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1 Introduction and background

1.1 Introduction to rural technology transfer

1.1.1 Agricultural and rural training

Bulgaria is divided into 6 planning regions (NUTS 2), 28 administrative regions (NUTS 3) and 264 municipalities (LAU 1). According to the OECD definition, there are 20 predominantly rural NUTS 3 regions, seven intermediary rural regions and only one predominantly urban region - the capital Sofia. Thus, it turns out that rural regions cover 98.8% of the territory and account for 84.3% of the population of Bulgaria. However, the national definition, used for policy interventions, defines rural areas as municipalities (LAU1), in which there is not any resident place with a population over 30,000 people. Regarding the latter criteria, 231 municipalities in Bulgaria are classified as rural. The rural areas represent 81% of the Bulgarian territory and 42% of the population. On the other hand, one of the main sectors in the rural areas through the centuries is agriculture, but its share within the national GDP has been decreasing over the last years and reached 9.8% in 2005. This sector, especially in villages and countryside is the staple activity. Agriculture in rural regions accounted for 15.6% of total GVA in 2003 according to MAF data and although it was outmatched by services (55.4%) and industry (29%), agriculture as a sole sector has a prominent role and determines the overall ambience of those regions. In addition, agriculture has distinct problems, including the ageing of people working there, the lack of a qualified working force, the low level of knowledge and skill of the people, which affects the general results and poses difficulties of eligibility for training and qualification upgrading.

According to MAF and different statistical surveys in 2004, 53% of those employed in agriculture had only levels 0 to 2 of education (primary and lower secondary education) based on the International Standard Classification of Education (UNESCO, 1997). The share of the employed with higher education (University degree) was only 4.4%, while the country average was 25%. In addition, the majority of the people engaged with agricultural activities lack formal agricultural training and managerial and business skills. Merely 3% of the farm managers have basic or full education in agriculture. These facts clearly reveal the need for development of a system for consistent vocational training of farmers and improvement of the quality, and advance of the extension services. EU accession requires that the people involved in agriculture have good knowledge in a number of spheres, which will help them to manage in an efficient way and to be competitive not only in agriculture, but in the other multifunctional activities (services, crafts, hotel management, processing of agricultural raw materials). It is expected that professional training will expand the opportunities for earning additional income and acquiring new knowledge not only by the farmers, but by those who will stop dealing with agriculture and will get involved in other sectors of the rural economy.

The educational system in Bulgaria comprises the pre-school, school education (primary, secondary including the professional and specialised courses) and tertiary degrees. Meanwhile, a good system for post-degree qualification and training was functioning in Bulgaria for a very long time. By 1989, the workers, particular specialists and management staff were trained in an integrated and centrally governed structure for human resource building, covering from 700,000 up to 1 million people, taught in about 900 centres, branches and vocational incubators around the country. However, after 1989, this centralised system was disbanded and restructured and many of the training centres belonging to industrial plants and enterprises were shut down. As a result, recently it has been reported that only 5-10% of such centres still continue to work, and the number of trained stakeholders is already less than 100,000 people.

1.1.2 Agricultural and rural advisory/consultancy services

The extension services in Bulgaria are fulfilled through the National Agricultural Advisory Service, which was established by a Law at the end of 1999, and the real commencement was posted in October 2000. NAAS is in charge of carrying out the State policy in agriculture by transmission of information and advisory transfer to farmers. The structure of NAAS involves a Central Office and 20 regional branches, while the governance is implemented by two Directorates: Chief Directorate "Agricultural Advisory" and Directorate "Administration, finance, information provision and human resources". According to the data provided by NAAS (2006), the total staff in the Service was estimated up to 141 people in October 2006. The Central office delineates and determines the policy of NAAS in compliance with the Ministry priorities as well as funds and forwards into regional branches the package of services, which can be provided to farmers. The regional branches are situated in all administrative provinces around the country, as the staff is composed of 3 - 4 consultants with different majors (agronomist, zoo-engineer, agri-economists), which are responsible to work closely with farmers and address their needs.

