

# Bottom-Up Rural Development Movements to Support the Industrial Revolution 4.0 in Agro-Industry

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## Abstract.

At the age of globalization rural areas seem to be disadvantaged comparing with successful city regions. In order to catch them up, different development programs were implemented in many countries. Top-down approaches in many cases can't improve their situation, on the contrary the dependency rate was growing. At the same time there is an old tradition of "homeopathic", bottom-up movements to mobilize local hidden resources and reach an autonomous development path. Industrial Revolution 4.0 causes new challenges rural regions must face. Experiences of former development programs can constitute a proper background for future steps. In the recent article the institutional background of a European success story (the LEADER program) is examined. With the comparison of the South Korean "Saemaul Undong" some key points can be highlighted that can make future rural agro-industrial programs successful. Nevertheless the diversity of rural areas makes difficult to give one global recipe, accordingly rather general principles than specific program steps can be argued.

## 1. Introduction

Since population explosion, energy crisis and climate change mean complex global challenges for mankind a multispectral solution must be used. Agro-industry must be suited to the new circumstances as well in order to secure healthy and plentiful nutrition for mankind. Additionally new technologies must be environmentally sensitive and accessible for broad masses of people. The creation of transparent flow of information "from the field to the table" is an integral part, and the active participation of people in this processes is crucial to successfully create Food Citizenship and Food Democracy. (Kinsey, J. 2001; Wilkins, J.R. 2005; Latino, M. – Corallo, A. – Menegoli, M. 2018).

On the one hand the solution is a technical-technological one, but on the other hand economic, social and cultural dimensions must be taken into consideration as well. It might be represented by a multi-level socio-technological regime (Figure 1). Technology, policy, society, science and market conditions are equally relevant in this process.

As experiences of the former agrarian reform movements in the 20<sup>th</sup> century (Figure 2) (PTD: Participatory Technology Development; FSR: Farming System Research SLA: Sustainable Livelihoods Approach; PRSP: Poverty Reduction Strategy Paper) suggest, rural areas are diverse and the local "non-academic" knowledge must be integrated to the systems of management. (Craig, D.C. – Porter, D. J. 2003; Zahumensky, Y. 2014).

Figure 1: Different parts of a regime of social development (Geels, F. 2011)

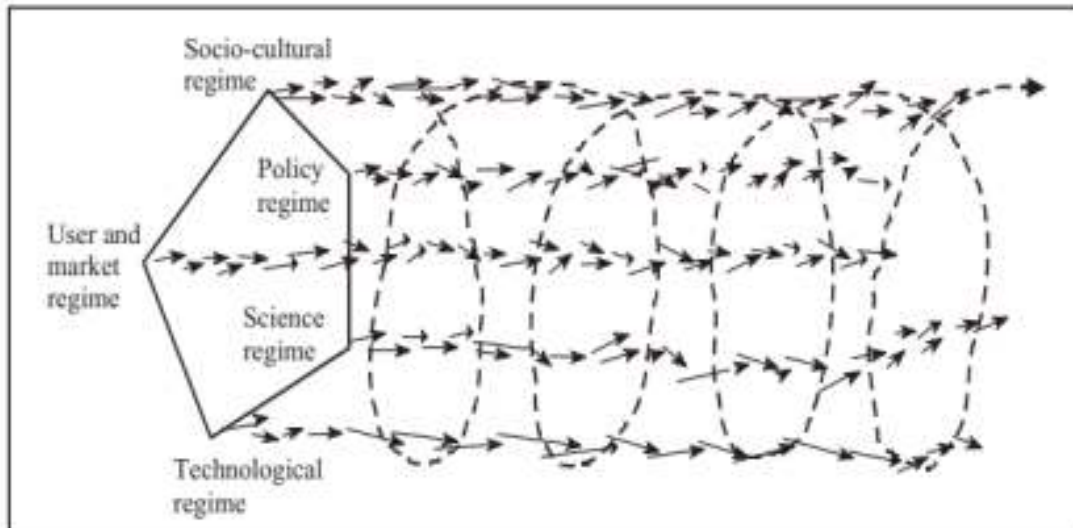


Figure 2: Rural development buzzwords and models from the last decades (PTD: Participatory Technology Development; FSR: Farming System Research SLA: Sustainable Livelihoods Approach; PRSP: Poverty Reduction Strategy Paper MDG: Millennium Development Goal) (Author's edition based on www.fao.org)

