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The main bottlenecks of the rural technology transfer in Romania[1]

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1. Introduction

Romania as New Member State prepares his national rural development strategy for 2007-2013 on the basis of the community strategic guidelines, proposing the allocation of the financial means of the EAFRD as following:

- improving the competitiveness of the agricultural and forestry sectors (45%);
- improving the environment and countryside (25%);
- improving the quality of life in rural areas and encouraging diversification (30%)
- and building local capacity for employment and diversification (2.5%).

We try to discuss the assessment of the rural development measures' goodness of fit to the previously identified domestic needs. We appreciate a measure as convenient if conduces to advance towards the European Model of Agriculture, to sustainable rural areas.

Can be understood as an attempt to outline a benchmark or a target situation, which finds a balance between efficient and sufficiently profitable farming structures, the achievement of certain standards with regard to product and environmental quality, the embedding of farming in rural society, and a simple and transparently administered policy (Sedic in Petrick and Weingarten, 2004). The main problem for Romania is how to reach the target situation from the present starting point.

In the present study we will present in detail the appropriateness of the measures „Training, information and diffusion of knowledge" and „Support for semi-subsistence agricultural holdings", as well as the main bottlenecks of knowledge-based rural society and economy in Romania. The new rural development policy provides a unique opportunity to support growth, jobs and sustainability in rural areas and it is important to use efficiently this possibility.

2. General aspects of Romanian rural economy

2.1. Duality of structure of farms

Romania's rural economy is dominated by agriculture which predominant feature is the high share of subsistence farms, mainly producing for their own consumption and only marginally for the market. Because of the domination of this form of agriculture the rural economy remains poorly integrated into the market economy. Subsistence farms hardly have other income sources and as a consequence the well being of rural population depends mainly on the farming profitability. The development of rural areas is being inhibited due to the poor infrastructure, gaps in service provision, shortage of off-farm employment possibilities and lack of training facilities. In the last decades the trans-border seasonal ("come-and-go") commuters (circulatory migration) of the younger labour force to abroad created a new social and economic problem. The circulatory migration for work abroad of rural inhabitants is considered to have a favourable impact on the living standard in rural areas but on short term, because most of these persons invest their earnings in durables. Very few invest their earnings to set up a business. The financial resources transfer to country, the changes in mentality and the increases of interest for the technical progresses are positive impacts, but there are a lot of negative impacts for the medium- and long run, mainly for the youngest generation.

The fact that on the one hand Romania's rural economy is characterised by agriculture which predominant feature is the high share of subsistence farms (about 95% of holdings are smaller than 5 ha), and on the other hand about 47% of the UAA are in farms over 100 ha managed by specialists, imposes a complex approach of the Romanian rural technology transfer, and mainly of the training problem.

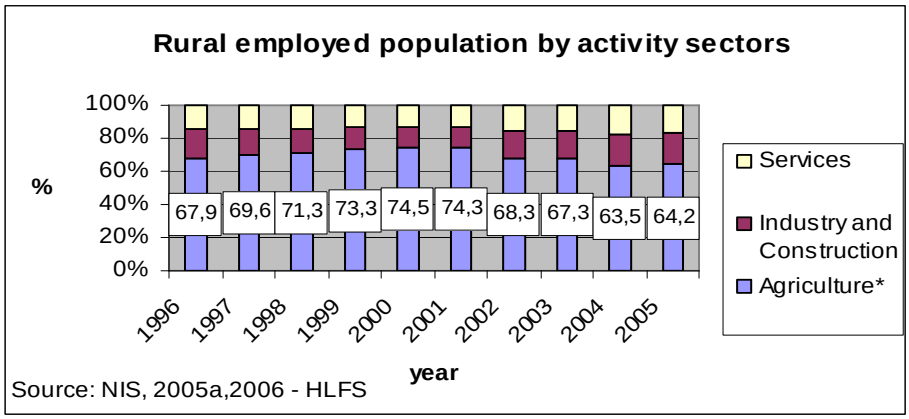
2.2. Romanian rural labour force and employment situation

Romania's objectives regarding employment by 2010 are the following: employment rate 58.8%, unemployment rate 6.4%. The target employment rate of the 55-64 age group is 43,3% (National Reforms Program, 2006).