As for the specific of extension services, all services (consultancy and lab examinations) done by the staff were free until the middle of July 2006, and according to a new Establishment Plan, some of these services have become chargeable (fees are paid for them by users). Regarding the statistical data, the number of farms in 2005 is tallied up to 534,613 (MAF, 2006) but only 77,100 have registered as agricultural producers owing to different reasons. Meanwhile, NAAS reports that it works with about 14,000 of these registered producers or 18% of the total number, while the aggregate number of all producers (registered and non-registered) visiting the service annually is up to 25,000. The regular clients of the extension services are 3,400 producers, which represents about 120 producers per branch. The analysis of the producers' profile shows that the predominant share of the farmers who visited the extension services were middle class producers growing 10 – 100 ha cereal crops, or 2 – 20 ha orchard and vineyards, or keeping 5 – 20 dairy cows. In addition, NAAS at the moment is the only public extension service in the country, providing conceptually the complex advisory support to farmers. According to an interview survey carried out in the second half of 2006, farmers using this service look for information concerning the possibilities to apply for State subsidies and other support, soil examination, preparation of business plans, consultancy for plant protection, etc. However, the real share of farmers taking advantage from this Service is insignificant, as these services do not reach the majority of farmers. It is attributed to inadequate capacity of the NAAS regarding expertise, material resources, etc and is aggravated by the farming structure with its high percentage of self-subsistence holdings. The majority of farms are engaged in solving problems of marketing, prices, and better bargaining with processors thus the services provided by NAAS at the time being are not so actual.

Apart from NAAS in the rural areas, numerous organisations can be found conducting consultancy, identified as representatives of different companies producing or distributing equipment, chemicals, other inputs. The business centres and incubators established by the programmes of the UNDP, World Bank, etc, which also are dedicated to aid the transfer of knowledge mainly supporting small and medium-sized enterprises (SMEs) are functioning too. Regarding these programmes, the JOBS project has proven the most popular and successful under which from the beginning of 2001, 50 Business Centres were established, including business incubators, business information centres and separate business centres, and almost a half of them have been operating in rural regions countrywide. As a consequence of this initiation, a dozen unemployed people have succeeded to start work, opening themselves private business

through providing significant support for set up of micro and small enterprises including technical assistance and access to financing. Certain results were scored in support of those farmers working on a subsistence basis and interested in becoming micro farming entrepreneurs likewise lifting up the chances of minorities for jobs to earn their livelihoods. Meanwhile, the consultancy and training services were delivered on both an in-house basis and through networking arrangements with outside consultants. Since 2001, this programme has helped to create nearly 19,000 new jobs, has provided 48,100 consultant services and trained more than 25,000 people. Besides, the establishment of building capacities and increment of stakeholders' involvement in decision making in rural areas also were the spheres where the funds and consultancy support were ensured, especially in preparation of rural communities to have capacities to absorb EU structural and cohesion funds. Moreover, very often the rural regions are characterised by poor capacities and expertise to compose, apply and win the project financing thus the transfer of proper knowledge and building such skills is very useful.

1.1.3 Role of farmers' groups, including national or regional farmers' organisations

Regarding the role of divergent farmers unions and organisations, at the time being on the national level, a lot of similar structures are registered, covering almost all sub-sectors in agriculture, and sometimes in a particular sphere there is more than one organisation offering services. Independently from the existence of a great variety of different associations, the majority of farmers are excluded from the work and benefits of these organisations, as frequently they are not aware of their existence. It is due to predominance of small, poorly motivated farmers in the country as well as isolated and opportunistic behaviour of association governors, which instead of defending the interests of all members, pursue their own benefits. Along with the actual features of present farmers' organisations, they can be classified regarding both their origin and relevance to their members. They can be differentiated between national associations of agricultural producers, specialised (branch) agricultural associations and co-operative associations.

