

# **Innovative Approach for the Agriculture Development. Case Study of South-East Europe**

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## **Abstract**

*Romania might receive in future years an important role in ensuring food security of the European Union and of other countries in the region, under the conditions of solving internal problems related to productivity and competitiveness in agriculture. An important role in this context has the innovative method of agricultural development, which promotes a system in which the actors involved interact to generate and use knowledge related to agriculture, in the processes of socio-economic relevance, and in an appropriate institutional framework. A current form of innovation system applied also by agriculture is the networking activity between the actors involved, transposed in emerging clusters (during different projects or occurring spontaneously) and mature clusters. Romanian entrepreneurs followed the good practices met in the field, also in agriculture - especially those from South East Europe, of economic clustering. The paper focused on the most representative results collected during author's projects.*

**Key words:** innovative system, economic cluster, sustainable agriculture

**J.E.L. classification:** R11

## **Introduction**

Nowadays the agriculture is becoming more important, taking into account the needs of global food security, and also those determinate by the climate and social changes.

The actual concerns of the specialists, from the perspective of ensuring a sustainable agriculture, are focusing on the increased food demand from new emerging countries in Asia and South America, on non-food uses given to agricultural production through the production of biofuels and on the impact of climate changes related to agricultural production and to food supply.

Even in EU countries where the feeding is no longer a problem to the states, the food security has become a concern within communities with high degree of vulnerability. And this due to higher agricultural prices and their volatility, fragmentation of markets and, not least, due to deterioration of living standards of the population and increasing incidence of poverty under the impact of the recent economic crisis.

In this context, it is worth mentioning that Romania is an important agricultural producer that:

- has significant agricultural resources for the crop production (fertile arable land) and animal production (forage crops, pastures, meadows)
- recorded substantial increases in domestic production of poultry, sheep and goat
- and in the adjacent area, that of food and beverage industry, ranks second only to Poland, knowing the significant investments in the last decade.

Thus, Romania might receive in future years an important role in ensuring food security of the European Union and of other countries in the region, under the conditions of solving internal problems related to productivity and competitiveness in agriculture.

## **A new paradigm for sustainable agriculture**

The premises of a sustainable agriculture are according to the literature:

- Financing research activities

- Offering services and grants for ensuring an increase in production with effects regarding:
  - Economic growth and
  - Social development (normal standards for rural communities)
- Quality of environment – knowledge in management field.

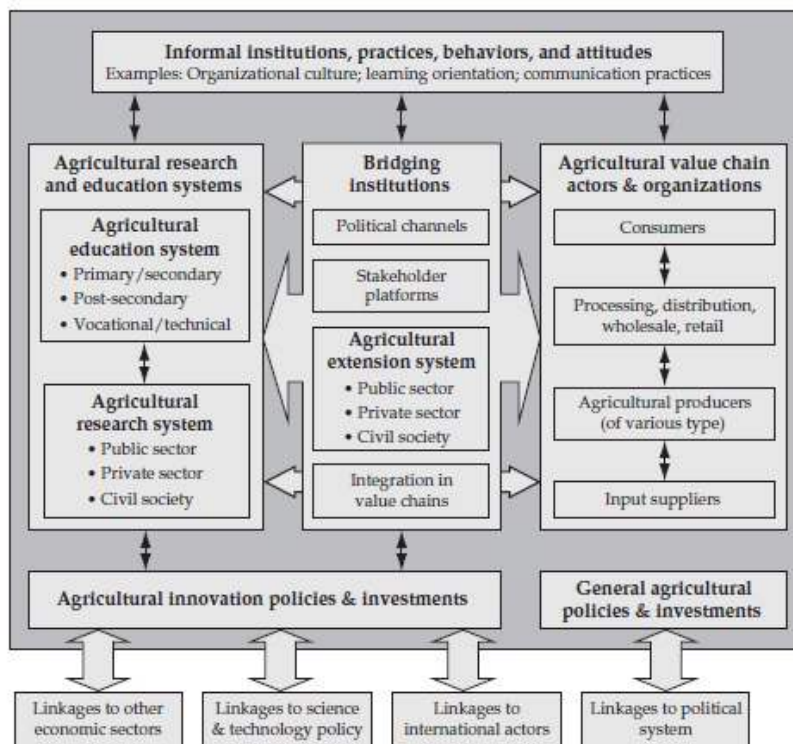
Significant technological advances in agriculture (Levidow, Birch, Papaioannou, 2012) nanotechnology, genetically modified organisms), but also in biology and genetics are essential to reducing poverty, fostering development, and stimulating economic growth.