	1950	1960	1970	1980	1990	2000
<b>Basic concepts</b>	Agriculture lagging behind Dual economy Role of agriculture in growth Green revolution and technology State-lead development Establishment of innovations FSR PTD Gender Market and prices NGO development, sustainable dev. Micro-credit Poverty, social net					
<b>Models of rural development</b>	Community dev. SME dev. Integrated rural development Market liberalization Participation SLA PRSPs MDGs					

Spatial approaches must play decisive role in the success of rural development as it can mobilize additional, sometimes hidden local resources. Even in case of basically agricultural development objectives territorial tools such as growth corridors, clusters, agro-industrial parks and special zones or incubators can be decisive. (Nogales, E.G. – Webber, M. 2017)

A territorially oriented development program can be really successful and sustainable if the local community is involved from the phase of planning to the implementation. Accordingly governance issues are crucial in the form of public-private-partnership (the co-operation of public funds and private ones) or of the broader involvement of local inhabitants. Governance can be described as a shared policy/program/project creation and implementation of different actors belonging to

the public (central and local authorities), private (local and multinational enterprises) and civil (non-government organizations) spheres. The certification of a balanced power exercise is an inclusive characteristic of governance too. Governance includes basic principles such as accountability, fairness and transparency. According to literature four governance pillars can be differentiated: accountability, participation, predictability and transparency. (Nogales, E.G. – Webber, M. 2017)

It is hard to overestimate the role of the creation of locally-based governance systems, but as many program experiences prove in practice it is difficult to actively involve huge masses of people. However there are different technics of social engineering to mobilize communities, success is not guaranteed by the mechanic use of them. (Barlow, C. 2016) Active local participation is doubtful unless key local actors (“gatekeepers”) are enlisted. (Stanfield, P. 2012) A well-balanced territorial, symbolic and institutional arrangement is needed to help the case, additionally local initiatives should have a well-established role in order to make local initiatives successful. (Paasi, A. 1996)

In our recent article some bottom-up rural development movements will be implemented. The main emphasis will be put on the European LEADER initiative.

Firstly the short history of the movement will be presented in a nutshell, secondly a brief analyses is provided to describe the institutionalization of units implementing the program. The results of a questionnaire research aiming to map governance trends in Europe will be provided.

Additionally a short description will be provided on the Saemaul Undong movement of the Korean Republic in order to find similarities and differences between the European and the Asian programs. Finally a short conclusion will be provided how to use previous experiences to make agro-industrial revolution more successful from a social point of view.

### **The EU LEADER approach**

In the European Union the Common Agricultural Policy (CAP) from the middle of the 1990s is aiming to support a triple system of objectives. Agriculture as one main economic branch is still an important rural activity, but beyond it other economic functions (industries, services and tourism) are relevant too. Additionally agrarian environmental management, the practice of organic crop production and animal husbandry should be spread in vulnerable natural landscapes. (AEIDL, 1997)

In order to set up a fine-tuned rural land use and sustainable socio-economic landscape, the use of local knowledge and the mobilization of local stakeholders is a must. The LEADER (Liaison Entre Actions de Développement de l'Économie Rurale – “Actions for the Development of Rural Economy”) initiative was funded at the beginning of the 1990s in order to promote bottom-up development processes in rural areas. At the first stage it was a community initiative as it was co-ordinated and managed by the European Commission. In the first decade of its history only some special rural areas could join the program. After 2000 the scope was broadened to every rural zones of the EU. Statistically rural was defined as municipalities with less than 10.000 inhabitants or with a population density less than 120 cap/km<sup>2</sup>. (Fekete, É. 2013)

Table 1: The four phases of the LEADER program in Europe

NAME	LEADER I	LEADER II	LEADER+	LEADER CAP	LEADER /CLLD
Period	1991-1993	1994-1999	2000-2006	2007-2013	2014-2020
Source	1,2 billion Euro	5,37 billion Euro	5,1 billion Euro	8,9 billion Euro	9,4 billion Euro
Recipients	217 LAGs (State, private and mixed organizations)	906 LAGs	1153 LAGs	2416 LAGs (in areas with strong fisheries sector FLAGS)	2600 LAGs
Areas	Objective 1 and 5b areas, 5.000-100.000 cap. population	Objective 1 and 5b areas, 5.000-100.000 cap. population	All rural areas, population 10.000-100.000 cap. population density less than 120 cap/km2	All rural areas, national differences in eligibility	All rural areas, national differences in eligibility