The Bulgarian Agricultural Chamber (formerly existing as Confederation of Agriculture) has operated since 1995. Producers' organisations from different branches, physical persons and tenant farmers belong to the Chamber. It has 60 members and regional structures in seven regions of the country. At present, the Chamber is undergoing restructuring. Another organisation belonging to this group is the National Union of Agricultural Co-operatives (NUAC), which is a successor of the Union of Co-operative Farms in Bulgaria. It has 24 regional unions established in the country that cover more than 800 agricultural co-operatives and other related organisations. The NUAC supports the setting up of co-operatives and stands up for their economic interests. It organises their input supply, marketing of production and tries to help them in solving their problems. After 2000, there was a standstill in the activity of the NUAC and its regional structures, accompanied by a decrease in membership. The Bulgarian Farmers' Association (BFA) is an NGO that has emerged over the 90s as an alternative to the NUAC. Some of the largest farmers in Dobrudza region have constituted it. Family farms, tenant farmers, agro-firms, departments of branch associations and physical persons belong to the BFA. The BFA total membership adds up to more than 11,000. Its general objective is to organise sub-divisions of the country's territory, as well as to help the farmers and defend their economic interests.

The Agricultural Producers' Association (APA) is a new non-government association established in 2004. Its members number 120 and its annual budget adds up to 15,340 EUR. The association exists to represent, support and encourage the agricultural producers and take care of its

members' interests. The association issues the periodical "*Agronomist*" to support the farmers in running their farming operations. It is a quite new organisation, whose activity is yet to be appreciated. The organisation of agricultural branches is devoted to support the interests of the producers and processing enterprises in the respective branches. Some of the most important organisations with agricultural branches in the country are: Association of grain-producers, Association of vegetable-growers, Association of producers of greenhouse production, Union of rice-producers, Association of poultry-farmers and producers, Association of milk-processors, Association of meat-processors and so on. The members of the above-mentioned organisations are counted up to 50-100 and their annual budgets are within 15,000-50,000 EUR. In Bulgaria at present, there are over 30 organisations of branches of agriculture. Most active and having potential of them are the organisations that unite the production, processing and marketing from the respective branch, such as the Association of poultry-farmers and producers, the Union of rice-producers or the organisations of processing firms (Association of milk-processors, Association of meat-processors, etc.).

1.2 Agricultural and rural skill level

The total number of those employed in agricultural production in 2005 was 1.35 million people. From them, 335,000 people (less than 25%) are employed mainly in agriculture. According to the data from the farm census in 2003, less than 5% of the farm owners are under 35 years old and more than 60% are more than 55 years old. From the total number of the employed, only 4% have college or higher education, bearing in mind that the average value for the country is 25%. Less than 2% of the employed have specialised agricultural college education and less than 1% have a bachelor's or higher degree of education. The reasons for the low degree of education are: old-aged structure of agricultural employment, low incomes, low motivation of young people, poor quality of agricultural education, etc. Regarding the old age of those employed in agriculture, before the market reforms a great part of them found fulfilment in other agricultural areas. Subsequently, they have become unemployed and have been forced to become engaged in agriculture since agriculture offers the only option. Besides, because of the low pensions, a great part of the retired people are engaged in agricultural production without having the necessary qualifications to do anything else.

The incomes of those employed in agriculture are the lowest in the country. The profitabilty norm in agribusiness is among the lowest of all sectors. This stimulates those employed in agriculture to search for education and qualifications in areas different from agriculture. As for the low motivation of the young people to become engaged in agriculture, a study of the Institute of Agricultural Economics, Sofia, from 1995 has shown that only 5-6% of the students from the specialised agricultural high schools intend to work in agriculture. In the case of the students studying agricultural sciences in universities, this percentage is even smaller – only 3%. An interview including 500 students who graduated in 1994 from secondary or higher agricultural schools showed that only 4.5% have jobs related to their speciality. From them, 78% claim that they are engaged in agriculture because they could not find jobs outside it. Since that time, no similar studies have been performed but the motivational trends have not changed radically.