An important role in this context has the innovative method of agricultural development (, which promotes a system in which the actors involved interact to generate and use knowledge related to agriculture, in the processes of socio-economic relevance, and in appropriate institutional framework.

Researchers' concerns for a new paradigm of development of agriculture dates back to 1990 when it was promoted the creation of an appropriate framework for the application of agricultural innovation systems (AIS) at national level.

Studies undertaken, especially by the World Bank advocates the benefits of organizing activity as innovative farming systems, according to the World Bank representing: “a network of organizations, enterprises, and individuals focused on bringing new products, new processes, and new forms of organization into economic use, together with the institutions and policies that affect their behavior and performance. The innovation systems concept embraces not only the science suppliers but the totality and interaction of actors involved in innovation. It extends beyond the creation of knowledge to encompass the factors affecting demand for and use of knowledge in novel and useful ways” (World Bank 2006, vi–vii).

Figure no. 1. A conceptual Diagram of a National Agriculture Innovation System



Source: Adaptated from Arnold and Bell, 2001

A national innovative system of agriculture creates the framework for investments and interventions in agricultural policy, managing to train actors and organizations in the private and public sector and civil society.

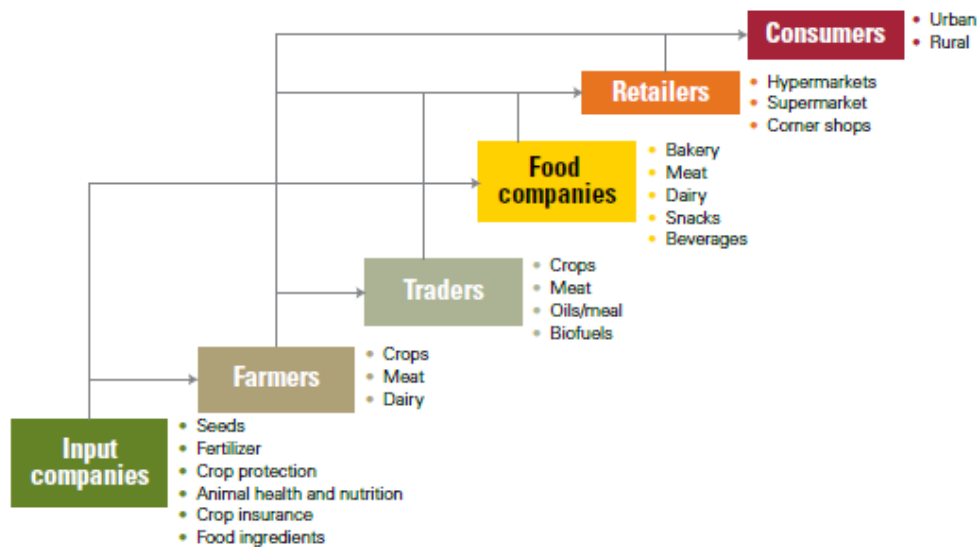
An innovative system achievement is particularly advantageous for agriculture (Spielman D.J., Birner R.,2008) , because it relies on identifying constraints and solutions to remove them in order to obtain a competitive agriculture. Such a scheme / system gives stakeholders an important role at

regional and local levels, who work in agriculture, but also in adjacent areas, to complete the value chain.

