

Krisztina Melinda DOBAY*

Romanian Academy, Iași Branch
dobaykrisztinamelinda@yahoo.com

THE ROLE OF KNOWLEDGE-BASED NETWORKS IN THE SUSTAINABLE DEVELOPMENT OF THE RURAL SPACE**

ABSTRACT

In this study we present some issues regarding the “network paradigm” considered to be nowadays the “third way” for the sustainable rural development.

The sustainable rural development focuses on improving the livelihood in rural areas, respectively on satisfying the economic, social, cultural, and environmental necessities of the present generations, without hampering the chances of next generations to satisfy their needs. The success of sustainable agriculture and rural development depends not only on the individual aspirations, abilities and knowledge of the people, but mostly on the collective actions of the communities, as networks. The analysis of the knowledge-based networks from interdisciplinary approach helps to better understand the human behavior, the lifestyles, the way in which we are living and working together. Ultimately it helps us to identify and successfully overcome the challenges that we are facing nowadays.

Key words: sustainable development, rural space, social network, knowledge, network paradigm.

JEL classification: Q01, Z13.

1. INTRODUCTION

According to Chambers (2002:10), “*development is not movement towards a fixed goal but continuous adaptation to maximize well-being in changing conditions*”.

The development of rural areas is a “wide spectrum” (Florianczyk *et al.* 2009:275) of different exogenous and endogenous factors. The exogenous factors are related to the local activities, geographic and economic position, natural environment and policies. The main characteristics for the endogenous approach to rural development, as mentioned by Lowe *et al.* (1998:11), are:

– the key principle – the specific resources of the area holding the key to its sustainable development; the dynamic force – residing in local initiatives and enterprise;

* Postdoctoral grant recipient.

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– function of rural areas – diverse service economies; major rural development problems like the limited capacity of areas and social groups to participate in economic and development activity;

– the focus of rural development – capacity building (skills, institutions and infrastructure) and overcoming social exclusion.

Over the time, the rural areas changed their economic functions as different countries suffered losses of primary sector employment. Multifunctionality and endogenous factors became the driving forces for rural development. According to OECD (2006), the shift from the old approach to the new rural paradigm is characterized as follows (Table 1):

Table 1
The New Rural Paradigm

	<i>Old approach</i>	<i>New approach</i>
<i>Objectives</i>	Equalization, farm income, farm competitiveness	Competitiveness of rural areas, valorization of local assets, exploitation of unused resources
<i>Key target sector</i>	Agriculture	Various sectors of rural economies (ex. Rural tourism, manufacturing, ICT industry etc.)
<i>Main tools</i>	Subsidies	Investments
<i>Key actors</i>	National governments, farmers	All levels of government (supranational, national, regional, and local), various local stakeholders (public, private, NGOs)

Source: OECD (2006:15).

It is widely agreed that one of the sources of the endogenous development ideas was generated from increasing awareness that a conserved countryside must be socially viable and dependent on the vitality of rural communities. Thus, “the sustainability concept seeks to bridge not only the conventional divide between economic development and environmental protection but also embraces the viability of localities and communities on which the maintenance of both the environment and economic activity ultimately depends” (Redclift and Norgaard, cited by Lowe *et al.* 1998:12).

The “sustainable development” concept was introduced for the common use by the Brundtland commission in 1987, and defined as “meeting the needs of the present without compromising the ability of future generations to meet their own needs” and, also, as “a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations” (Brundtland, 1987).

According to Newman and Dale (2006), due to the complexity of the sustainable development issues, communities from rural areas “find it a struggle to adequately engage the issues at hand”.

But how can we overcome the more and more complex development issues?

2. CONCEPTUAL EVOLUTION STAGE

One of the main powerful means of distributing knowledge that can help the communities to overcome development issues are the networks. The network concept is considered to be “one of the defining paradigms of the modern era” (Kilduff and Tsai, 2003:13) as in fields like sociology, anthropology, biology, linguistics and physics, it has been “repeatedly invoked” for more than a century. In its simplest meaning, a network may be defined as an interconnected system of things or people. A social network is a structure comprising nodes (usually individuals or organizations) that are held together by one or several types of ties-relations (values, visions, ideas, friendship, financial transactions, trade, etc).