The Romanian rural areas, defined by the national legislation as areas belonging to communes and to the periurban areas of towns and cities cover 87.1% of the area, and 45.1% of the population (about 9.7 million inhabitants) live here. In 2005 the average employed population in rural areas was 4.26 million persons. The age group 15-64 years represented 89.7% of the rural employed population.

The situation of employment in *rural areas* was in 2005, the following: 61.6% employment rate of persons aged 15-64 years, 55.5% employment rate of the labour force aged 55-64. We observe that the employment rate of the rural population aged 55-64 years already exceeds the level set for 2010 but the situation in reality is not as good as it looks in numbers, because the vast majority of these persons is underemployed in agriculture (88%).

Fig. 1.



data referring to agriculture include also forestry and hunting

Analysing the employment by status in employment, we observe that the "self-employed" are the largest category. Almost all self employed (about 92%) work in agriculture. The share of "unpaid family workers" is quite high as well, and most of them work in agriculture. Only about 6% of the rural agricultural employed population had a second income bringing job, besides the main activity. Employees are the second category, by size, and most of them have non-

agricultural jobs. The main job of most of these persons is full time and in non-agricultural business sectors (industry and construction about 40%, services about 38%). The second income bringing activity is agriculture for about 95% of them (NIS 2006).

The private initiative of the rural inhabitants, represented by the share of employers, is very low, below 1%. The number of SMEs in rural areas was quite constant (64 thousand) between 1998-2005. This means 9 SMEs/1000 rural inhabitants, which is much lower compared to urban areas (20 SMEs/1000 urban inhabitants). There have been taken measures to create conditions for more and better jobs and effects of these are expected to show up in the near future. For example, the amount of time necessary to register a new firm has decreased to 3 days in general. The non-salary labour force costs (taxes) have started to reduce, but they are still high and do not motivate employers enough to create new jobs (Dumitru, Diminescu and Lazea 2004, p. 47)

2.3. Agricultural and rural skill level

Since 1965 until 1990 in Romania has been a positive change in the development of rural education as number of graduates of the secondary and high school, but qualitative differences remained between the educational level of rural and urban areas. In the first decade of the transition period the rural education system has been negatively affected by the renounce of rural commutes of the graduated professors, the shutting of small secondary schools in remote villages and mainly by the lack of interest for learning of the rural children and their families. The relatively young age group do not see the future in farming on only a few hectares, thus they try to find a job in towns or abroad. In the last years the interest for vocational education increased again, because this is an advantage for finding job abroad.

As in most communes and villages only primary and secondary education is available, and the cost of qualification in urban areas became relatively high a bigger share of the young (15-24 years) people are lower educated as their parents. Generally, people involved in agricultural

production have no training and education in this field, and they lack of managerial and business skills. The education system can not face yet the challenges requested in order to diversify the rural economy (Dumitru, Diminescu and Lazea 2004, p. 48).

As a consequence regarding vocational, apprenticeship, post high school and foremen education approximately one third of the young school age population living in rural areas has no access to it, which represents a risk for the human capital development in rural areas for the future. Nevertheless there is an increasing trend in the number of students enrolled in vocational and post high schools both in the urban and rural areas.

3. Demand for tarinigs and agricultural and rural advisory/extension services

At the moment agricultural production is being realised by a high number of producers who lack of professional training. In 2006 there was a high demand for these services regarding both their intensity and diversity. The increasing interest coming from the part of the beneficiaries can be explained by their willingness to improve their professional knowledge of having the possibility to access governmental and European funds in order to be able to create modern and profitable agricultural exploitations. A survey made by the NACA (National Agricultural Consultancy Agency) and its territorial offices (COAC - County Offices for Agricultural Consultancy), the public institution which identifies the needs of different category of farmers for agricultural training, revealed that trainings for improving the professional knowledge of agricultural producers should cover the following topics: arable crops, zoo technology, horticulture, fishery, mechanisation, agro-tourism, forestry.