In this regard, in full correlation with the evolution of innovative farming system, stands in recent years the need to support agricultural entrepreneurship through various programs / projects for fostering the innovation projects, solving the technological problems, access to specific equipment and training of the collaborators.

Given, the natural evolution of cross-sectoral cooperation in conditions of fierce competition, we are witnessing the formation of sophisticated value chains – in case of agricultural products (see the figure below).

Fig.2. The agriculture and food value chain



Source: The agriculture and food value chain: Entering a new era of cooperation, KPMG International, 2013

In terms of value chain diversification of agricultural and food products, there is a need to redefine the concepts and analytical tools used to identify ways in which policies and investments can influence the reducing of poverty the improving of living standards in rural areas.

Compared with the classical approach - in which the emphasis is on education, research, provision of knowledge and new technology to the farmer - the innovative agriculture consider the farmer as part of a complex network of actors engaged in the innovation process, along formal and informal institutions and environmental policies that influence these processes.

Thus, innovative system for agriculture represents a move away from the interpretation of linear innovation as a sequence of research, development and dissemination, to an interpretation that recognizes innovation as a complex of individuals and organizations in close cooperation - and contributing to application of existing or new information and knowledge.

A current form of innovation system applied also by agriculture is the networking activity between the actors involved, which reflects in emerging clusters (during projects or occurring spontaneously) and mature clusters.

### R & D & I Cross-sectoral Networks

The trend of cooperation between actors in related fields was successfully met in the past decade not only in Western Europe but also in South - Eastern Europe. Action framework of these initiatives were the Territorial Cooperation Programme South-Eastern Europe 2007 – 2013 followed by the Danube Interreg Programme 2014-2020.

In the framework of these Programs there were established some sustainable networks in high tech but also in agriculture field. Further on there will be mentioned the representative projects for

an innovative agriculture during some European programs (in which the author had the opportunity to coordinate the Romanian team) considered objectively good practices in the field: Adriatic Danubian Clustering (ADC) and Smarter Cluster Policies for South East Europe (ClusterPoliSEE).

Among the mentioned projects, the "Adriatic Danubian Clustering ADC" introduced during of a pioneering action, the concept of *transnational cluster*, which represented an absolute novelty in economic literature and practice.

Based on a quantitative analysis using specific statistic tools, but also a qualitative analysis conducted in representative groups of the stakeholders in the industries concerned, there was identified the clustering potential in the strategic sectors of the Adriatic - Danubian Region, but mentioning in the following words, only the agro-food sector. According to the ADC project, the agro-food sector consists in the activities listed below and illustrated in the corresponding map:

- Agro-food Sector: processing, preservation and packaging of agri-food products and related technologies;