Let us see what kind of knowledge we are speaking about that can be distributed through networks.

From antiquity, different meanings for the term “knowledge” were identified (Bettina, 2006:10):

- *Episteme* – knowledge about common and collective agreements; concrete knowledge about something which can be easily passed to the next generation;
- *Techne* – ability or practical capacity, knowledge about how to handle tasks and exercises;
- *Phronesis* – intuitive knowledge like wisdom, which is combined with personal experiences and with a specific social attitude, which cannot be easily passed to other people;
- *Métiers* – knowledge which is based on personal experiences and social practices, a specific type of cleverness and individual brilliancy, developed by a person in a specific context; cannot be easily passed to other persons.

Bruckmeier and Tovey (2008:268) consider that there are three different forms of knowledge which influence sustainable rural development:

1. scientific knowledge – is characterized by the logics of abstraction, generalization and universalistic thinking, but from the sustainable development approach it is more likely expert or technological knowledge;
2. managerial or organizational knowledge – might be management of natural resources; management of policy programs including the co-ordination of actors and institutions, management of processes of change and development aiming at integrated and sustainable development;
3. local or lay knowledge – might include traditional skills or practices, indigenous cultural understanding of natural and social processes, experiential knowledge built on experiment and observation.

From the social network analysis approach, tacit knowledge – understood as the sort of knowledge that we use to manage our interactions with other people and is created through the normal processes of socialization as knowledge held by the members of the society – is the most significant in its effect on local cohesion and trust. According to Khan, Rifaqat and Kazmi (2007:5) “trust creates social cohesion and gives meaning to and sustains the network”. Trust is increasing according to the number of connections one has, as people gain knowledge about others. In the

same time, “trust allows us to form relationships with others and to depend on others especially when we know that no outside force compels them to give us such things” (McLeod 2011).

Economic transactions also require trust, which is not generated by the transactions themselves but “originates in the social relationships and social networks which surround these” (Bruckmeier and Tovey 2008:273). Some authors (i.e. Millar and Choi 2009) distinguish “sub-networks” as smaller groups within networks which are characterized by shared norms; these sub-networks provide the basis for the creation, sharing and the transfer of tacit knowledge, also having high level of trust.

Lay knowledge is knowledge about “objective reality” and it is considered to be local type knowledge because refers to empirical knowledge about natural processes and local eco-systems or how to produce a certain “craft” like a local meal, pottery, cultural activities etc.

3. MATERIAL AND METHOD

From the methodological point of view, the study is based on two types of approaches. The first approach is theoretical and is based on information collected during the inventory regarding the conceptual definitions of sustainable development, knowledge, network, social network and knowledge-based networks. The second approach is based on intervention type research and on observation. The case study is build up on personal observation of the regional organic honey sector for more than six years (2001–2007). In this period of time, the intervention type research consisted in implementing projects with complementary topics (promoting marketing associations, promoting organic farming) targeting mainly the same area (the North-East Development Region of Romania, with high focus on Bacău County).

4. RESULTS AND DISCUSSIONS

For farmers it is very important to be part of a group/network because, in the global economy, the lay knowledge is not always enough to ensure economic efficiency and competitive advantage. Being member of a group, usually more likely a sub-network, they do not have to assume the risk of innovative technologies individually. “While the technology is being tested on his/her farm, the farmer will be able to turn to the group for help if needed. ...An indirect benefit of working within groups is that members are able to select within their own ranks the people are most likely to accept and to be willing to assume the risk of the technology” (de Haan 2001:73).

The benefits of knowledge-based networks for farmers and, generally speaking, for the sustainable rural development are important. For a better understanding of these benefits for the rural areas, we present a case study on this issue.

Umbrella type sub-networks. Case study: Organic beekeeping in Romania

Romania has a long tradition in beekeeping due to the varied flora and a favorable climate. According to the specialists from the Ministry of Agriculture and Rural Development, the natural potential of Romania ensures conditions for at least 2 million bee families (in 2008 there were 1,109 million bee families). The absence of industrial development at the foothills of the Carpathians Mountains and the history of using few chemicals in agriculture makes Romania a relatively easy country to certify organic production.