The existing 96 professional high schools have no modern material base– the agricultural techniques and the technologies that are taught are 20 years old, the computer availability and the access to Internet are lower than the average for the country and for the schools in the large administrative and economic centres. The low payment of the teachers does not motivate them to increase their qualifications. Only 2–3% of the students from those professional schools continue their education in the higher grades (by contrast with a value of above 23% for the country as a

whole) due to poorer education and lack of contemporary base for transfer of knowledge, similar to other not agricultural schools. Besides, the lack of relationships and interaction between the agrobusiness and the high schools and universities is one of the reasons for discrepancy and inadequate skill level in rural regions**.** The professional agricultural high schools are directly subordinated to MAF. The local agribusiness structures have no real instruments for exerting influence. There is no built mechanism for planning the needs for qualified manpower in agriculture. No forms of dialogue exist between agribusiness and the administration – the Ministry, the high school administrative body. The situation is similar in the case of most of the higher schools.

2 Specific technology transfer issues

2.1 Training provision

2.1.1 Quality and suitability of provision

The number of people included in professional qualification programmes organised by the Agency for Employment at the Ministry of Labour and Social Policy in 2005 is 31 426 unemployed people from which 46% (14 460 people) have begun courses in different programmes and measures with a module "Education". The share of the unemployed people with primary education who have enrolled in professional qualification programmes has increased (by 8.3%) from 17% to 25% and the number of people with lower education (by 5%) from 4% to 9%, and their total number is 1,692 people (6 %) more as compared to the previous year. More than 85% of the people who have acquired professional qualification are from rural municipalities.The skills they have acquired are in the following areas: directly related to agricultural production 12% - management of a famil? farm, techincal skills in the area of crop farming or livestock, etc.; directly related to the development of the rural regions 9% - rural and other alternative forms of tourism, local crafts, etc.; providing services to agricultural production 29% - drivers, people engaged in commerce and marketing, etc.; and professions not related to agriculture 50%.

The share of the people who acquire primary professional qualifications and pre-qualifications for the sake of an additional qualification has risen because of the increase in the courses for common workers in which there is an interest on the labour market. 30,986 of the unemployed are being educated. The participation of employed people in professional qualification courses is increasing as a preventive measure for preservation of their employment and for improvement of the adaptation of the manpower to the labour market. In 2005, 13,291 of the employed had education which is 49 % more compared to 2000. After completing a professional education course, more than 55 % (21,547) of the educated unemployed have been hired with contracts. Not more than 10% are engaged directly or indirectly in spheres related to agriculture. Less than 2% have been registered as self-employed in agriculture. This shows a sharp contrast between the sphere of the acquired qualification and the real search for qualified manpower. In the framework of the bilateral co-operation with Germany for the project "Aiding the professional education of adults and the employment" in 2004 the GOPA company together with the Agency of Employment at the Ministry of Labour and Social Policy conducted a pilot study of the need of qualfications in the region of Blagoevgrad. In the framework of the study, a pragmatic method was tested that allows the territorial branches of the Agency of Employment to collect data concerning the searching and offering of manpower possessing specific qualification through interviews. For application of the method for studying the needs of qualifications in March and

April 2005, experts from the regional branches of the Agency were taught to use a statistical programme for data analysis. In 2005, the Labour Bureau conducted a study of the manpower needs of the employers in the region of Bourgas. A pilot questionnaire developed within a common project with the Swedish national board of the labour market was applied. The distributors of machines and other agriculturally related inputs are also a crucial factor in knowledge and technology transfer. A leading company in training and consulting for the agricultural producers is "Farmer 2000". It was created in 1993 with premises in the town of Stara Zagora. The company staff consists of more than 200 people.