Demand for trainings organised to continue and improve the professional education of farmers are due to their growing needs for new technological, economic and legal information that helps them to organise, coordinate and evaluate their agricultural activities.

The different EU programmes will bring future possibilities regarding the development of training process through the different trans-border collaborations, the implementation and use of

the experiences of the EU to stimulate innovation. These possibilities are awaited to contribute to spread of best practices in professional training.

At the moment the cooperation between institutions of educational system and private business companies is very weak. There is a gap between the types of skills of what business entities demand and the courses and programs of the educational institutions.

4. Training services

Agricultural and rural advisory/consultancy services, respective trainings in Romania are offered by both the public sector (NACA, COAC and Local Centres for Agricultural Consultancy (LCAC)) and the private sector. The NACA has 41 local offices in each county, whose personnel are advisors and trainers in the territory regarding issues of agriculture and rural development. At the level of towns and villages through the 546 Local Centres for Agricultural Consultancy there is provided rather consultancy than training.

Training courses offered to perfection the professional knowledge of specialists (both from the private and the government sector) in agriculture and rural development were held at county level in collaboration with institutions from higher education and scientific research and NGO's. The courses had/have the following topics: management of the agricultural exploitation; marketing of agro-food products; Romania's accession programme to the EU; information on new techniques, technology and legislation; promotion of organic farming; development of the agricultural exploitations applying to external financial possibilities; association forms in agriculture; presenting the legislation on food security of the population; modalities for elaboration of projects in order to access the European funds.

Trainings for improving the professional knowledge of agricultural producers put accent on practical training and were organised on agricultural exploitations, instructional/didactic and private farms which dispose of adequate and suitable technical equipment, workshops with topics in arable crops, zoo technology, horticulture, fishery, mechanisation, agro-tourism, forestry.

SWOT analysis
Training provision

Strengths	**Weaknesses**
- there is an increasing tendency in demand for continuous professional training activity in agriculture - diversification of agricultural fields where training is provided - implementation of externally financed programmes (PHARE, PHARE-VET, World Bank, SAPARD, etc.) regarding employment, information and training are starting to show their results - the increasing consciousness of beneficiaries intensifies the implication and participation of all training providers	- a rather unstable and incoherent legislation system in the last 10 years - lack of continuous training programmes for adults in agriculture and rural development - lack of financial resources to run the agricultural training programmes - lack of specific material, logistics and of a well prepared human capital - difficult access to external financial resources for agricultural and rural development programmes - lack of infrastructure in the rural areas led to increased difficulties for beneficiaries in accessing different training programmes
Opportunities	**Threats**
- accessing EU funds for improving professional education level in agriculture and rural development - increasing the number of beneficiaries by organising trainings in the more remote areas as well - increasing the involvement of universities in organising trainings in collaboration with NACA - using the experience's collected as a result of the cooperation with international institutions	- lack of proper infrastructure in order to provide trainings in communes, villages (remote areas) - risk of lacking the new techniques and equipment necessary for the implementation of the practical issues of the training courses

Source: *Raport - Agenția Națională de Consultanță Agricolă* (Report – National Agricultural Consultancy Agency), 2006

According to the strategy of NACA establishing the different forms of associations is a priority, as this is one of possibilities of creating viable sized agricultural exploitations, a more economic way of land use, of capital accumulation and competitiveness. By establishing different forms of associations agricultural exploitations have bigger chances in attracting and accessing governmental and European funds. In this respect, the NACA through the Counties' Offices for Agricultural Consultancy and Local Centres for Agricultural Consultancy disseminates the prescriptions and directions given by the framework of law regarding the creation, function and development of the different associative forms in Romania. These institutions offer as well technical assistance and consultancy regarding the training activity and information of the leaders

of the groups and of the technical personnel. They elaborate programmes to exchange experiences between the association forms existing in Romania and that in foreign countries.