The number of organic certified beekeepers is constantly increasing each year. While in 2006 Romania produced 1242 tons of organic honey, in 2008 the production reached 2650 tons. The exports of organic honey increased from 755 tons in 2006 to 1280 tons in 2008.

In 2008, there were 588 beekeepers who were certified for producing organic honey, as presented in Table 2.

Considering the number of certified organic beekeepers per counties, we can notice that the most active are Mureş, Bacău, Braşov and Alba counties. Although, in each county of Romania there is a formal association of beekeepers (ACA), as branch office of the National Beekeepers Association, their activity depends on the personal abilities and skills of the managers from each county and on the willingness of the members to co-operate.

One of the main reasons for the development of organic beekeeping in Bacău County, for instance, was the opportunity arising from the implementation of several projects funded by different international donors. The personal skills of the ACA manager, who is also Professor with Ph.D. Degree in Biology possessing scientific knowledge, and with high abilities in interpersonal relationships, made it possible all the interventions in that particular area. Initially, a demonstrative plot for organic beehives was established – 10 beehives; brochures were elaborated and distributed on the technology of producing organic honey and training courses on organic apiculture were initiated (World Bank and Ministry of Agriculture and Rural Development funded project); then a honey processing and wax producing company was established (Romanian Social Development Fund) followed by a first project on certifying beekeepers under umbrella certification for ACA members and providing technical assistance (USAID-MASHAW project). Finally the USAID project “Romania Agribusiness Development Activity” (USAID, 2007) helped the beekeepers providing support for a larger number of beekeepers for obtaining organic certification (2.500), facilitating access to international trade on organics (BioFach) and building up facilities for processing and bottling organic honey.

In this case, an informal sub-network of beekeepers was created, which developed from about 30 members, up to 2,500 members in less than 5 years. For the organic movement it was a significant achievement.

Tabel 2
Organic honey producers per counties

County	Number of certified organic beekeepers
Alba	45
Arad	19
Argeş	10
Bacău	62
Bihor	15
Bistriţa-Năsăud	16
Botoşani	7
Braşov	60
Braïla	–
Buzău	1
Caraş-Severin	2
Călăraşi	6
Cluj	5
Constanţa	6
Covasna	–
Dâmboviţa	7
Dolj	9
Galaţi	3
Giurgiu	–
Gorj	21
Harghita	20
Hunedoara	38
Ialomiţa	–
Iaşi	8
Ilfov	–
Maramureş	5
Mehedinţi	1
Bucharest municipality	–
Mureş	79
Neamţ	5
Olt	1
Prahova	10
Satu Mare	6
Sălaj	17
Sibiu	11
Suceava	35
Teleorman	–
Timiş	2
Tulcea	33
Vâlcea	1
Vaslui	8
Vrancea	10
TOTAL	584

Source: Tanasă *et al.* 2010:174–175.

As a network, it combines both bonding type ties (the beekeepers) and bridging type ties (vertical integration with other “actors” from the supply chain – producer, certifier, processor, distributor and buyer).

5. CONCLUSIONS

Networks are a powerful means of distributing knowledge and increasing access to different type of resources. In the meantime, knowledge-based networks have an important role as territorial cohesion factors. Here are some arguments for considering knowledge-based networks territorial cohesion factors (Karlsson and Johansson 2004):

- regions are increasingly regarded as the important nodes of innovation, production, consumption, trade and decision-making;
- innovation is a localized process and innovation systems tend to be bounded within functional systems;
- exchange of complex knowledge demands face-to-face interaction;
- people interact in close geographical proximity;
- geographical proximity strongly influences the durability of interaction links by reducing the costs of maintaining them.

Sustainable development is facilitated by maintaining diverse and active knowledge-based networks.

Maintaining complex and active networks is vital in sustainable development because (Newman and Dale 2007:81):

- are multi-scaled and have connections to broader level of society;
- are constantly evolving requiring flexible and open engagement process;
- require deliberately designed trans-disciplinary processes involving experts, government and local stakeholders.

The “network paradigm” in rural development means bridging endogenous and exogenous approaches. The “third way” provides a “dynamic and flexible structure to integrate the internal and external factors that will promote greater innovation and improved rural development even in remote areas” (Nemes 2005:8).

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