Alongside private companies dedicated in providing training to customers buying their machines, an opportunity for improvement in professional training has been given through the starting of the SAPARD programme. Regarding the application until the end of 2006 of Measure 09 of the SAPARD programme, 3,659 personal forms for enrolment have been submitted and processed thus initially 26 vocational courses were set up, distributed and shaped into the following topics : “Milk and milk production”, “Livestock”, “Bee keeping”, “Crop farming”, “Orchards, vineyards and berry production”, etc. From SAPARD has started the initiation of a tendering procedure for selection of training organisations coordinating these courses. In practice, by the end of 2006, merely 4 courses were carried out, which is insignificant compared with the planned vocational courses. It is expected by the end of 2007 that scarcely 10-15% of the programme will be accomplished, which indicates that the country will not be able to absorb the funds designed for training and knowledge transfer (about 200 million EUR). As for the established system for professional training handled by the Employment Agency, it is reckoned to be more efficient and relevant compared with SAPARD because vocational courses and other forms of training are launched only once the employers guarantee and declare that they will recruit the participants from particular courses. Unfortunately, only 10-15% of the courses set up are related to agriculture and real development of rural economies. Hitherto, the most effective form of education and training was fulfilled by the private Agricultural College in Plovdiv. The greater part of the students originate from the families of people engaged in agriculture. The bigger part of students (70%) pay their own education fees, while 30% matriculate the College places subsidised by the State and almost 90% of the graduated people continue their career in agriculture.

2.1.2 Availability and spatial issues

The spread of different training programmes and courses is characterised by a significant dispersion and unevenness, as the most affected are the remote and less favoured rural regions. It turns out that as much as one area is geographically, economically, and socially afflicted so the chances to cope with this problem are constricted. It is very reasonable and explicable that the private companies set up their training courses and bases in big centres with infrastructure and human capacities collated with the opportunity to take in extra premises on their periphery. They are described as profit-makers, intend to maximise their return, to reduce the costs for transport and infrastructure, and to be attractive and interfaced with as many clients as possible. It is illustrated by many examples, such as the leading distributor of machines “Farmer 2000” which has built 3 agri-centres in the towns of Stara Zagora, Dobrich and Rousse and offices in Pleven, Montana and Plovdiv, thus none of them belongs to rural territory.

The problem in spatial provision of training carried out by different associations and unions is that all these organisations concentrate their activities in big district centres without establishment of such branches in small rural places. It resembles the situation with the policy of private companies and NAAS, and is a typical example of the serious neglect and isolation of rural territories. In Bulgaria currently, about 46 professional organisations are registered, and out

of them only 9 have regional offices in all administrative centres; 7 of them dispose with offices in some of the big district centres, while others have their headquarters only in Sofia. None of these unions and associations maintains branches in small towns and villages. Besides, in 2005, according to an interview with 42 professional organisations, it turns out that only 23 have organised courses, workshops and counseled their members, while others even do not have the potential to perform such activities.

2.1.3 Practical issues

In 2004, for the sake of improving the training quality, actualising the management of professional development, and matching the various initiated training to the demand, the National Centre for Professional Development (NCPD) was founded within the Ministry of Labour and Social Policy. This Centre is in charge of analysis and exploration of needs from training and, based on the attained results, it has to prepare and launch the programmes for training. The Centre organises different courses and vocational workshops designated for qualification of administrative staff in the sphere of social policy, professional training of employees and jobless people, preparation of experts responsible for development and project management. It is financed by the EU social fund, etc. In addition, both Ministries (Ministry of Labour and Social Policy together with Ministry of Education) are very intensively involved in collateral projects funded by PHARE, devoted to the sphere of social convergence and integration and which comprise tools for continuing professional training. The amounts of money earmarked for training and for development of educational and qualification systems under PHARE 2000-2003 are tallied up to 34.7 million EUR, co-financed by 9.3 million EUR provided by the Bulgarian government. Chiefly, these projects were designated for stimulation and promotion of rural municipalities and development of unfavourable countryside regions.