5. Extension and advisory services

In Romania since 1998 the extension and advisory services are structured on three levels: the NACA which has small personnel with around 32 specialists, the COAC with about 8 specialists in each county and around 700 at level of communes. The main extension and advisory service providers are the NACA, NGOs, the private sector, input suppliers and processors from the agro-food industry. Clients are both small farmers and those who produce for the market, agricultural associations, input suppliers, traders and processors.

Lack of financial funds in the public sector (travel costs to communes, publishing brochures, making up to date experiments) limits the supply of consultancy services. As a result, in Romania extension and advisory services start being offered in the private sector as well. These companies are predominantly linked to input supply activities that offer agricultural producers new technologies when selling their products without perceiving any additional costs. The private sector had an important role in the development of the agro-food sector, as the majority of projects obtaining financial resources from the SAPARD fund (Measure 1.1 Improving the processing and marketing of the agro-food products and fishery industry) were elaborated by private companies.

The private sector offers services in technical assistance, elaboration of studies and projects, research and development, information related to agricultural production, disseminates information regarding to market prices, sales and legislation. Beneficiaries of private sector consultancy services are predominantly commercial companies and agricultural associations and to a lesser extent individual farmers.

The number of NGOs offering consultancy services in rural areas is around 730 and they are present in each county. They offer consultancy regarding the association of farmers in animal

breeding, food processing, food industry, arable crops, as well as activities in protection and preserving of forests, soil, water. The personnel of the private companies and NGOs are around 1-14. The number of people who have tertiary education level is almost 100%, while in the public sector this is about 75%.

The public sector provides consultancy regarding producing technologies of arable crops: results of scientific researches that have practical utility to the agricultural producers, European regulations that need to be kept, both regarding activity on farms and processing of agricultural products, accessing EU funds etc.

SWOT analysis
Extension and advisory services

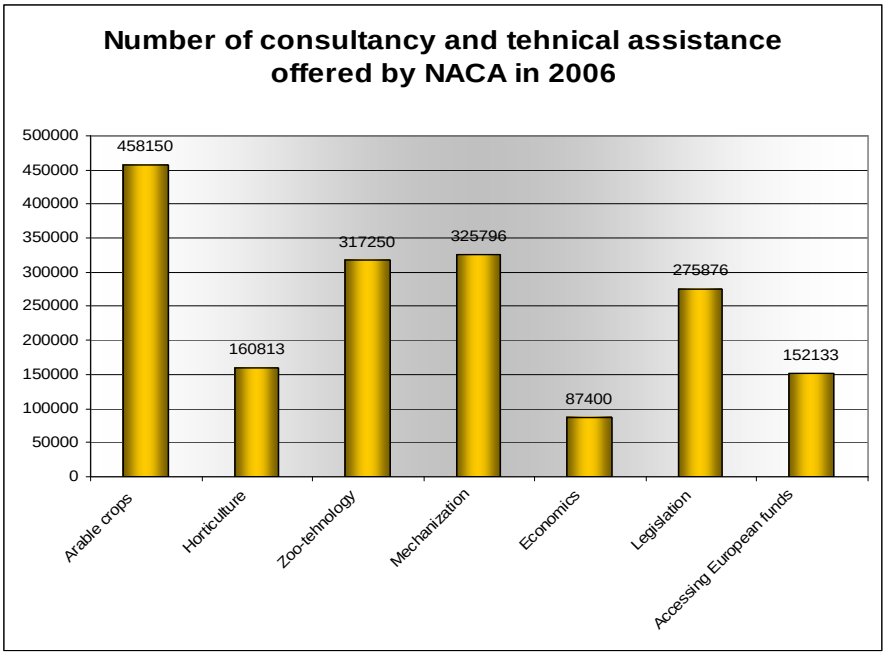
Strengths	**Weaknesses**
- **The public sector (NACA, COAC)** - Although at present it is not fully exploited, the NACA network has the capacity to identify the needs at local level - Sufficient number of personnel specialised in different fields - High demand for professional qualification of farmers - The extension and advisory services are offered and directed according to the specific groups of beneficiaries (professional associations, farmers organisations) - **The private sector** - Market oriented supply of extension and advisory services - The dissemination of information regarding products and technologies is made jointly with the supplier of inputs - The personnel is specialised in elaborating studies and projects - Possibilities for continuous learning	- **The public sector (NACA, COAC)** - Lack of financial funds for expenditures - Difficult and rigid communication between consultant and beneficiary - Insufficiency or even lack of communications equipment. Difficult access to informational sources (media, internet, etc.) which leads to difficulties in reaching and disseminating new technologies or practices - No feedback to the central institutions responsible for developing the agricultural policies - Legal constraints to stimulate local consultants (at level of communes) - Lack of a solid strategy to attract additional funds - - **The private sector** - So far, there are only a few private firms - Access of beneficiaries to these services is limited, because of their limited financial resources and that the private firms are situated in highly productive areas - The advisory and extension services given by the private companies are offered particularly to associations and professional organisations and to a smaller extent to (small) farmers
Opportunities	**Threats**
- **The public sector (NACA, COAC)** - Possibilities of attracting external funds with	- **The public sector (NACA, COAC)** - Competition in agriculture from the part of the