Source: ec.europa.eu

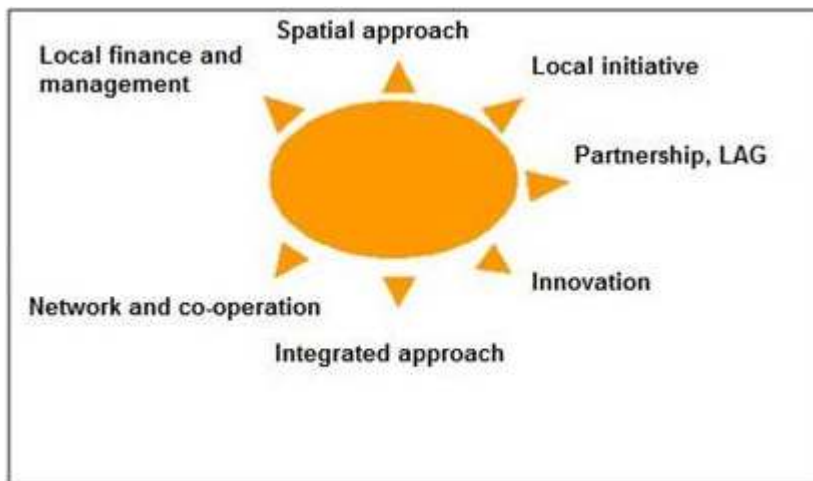
In the period of 2007-2013 it became an integral part of „Rural development” integrated by the EU Common Agriculture Policy. (Table 1) Its main aim was to motivate and help actors of rural development in thinking together and in the realization of a sustainable, integrated and innovative development strategy.

There are different national circumstances and ways of implementation, but the principles (see below!) and the main institutional background are the same everywhere. The LEADER program is based on so called local action groups (LAGs). An LAG is a compound of local municipalities, non-governmental agencies, local enterprises and even inhabitants. Their composition should mirror the composition of the local society. The action group must have a legal form (e.g. association) consequently they owe an assembly where all member may participate and a tighter decision-making body (council) with elected members. In general a LAG bureau or agency exists as well for the implementation of day-to-day administrative tasks. The officially recognized (by the national government and the EU) local action groups will have the right to distribute financial resources originated from the EU and the government to local applicants through locally managed tender scheme. (Lukesch, R. 2007)

The broad framework of the LEADER approach is determined by the EU in the form of seven key principles (Figure 3). The area-based character means the creation of socially cohesive micro regions integrating more villages or small towns. Their boundaries should not coincide with administrative lines, but these should rather be functional. Local partnership must contain actors from different spheres (authority, civil, private) but at decision making institutions none of them can have 50%+ majority. Bottom-up approach is based on the philosophy that local people know their natural and socio-economic environment the best and in a form of participatory democracy they must have the possibility to form their future actively. Local management is based on the virtues of proximity, namely that decentralised management can be more efficient with decreasing transaction costs and faster reacting possibilities. The integrated approach refers to the integration of the objectives of different sectors in the rural development plan of the LAG. Networking is another crucial aspect of the LEADER approach as local action groups should cooperate with different development institutions at the local, regional, national and

international level. The innovative character reveals the importance of rediscovering local resources and the harvesting of them in new ways.

Figure 3: Key principles of LEADER-type rural development approach (FVM, 2005)



Some key aspects of the LEADER action groups

As LAGs are spatial units it is important to introduce the geographic and demographic size of them. The official EU and national regulations contain only a minimum and maximum threshold. In reality their size varies to a great extent. (Patkós, Cs. 2013)

To appreciate the size of LAGs is not obvious, since the spatial scope in theory is depending on the population density of the regions. From this point of view Western European countries should have smaller action groups, Nordic and Eastern Central European member states should have bigger ones.

Minor LAGs on the one hand are more transparent and more flexible and resilient, but on the other hand they can lack the so-called critical mass needed to secure own resources and provide lobby for upper authorities.

Local action groups in ideal circumstances are active in many functions. The first activity is planning resulting the elaboration of an integrated rural development plan for medium term (3-7 years). (Lukesch, R. 2007)

Development objectives of LEADER action groups are pending on local circumstances and decision, but some typical areas might be found in different EU member states. (Figure 4 and 5) The support of local farmers in the procurement of state-of-the-art is a prevailing aim, but the main emphasis in general is put on the diversification of economic activities to non-agricultural branches. Accordingly rural tourism and handicrafts are supported to a great extent. The production and sale of local products and food is relevant in many cases. In the latest years the support of renewable energy harvest and local anti-climate change activities became popular issues among LAGs. (Patkós, Cs. 2013)

Beyond the creation of development concepts a relevant task of the LAG is the facilitation of the local society. A continuous connection building with actors of the local society is urgent in order to find ideas and local resources for development.