Another programme, which is established and running comparatively successfully and which carries out different training is the programme Leonardo da Vinci II. This programme is conducive for application of EU practice and policy in professional training in Bulgaria, and in parallel takes into accounts the country specifics. This programme promises to transform and evolve as a real tool for trans-border co-operation, usage of EU experience for quality amelioration, innovation promotion and diffusion of good European practices concerning professional training. Regarding 2007 and 2008 plans, Bulgaria has managed to apply and approve the realisation of 74 projects in practice. Through their fulfillment, about 1,553 pupils, students and workers up to 35 years old will have the opportunity to master professional experience and to upgrade their qualifications in some other EU countries. The main goal of this programme is to provide training and knowledge to the participants for development, verification and management of projects allotted under EU structural Funds.

2.1.4 Demand side issues

Agrarian education is accessible and available but it has low prestige. One sample survey carried out among the students from State professional schools shows that 87% of the children there are enrolled in these schools as a result of obstacles and impossibility to join other schools due to shortage of finance, low score rate, etc. Only the private Agricultural College in Plovdiv is appreciated and cherished by the students, as usually through the contest period there are 9 candidates for every place. The State mandated professional schools are established in almost all administrative districts throughout the country, and the people and families do not consider the distance as an additional obstacle for attendance in these schools. In the case of large agricultural production structures the need of a public consultant is denied. More than 99% claim that they

have not made use of this service because they are better informed than the respective State institution - NAAS. They have direct contact with the producers of agricultural machines, fertilisers, chemicals, fodder, etc. and when necessary they contact them directly.

The high percentage of people who need advice in the sphere of "Applying for European and State programmes, assistance, subsidies, etc." also demonstrates the great weakness of the respective institution which governs the particular programme. This means that the programme is not clearly formulated or that the respective application forms are not accessible. In general, the agricultural producers in the whole of Bulgaria still do not have the self-confidence of entrepreneurs, possess limited skills and knowledge in the sphere of agricultural management, and rarely plan their production in accordance with the market demand. The number of agricultural producers introducing innovations or novel technologies is limited. Since the EU accession, the pressure on the agrarian sector has increased and is expected to gain increasing importance for the producers. Generally, the producers prefer comparatively short educational courses with duration of half a day up to a maximum of one week, which are organised in the respective locations but outside the farms or with demonstrations on the farms. Only 3% of the producers prefer the educational courses to take place in Sofia, which probably reflects their low mobility, as well as the limitations imposed by the travelling and accommodation expenses. In almost 90 % of the cases, the people who take the courses need to be substituted by a family member in their work while they are attending the courses and seminars.

2.1.5 SWOT analysis

Training provision

Strengths	**Weaknesses**
- Long tradition and experience in organisation of agricultural education and training, as a part of these institutions have been functioning since the beginning of 19th century - Well-qualified teachers and lecturers, as in spite of problems with technical provisions, most of them possess a sufficient material base – premises, land, etc - The predominant share of stakeholders are participants with good skills and proficiency, which allows the application of innovative approaches in the education and modules for self-preparation - Economic growth recently and revival of economic activity are also solid factors for development of rural training, and through different EU lines and programmes a system for professional training of the unemployed and workers from agriculture will be established in the context of learning through the whole life and grounded on good European practices	- The low level of social trust regarding the education provided by State agricultural schools governed by the Ministry of Agriculture and Forestry - Inadequate institutional network between the State professional secondary schools, the local authorities and agri-business, which hinders the efficient allocation of resources - Lack of long-term and prospective policies and measures for development of educational and training processes - Poor orientation and inadequate adaptation of the training programmes to the real needs of people and their exclusion from the process of programme and training content formulation - Lack of relevant methodological proficiency of the lecturers and lack of statistical figures to make clear and accurate assessment of the educational and training level in the country - Discrepancy between the demand from training courses and programmes and their provision from the State authorities