the reorganisation of NACA according to GO 22/27.01.2005 - Possibility of stimulating local consultants - The Accession to the EU will create additional possibilities and chances to Romanian farmers – access to technologies already existing in the EU - The appearance of bigger private farms will create better possibilities for those who offer extension and advisory services, including NACA - Formation of more powerful farmers organisations - Putting accent on offering extension and advisory services to groups, rather than to individuals - **<u>The private sector</u>** - Growing potential of private sector and of NGOs to take over extension and advisory services - Appearance of bigger farms will create growing possibilities to consultancy services suppliers - Changing the education and mentality of farmers and increasing their interest towards new technologies - Accessing funds based on a project creates opportunities for the development of the sector	private international and national companies is increasing (new products and new technologies) - Low financial resources coming from the State budget will continue to weaken the capacity of consultancy, especially if extension and advisory services will continue to be offered free of charge - Lack of motivation of local advisors might determine their migration into the private sector - **<u>The private sector</u>** - The mentality of the Romanian farmer - Lack of an adequate education - Limited financial resources at level of small and medium sized farms - Lack of a "common language" concerning the mentality and understanding of farmers

Source: *Studiu de cercetare asupra impactului consultanței în zootehnie și în industria alimentară* (Research study on the impact of extension and advisory services in zoo technology and agro-food industry), 2005

All this considered can be said that in future, as the financial possibilities of agricultural producers grow, it is expected that demand for extension and advisory services will increase further with accent on private sector. This can be said especially in the case when access to consultancy and extension services from the public sector though is offered free of charge, beneficiaries act suspicious fearing that they might pay taxes at a later date.

Fig. 2.



Source: Raport - Agenția Națională de Consultanță Agricolă, 2006 (Report – National Agricultural Consultancy Agency)

In the near future linkages between technology transfer agencies could be more intensive as the producers groups grow stronger and the regional innovative clusters become more intensive in the field of agro-food production.

6. The main bottlenecks of the rural training and extension

According to the above there is a demand for training and extension and advisory services in agriculture and rural development to which we can say that supply exists as well.

To put in evidence the **bottlenecks of the demand** side, these are the following:

1. the lack of interest of people who are engaged as workers in agriculture and forestry
2. the trainers and service providers are mainly graduated in agro-technology, so that their knowledge is unilateral regarding economic aspects
3. the sum of money projected is not sufficient for attaining these objectives

The factors that may impede the measures regarding knowledge transmission of the National Rural Development Programme 2007-2013 are primarily the differences that exist between the potential needs and the real demand.