Recognized local action groups have the right to issue local project tenders, consider applications and make decisions on who to win financial support. Through these activities local actors can control different financial resources consequently they are empowered. (Lukesch, R. 2007)

Figure 4: The average size of LAGs in the different EU member states in 2007-2013 (Author's edition)

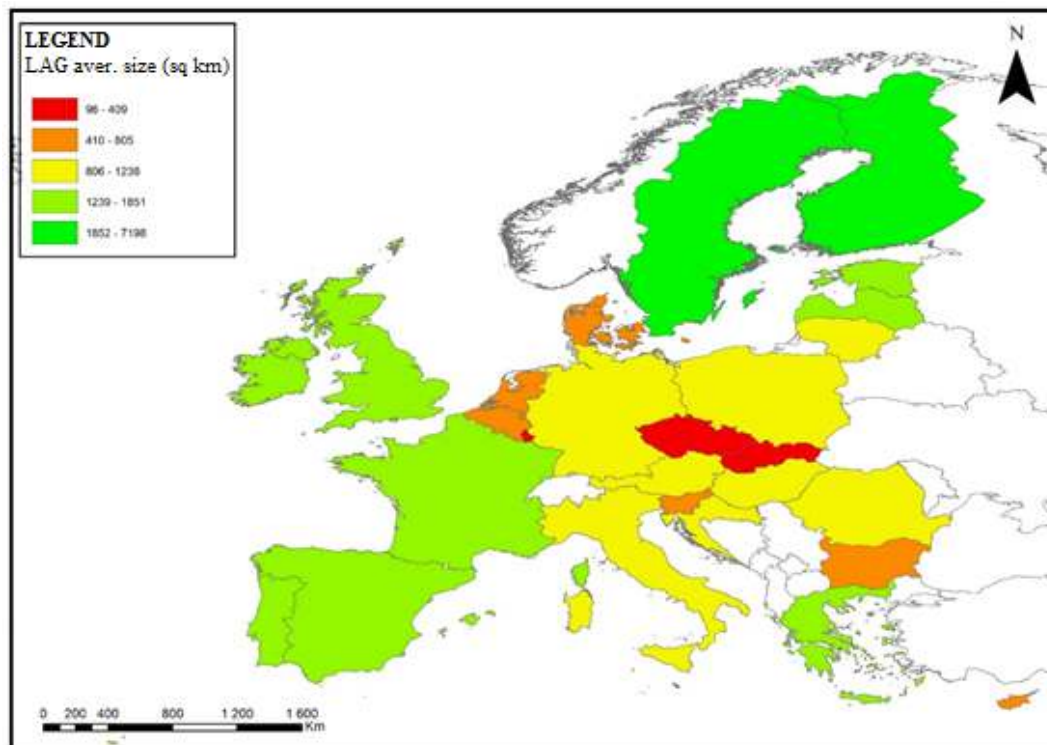
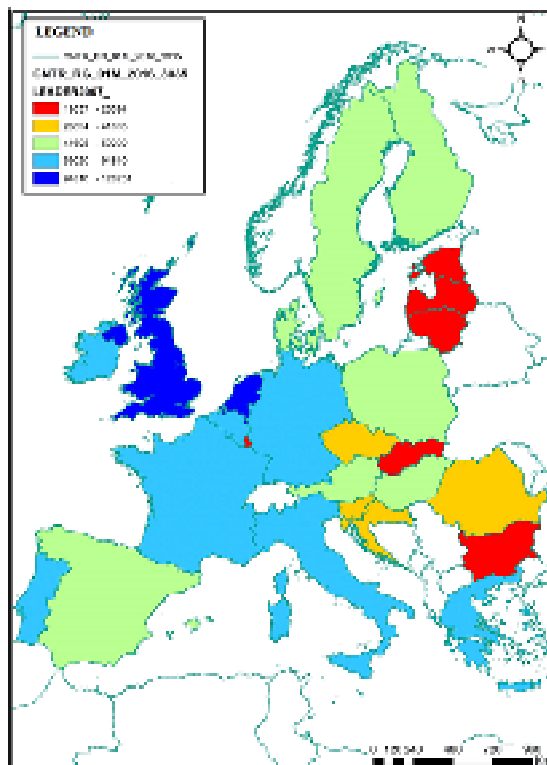


Figure 5: The average population of LAGs in the different EU member states in the 2007-2013 period (Author's edition)



