutrient use
- Agricultural pesticide use
- Agricultural water use
- Agricultural land use and conservation
- Agricultural soil quality
- Agriculture and water quality
- Agricultural greenhouse gases
- Agriculture and biodiversity
- Agriculture and wildlife habitats
- Agricultural landscape
- Farm management
- Farm financial resources

Socio-cultural issues in relation to agriculture.

The OECD has developed its own database but most of the indicators developed will rely on existing figures at national level or new uncollected data. For three indicator areas (nutrients, pesticides, green house gases), it is considered that data collection and indicator measurement are already well advanced and being refined. The other areas still require further development.

Indicators for assessing environmental integration.

At present, a partial set of indicators can be established to monitor the integration of environmental concerns into agricultural policy (UN, 2007). This set will evolve as the indicators are improved and completed. There are, however, areas in which the definition of operational indicators remains a major challenge. This is particularly the case for farm management, beneficial processes, landscapes, global habitat stock and biodiversity and landscape diversity. For these, appropriate indicators need to be defined on the basis of the considerable information that is currently available.

RESULTS AND DISCUSSIONS

A more sustainable agriculture seeks to make the best use of nature's goods and services as functional inputs. It does this by integrating natural and regenerative processes, such as nutrient cycling, nitrogen fixation, soil regeneration and natural enemies of pests into food production processes. It minimises the use of non-renewable inputs (pesticides and fertilizers) that damage the environment or harm the health of farmers and consumers. It makes better use of the knowledge and skills of farmers, so improving their self-reliance. In addition, it seeks to make productive use of social capital - people's capacities to work together to solve common management problems, such as pest, watershed, irrigation, forest and credit management.

Governments have an important role in ensuring that sustainable agriculture options are available, adaptable and affordable for farmers. This, in turn, will require a broad set of actions. First, sustainable agriculture to achieve food security needs to be an explicit component of countries' national development strategies,

including the identification of financial resources to expand rural infrastructure and support services to small-scale agricultural producers. A holistic, cross-sectorial approach should consider trade-offs and build on synergies between sectors and objectives.

Second, there is a need to substantially expand resources for agricultural research and development and for the adaptation of technology to local conditions, with an explicit focus on meeting the needs of small-scale farmers, including women.

Third, new forms of public-private partnerships, including with civil society organizations, need to be identified to expand the provision of public goods in rural areas. Fourth, the institutions responsible for service provision in rural areas (including education, and research and development/R&D) will need to undergo radical reform to make them responsive to the needs of small-scale rural producers through direct participation and consultation between small-scale producers and relevant stakeholders.

Finally, international commitment steward food security need timely delivery and must be aligned to national development strategies. The international community can also contribute to a global agenda for food security and environmental sustainability through reform of agricultural subsidies, including to biofuels, in countries of the Organisation for Economic Co-operation and Development (OECD); elimination of non-tariff barriers to food trade; increased investment in agricultural R&D; new payments for environmental services to small farmers in developing countries; and effective regulation of commodity futures markets.

Some questions for the future investigation, including research will be:

- What policy measures are being undertaken to improve the environmental situation in the agricultural sector?
- What improvements in farming practices are taking place?
- To what extent have beneficial environmental processes such as habitat preservation increased and harmful processes such as pollution decreased?
- What is the effect on the state of the

environment?

- To what extent have specific objectives been met?

As regards policy measures and farming practices, the key source of information will come from the monitoring of rural development, market and environmental policies. However, this will remain dependent on the coverage of these policies and the willingness of member states to collect the appropriate information. The indicator set outlined above could be adapted to reflect the broader concerns of the strategy and its specific objectives. A monitoring framework for further development is proposed below.

Another important step is bringing agri-environmental concerns closer to the citizen.

The development of agri-environmental indicators presents a particular opportunity to engage citizens in both rural and urban areas. Alongside improved competitiveness, the multifunctional role of agriculture and the growth of publicly remunerated environmental services will play a large part in ensuring the viability of many rural areas. It is therefore important for society in general to understand the issues at stake and, indeed, the quality and diversity of Europe's rural environment.

The agri-environmental indicators are meant to address precise questions related to agricultural driving forces, pressures and benefits, the state and the impact on habitats and biodiversity as well as agri-environment policy responses. The indicators will help understand how regional farming patterns are developing. They will help assess whether policy or production changes pose risks to the conservation of the environment, or, if they are contributing positively to the preservation and enhancement of environmental resources.

The role of agriculture in maintaining the landscape and semi-natural rural environment is increasingly reflected in a range of initiatives such as the European Landscape Convention (ELC) and the Pan European Biological and Landscape diversity strategy (PEBLDS). The site specificity of agricultural activities fits closely with growing concerns about sustainable development and landscape quality at a very local level expressed in Local Agenda 21.

CONCLUSIONS

Several things are now clear with respect to sustainable agriculture:

The technologies and social processes for local level sustainable agriculture are well-tested and established;

The social and institutional conditions for spread are less well-known, but have been established in several contexts, leading to very rapid spread in the 1990s;

The political conditions for the emergence of supportive policies are least well established, with only a very few examples of real progress. The past decade has seen considerable global recognition of the need for policies to support sustainable agriculture. Sustainable agriculture clearly does not yet have all the solutions, but great progress has been made in recent years. With further explicit policy and institutional support, particularly through national policy reforms, these benefits to food security and attendant improvements to natural, social and human capital could spread to much larger numbers of farmers and rural people in the next decade.

Sustainable agriculture therefore needs to reflect productive, environmental and social functions.

While considerable work has been undertaken in the development of indicators, many gaps still remain. These gaps exist at a number of levels in data, the construction of indicators, but above all in the existence of appropriate indicators that reflect key policy issues. It is therefore necessary to compare the "policy" coverage of existing indicator work with the key issues and questions identified during investigation and assessment.

If a lesson were to be drawn, it would be on the need to develop and implement integrated policies and strategies for agricultural and rural development, which incorporate socio-cultural, economic and environmental objectives in a balanced way. Such policy development is most effective if done in close interaction between governmental authorities, the private sector including farmer organizations, and representatives of civil society, including environmentalists.

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