1.1. In present 71.5% of the workers from the agricultural sector have maximum 7th class degree. In gymnasia curricula there is no accent put on economic knowledge, not even in rural areas. There would be need for training of more than 2 million people living in rural areas, but in reality this is much lower due to the lack of interest of the population.

1.2. The executives and leaders of bigger business units generally have proper professional and agro-technological knowledge, but lack of economic view. They are mainly interested in up to date information referring to the local and foreign markets. In their case time is what represents an impediment in participating on trainings. They need special not common knowledge in function of their specialisation in agricultural production.

1.3. In the case of people working in forestry the main problems rise connected to the inadequate organization of work (primarily they are expected to prevent robberies) and not to the level of their graduation or knowledge. The majority who own forest property are old people, while the small number of young people doesn't look at forest as a resource for sustainable development, but as a tool for short term enrichment.

1.4. There would be demand for non-agricultural trainings, which would assure services for the local population, but as the local demand is very low this would represent only additional source of income for a person living in rural area.

The above short and brief enumeration shows the need for a good organization regarding the needs of rural population for the transfer of knowledge. Accent should be put above all on the primary and secondary school education, thus the improving of trainings and extension services would be more efficient, and would have a complementary role.

The **bottlenecks of the supply side** regarding knowledge transfer in Romania include:

2.1. Between 1998-2005 the NACA organized trainings for 35538 people. Measure no. 111 "Training, information and diffusion of knowledge" has in view the training of 99183

persons working in agriculture and forestry. The question is whether there is real possibility to triple the number of trainings?

2.2. As the graduation of trainers (the stuff of NACA and COAC) is rather unilateral, with degree in agricultural engineering and limited knowledge in economics, the real needs on the demand and the supply side meet by a small margin only.

2.3. The agricultural and rural knowledge transfer needed by the rural population is very underdeveloped and hard to be accessed. The territorial labour force offices fund some trainings, but information related to them get hardly to the young people living in rural areas, while in other cases costs have a decisive role too.

2.4. The transfer of the specific knowledge of old craftsman living in rural areas is not well organized which could lead to important losses in this respect, as local knowledge will not be transferred to the young.

Regarding the supply side the solution requires a completion of university curriculum with subjects in this field. Accent should be put on a more efficient diffusion of knowledge in economic and legal fields, which should avoid the general scheme of the American books and courses; moreover it should take into consideration the Romanian reality. It is required the collection of up to date information and its dissemination to the persons interested, assuring the basic technologies and actualisation of the database contents. We mentioned as well the shortage of the financial resources allocated by the National Rural Development Programme for 2007-2013.

3.1. In the last version of the Romanian National Rural Development Programme 2007-2013 from June 2007, for the measure “Training, information and diffusion of knowledge” is proposed 119 019 347 euro, about 1% of the total amount of money for rural development. This means about 120 euro/day for 99183 participants. The real problem is who will benefit from this money? This sum of money may be sufficient for the planned number of

participants but depends on how the personal from NACA and COAC and other suppliers of knowledge will use this money in big share or will be assured with priority condition for the biggest number of villages who want to learn.

We tried to put in evidence only some general aspects about the bottlenecks of knowledge transmission and we are aware that these are very complex aspects and need more research to find optimal solution for the growth of knowledge level of rural employment.

Another important aspect is connected to measure no. 141 “Support for semi-subsistence agricultural holdings”. The bottlenecks could be the administrative capacity of public and private firms to assure consultancy in the elaboration of the business plans for the 95 thousands small semi-subsistence farms. The public money we appreciate as sufficient (about 600 million euro) but to assure real specific business plans, describing the specific needs of each farm in part will be difficult, as this needs basics, fundamental knowledge about the farms.

In conclusion the main bottlenecks of the rural technology transfer in the case of Romania will be on the demand part the lack of interest of young people for agricultural knowledge and on the other part the lack of administrative capacity of trainer and consultancy services. The demand and the supply side are not in concordance.

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