Well-institutionalized and well networked LAGs may raise external (private investment or non-reimbursable subsidies) funding for the micro region as well. As networking is one key principle of the LEADER program, action groups should cooperate with external players. (Finta, I. 2014)

These diversified activities are run by a relatively small administrative body as the average staff number was 2-5 people/LAG. Of course this limited headcount is insufficient to successfully realize these multi-fold tasks. An action group can be really successful and productive in case of active governance circumstances. Governance is a key character of the success of local action groups and it can be positioned in an eight grade scale. (Lukesch, R. 2007) (Table 2)

Table 2: Eight grades of governance

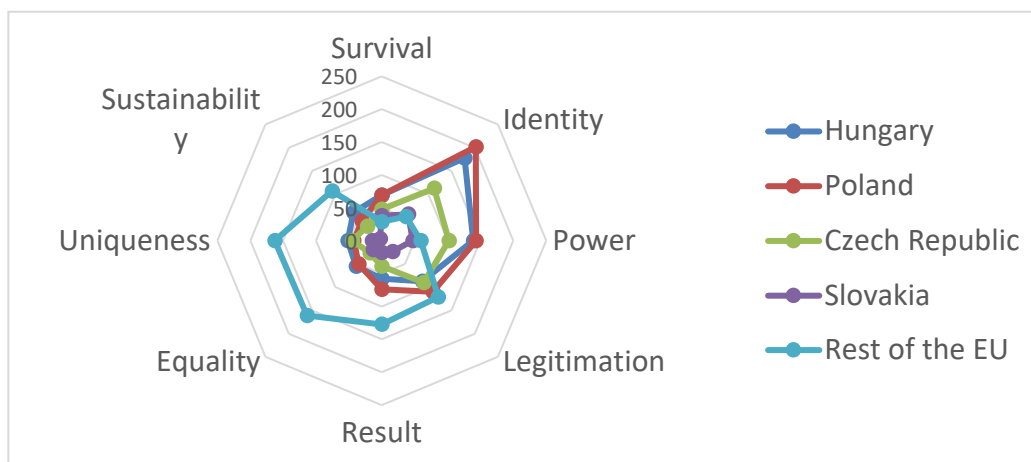
Level	Key word	Form of leadership	Main LAEDER principles
1	Survival	Sustenance	Context not appropriate for LEADER
2	Identity	Allegiance	Area-based approach
3	Power	Charisma	Bottom-up approach
4	Legitimacy	Planning	Partnership
5	Result	Competition	Multi-sectoral integration, innovation
6	Equality	Conciliation	Bottom-up approach, partnership
7	Uniqueness	Strategic vision	Multi-sectoral integration, networking and cooperation
8	Sustainability	Shared responsibility	Networking and cooperation, decentralized management and financing

Source: Lukesch, R. 2007

An on-line questionnaire was sent to a sample of European local action groups active in the 2007-2013 period, containing the “forms-of governance” (FOG) test questions elaborated by Robert Lukesch. Totally 740 questionnaires were sent and 0-60% answer ratio was reached from the different member states. The Central and Eastern European countries (Czech Republic, Hungary, Poland and Slovakia) were examined separately as they have weaker civil society and joined the EU relatively late compared with the majority of EU member states. Consequently their action groups had less time to be formed and to build governance capital.

We may see that the relative latecomer Central European local action groups are at a relative lagging-behind position in the field of governance comparing with the rest of the EU. (Figure 6) It can be explained by the socio-economic backwardness of the region or by the shorter life-span of their LAGs.

Figure 6: Differences between the level of governance among the Central European countries and the rest of the European Union (Author’s edition)



Saemaul Undong, an Asian success story

The history of the South Korean “Saemaul Undong” (New Village Movement) is rooted in the 1920s when rural community development initiatives were started by the

colonial government (You 1986). In 1927 American YMCA members the 4H Club (Head, Heart, Hand, and Health) aiming to support rural infrastructure and environment. (You, T. 1986)

In 1948 two important national institutes were funded in the Republic of Korea, the National Agricultural Cooperative Federation and the National Fishery Cooperative Federation. These are working nowadays and support financial resources for national agrarian projects. After the Korean War the United Nations helped a pilot program (from 1958) of rural development with more than 2000 joining villages in order to improve agricultural technology and local institutions. Similar programs were generated under the umbrella of the Six-Year Rural Development Plan (1966–1971) in order to rise the income of rural population. (Asian Development Bank, 2012)