Fig.3. Adriatic Danubian Clustering –ADC Project

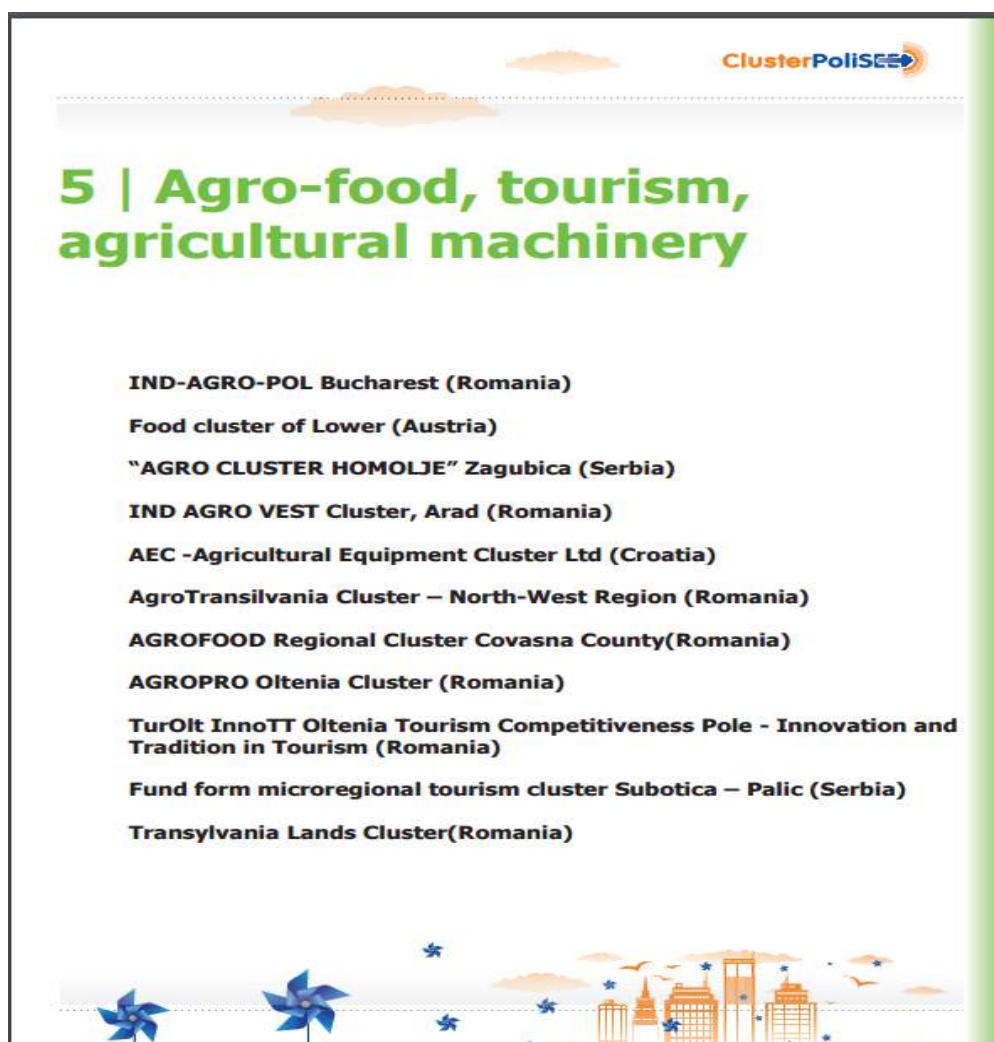


Source: Adriatic Danubian Clustering –ADC Project; IPE & Territorial Cooperation – South East Europe Programme 2007 -2013

As a natural follow-up of ADC Project, the ClusterPoliSEE Project was stated by the European Commission a flagship project for the Danube Strategy, due its valuable outcomes and promotion of a meta clusters network in South East Europe.

In the framework of one of its pilot actions, there were established some clusters networks in areas complementary to those created in ADC design but also in new areas. In this article we focused on networks in agriculture and related fields, consisting of innovative clusters representative for Southeast Europe (see Fig. Below).

Fig.4. ClusterPoliSEE Project: Agricultural – networks in South East Europe



Source: ClusterPoliSEE Project; IPE & Territorial Cooperation – South East Europe Programme 2007 -2013

The created networks are an engine of local and regional development, especially that agriculture starts from pressing local needs, which encourage the formation of bottom-up clusters, thus having the perspective of sustainable clusters.

From the perspective of innovation system in agriculture, is worth mentioning (Coșnită, D., Guth. M., 2010) the connections created between public research agencies, private industry (related to agriculture) and farmers - all players being involved in the innovative process of specific technologies, but also of political reform or poverty reduction in rural areas.

Romanian entrepreneurs followed these trends in South - Eastern Europe (Păuna, 2013), of economic clustering - clustering in general and in agriculture - in particular. Thus, we present below the list of Romanian clusters (labeled by European Secretariat for Cluster Analysis – ESCA) from agriculture, which contributes to the improvement of the local development but also to create preconditions for implementing innovative systems in agriculture: Agro Transylvania Cluster Cluj (Silver Label), Ind Agro Pol Bucuresti (Silver Label), Agro food Regional Cluster Covasna (Bronze Label), Agropro Oltenia Cluster (Bronze Label), Cluster International agro-food (Bronze Label), Ind Agro Vest Arad (Bronze Label), Agro-food Tara Barsei Brasov, Aliment Transilvania Cluster Alba Iulia, Agro Cluster Tinutul Neamtului Piatra Neamt, Bio Danubius Cluster Tulcea, Gusturi Transilvane Cluster Cluj.

## Conclusions

According to the economic literature and to the projects results, already described, we can talk about a new phase of collaboration in agricultural field, that means - specific collaborations within and across sectors: input industries, farmers, traders, food companies, retailers. The new ideas come true due to collective activities in the framework of companies, even if invention or innovative ideas may be an individual activity.

As active member in the projects previously mentioned the author of this paper can confirm the huge impact of interfirm collaborations on boosting the innovative milieus in South-East European Region as well in industry as in agriculture.

The cluster mapping exercise begun during ADC Project and continued in ClusterPoliSEE Project argues that there is a strong relationship between “Innovative Milieux” and sustainable development of agriculture. The quantitative and qualitative analysis conducted in representative groups of the stakeholders from South-East European countries in the strategic sector of agrofood highlighted the mechanism and its specificity for creating an innovative system.

The processed questionnaires sent to representative stakeholders from the mentioned projects have revealed the conclusion that their companies intend to increase their collaborative efforts with private and public companies / organizations from adjacent sectors and also up or down the value chain.

Collaboration can take many forms. One of the pilot actions, coordinated by the author of this paper, in the framework of ClusterPoliSEE Project illustrated some collaboration strategies for addressing the increased volatility and complexity of the agribusiness value chain, applied to all its stages. The foresight exercise made by this occasion proved some of the collaboration advantages: greater visibility along the supply value chain; greater security of involved partners; possibilities of costs reducing; promotion of new skills, resources and innovation.

Taking into consideration the future challenges related to population growth, climate changes, economic, political and societal transformations the agribusiness has the chance to remain a major and attractive economic sector which has to be sustained continuously by an innovative approach.

## References

1. Arnold E., Bell M., (2001),” Some New Ideas About Research for Development”, Technology Policy Research, UK
2. Guth M., Coșniță D., (2010), Clusters and Potential Clusters in Romania – A mapping Exercise -, GTZ Report
3. Levidow L., Birch K., Papaioannou T., (2012), “Divergent Paradigms of European Agro-Food Innovation - The Knowledge-Based Bio-Economy (KBBE)” as an R&D Agenda, Science Technology Human Values 2013 38: 94 originally published online 30, March 2012, DOI: 10.1177/0162243912438143, <http://sth.sagepub.com/content/38/1/94>
4. KPMG INTERNATIONAL, (2013), “The agricultural and food value chain: Entering a new era of cooperation”, <https://assets.kpmg.com/content/dam/kpmg/pdf/2013/06/agricultural-and-food-value-chain-v2.pdf>
5. Păuna C. B., (2013), Perspective ale dezvoltării clusterelor din România în context european, Bucuresti, Editura Expert
6. Adriatic Danubian Clustering –ADC Project ([www.adcproject.eu](http://www.adcproject.eu)); IPE & Territorial Cooperation – South East Europe Programme 2007 -2013
7. Smarter Cluster Policies for South-East Europe - ClusterPoliSEE Project (<http://www.clusterpolisees3.eu/ClusterpoliSEEPortal/>); IPE & Territorial Cooperation – South East Europe Programme 2007 -2013
8. Spielman J. D, Birner R., 2008, How innovative is your Agriculture ? Using innovation indicators and benchmarks to strengthen national agricultural innovation systems, Discussion Paper 41, World Bank – Agriculture and rural development