At the beginning of the 1970s president Park Chung Hee announced the rural renewal program of the Korean Republic with varied objectives, such as setting up rural democracies, growing incomes of rural households and modernizing agriculture. The whole process was aiming to mobilize hidden resources, such as labour and in this way empower rural communities. The main sources of development were the mobilized local ones, the central government provided only additional financial support. The success of the program was supported by a set of principles, such as diligence, self-help and co-operation, the so-called “Saemaul Spirit”. The basic unit of the program were villages (maul: a small settlement with an average 50 households) from them more than 30.000 joined the movement. (Park, S. 2009)

During the program implementation different objectives were realized according to the categories of villages. In order to emphasize the comparative advantages of different natural conditions five types of mauls were specified by geographic position (Asian Development Bank, 2012):

- open-field villages,
- hillside villages,
- mountain villages,
- fishing villages,
- suburban villages.

Different project packages were created to the villages of the above five types, but special local traditions were taken into consideration as well. In each groups thematically various projects were implemented, such as the building of basic infrastructure, environmental improvement (afforestation), agrarian developments (the introduction of new species, mechanized farming), the diversification of economic activities (Saemaul factories). Beyond tangible project results the intangible mental and spiritual benefits were important. In a disadvantaged village environment a “we can do it” spirit was permeating. (Reed, E. P. 2010)

As the movement was a nationally tailored one, the Ministry of Home Affairs of the Republic of Korea took the central control on administrative guidance, technical assistance and monitoring. Locally two institutions were created to managed development processes. While in the general meeting all village members could join, the development committee consisted of 15 members. (Asian Development Bank, 2012)

From an institutional point of view the main achievement of Saemaul Undong was the flourishing of social capital thanks to the introduction of forums and general village meetings. The real success occurred when the activities of local residents met the support of local and central administration, enterprise leaders, the academic



sphere, education experts, church members, etc. namely conditions of good governance could evolve. (Yang, Y. 2015)

The program concentrated on the local level, where inhabitants had the right to elect their “Saemaul leader”. At the same time applicants had to fit to strict conditions, such as (Asian Development Bank, 2012):

- Their place of birth had to be at the village
- They had to be committed to rural development and democratic way of thinking
- Have vocational school qualification in agriculture or fisheries
- A general habit of “Saemaul Spirit” (co-operation, patience, diligence)
- Have an innovative and creative attitude
- Good physical and health conditions
- Have the ability of self-reliance

The balance of male and female local leaders was a crucial issue to involve members of both genders. Furthermore, among Saemaul leaders, young people were over-represented comparing with the composition of traditional village officers. (Kap-Jin, C. 2012)

The support for local Saemaul communities from the central level was manifold. Beyond administrative and financial support (favourable loans) education in community development and different specialties were frequent. Comparing with the similar European processes Saemaul Undong was unique in supplying villages cement and iron rods for constructing. (Asian Development Bank, 2012)

## **2. Conclusions**

The shift towards agri-industry 4.0 is a rather complex process containing technical, political, social, cultural and economic features. In the previous decades some successful rural development movements were implemented to advance significant changes related to the socio-economic conditions of the countryside. In Europe the LEADER approach was founded a quarter century ago and was able to function in the different EU member states with improving economic conditions, basic infrastructure and the environment. Behind its success the complex – principle-based – institutionalization can be found. Local action groups of the LEADER program work as micro-regional hubs transforming social, financial and natural resources into local development projects, keeping management functions locally. The LEADER approach can realize tangible and non-tangible objectives and projects as well. Local actions groups can be really successful if already existing institutions and spatial units are used as building blocks in their creation.

Some decades earlier in the Republic of Korea the national Saemaul Undong movement was aiming to help rural areas lagging behind. Its success can be explained by similar factors with those of the LEADER. The mobilization of people and the empowerment of local communities helped the achievement of multiple objectives: economic development and diversification, infrastructure building, community organization etc. The vindication of local natural and social conditions during planning and implementation was crucial as well.

A major difference between the two programmes was their territorial scope. On the one hand Saemaul was concentrating on single villages and on the other hand the general LEADER spatial unit contained more settlements. The former one could

built on community power of micro communities and the latter one on the bigger mass of resources.

The success of these development approaches is proven by the fact that after the first years both of them were extended to other areas (the LEADER in the form of CLLD to urban areas and to new Central European member states and Saemaul Undong to different emerging and frontier countries. These methods can help in the creation of agro-industrial revolution 4.0 in a sustainable and socially inclusive way.

## Acknowledgement

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