Opportunities	Threats
- The access to different programmes and funds of EU - Establishment of good connection between different training courses with the educational majors set up in the specialised schools - Introduction of regional division of agricultural professional schools in accordance with regional specifics and features - Increase of stakeholders, attending in different training courses through foundation of vocational classes in small communities - Usage of the experience from International co-operation as well as development of the co-operation with different non-government organisations in order to identify and meet the social and economic needs from viable education and training in rural regions	- Decrease of the participants ready to invest in their professional improvement and qualification, accompanied with weak propensity of the agri-companies to invest money for professional advancement of their staff - Low motivation of different stakeholders to improve their qualification because of rigidity of the remuneration system in practice and lack of high correlation between their qualifications and their wages - Lack of mechanisms for overcoming psychological barriers and attitudes of people to heighten their skills and proficiency - Technological backwardness in the equipment of educational and training places, lack of new techniques, which is gradually substituted by producers thus the stakeholders remain in fact incompatible with the needs - Low and underestimated remuneration of the teachers and lecturers in State schools and their outflow into other sectors and activities

2.2 Extension and advisory services

2.2.1 Public sector services

NAAS is part of the network of agricultural administration of Bulgaria, from where different policy, administrative and technical requirements are forwarded. At national level, NAAS receives instructions and orientation for its work mainly from the Deputy Minister of Agriculture. Requests for the dissemination of information to farmers arrive also from the different Directorates in MAF (Directorate for Rural Development), especially with regard to the Common Agricultural Policy of the EU, or from special agencies (State Fund Agriculture). In this framework, NAAS is often in the role of linking different institutions with farmers and as organisers and facilitators for meetings, conferences and other public events, where farmers are involved. At District Level, there are advisors in the 28 regional offices, as 20 of them are constituted with superior functions. According to representatives of those regional offices, about 60 % of their work plans are dedicated to centrally defined tasks (NAAS) in order to implement MAF policy and about 40 % focus on the regional context, with the tendency of increasing centrally determined tasks. Considering the situation of NAAS in 2005, the present potential advising capacity is about 20,000 individual farms per year, through consultations at regional offices (presuming that 2 of the counted visits involve the same farmer).

According to NAAS reports in 2005, the regional experts carried out 43,397 individual consultancies, which accounts for an increase of around 35% compared with the previous year. The number of farms visited in 2005 was reported as 6,584, which testifies to the marginal role of public extension and a great gap between the needs of farmers and the capacity of public extension to respond to the particular producers. Through meetings and other events, an

estimated number of 25,000 – 30,000 farmers are reached, assuming the presence of 15 to 20 farmers at each of the 1,639 events. A significant number of farmers were reached through mass media (newspaper articles, radio, T.V.). At present, a forecast of farmers to be advised through NAAS after 2007 is extremely difficult. However, the range of estimates is between 20,000 and 40,000 farmers under the various measures within CAP (mostly "semi-subsistence farmers"), without considering those farmers who are already clients of NAAS and not necessarily included in one of the above-mentioned schemes. However, the real difficulties in NAAS activities are imputed to the match of farmers needs and NAAS provisions i.e. farmers are interested mostly in the possibilities for financing and support in their marketing problems while the extension service acts predominantly “top-down”, where the farmers’ requirements are not conceived sufficiently. Moreover, the availability of only 28 regional offices of the extension service is very inconvenient and restrictive because those farmers situated in areas farther out of those centres face significant transaction costs each time they decide to resort to this organisation. Staff are an additional problem since usually in the public extension services young people lacking experience are recruited, and they turn out to be unsophisticated to solve farmers’ questions, thus the reputation of this organisation is strongly affected.

2.2.2 Private sector services

Private consultancy is conducted by different commercial organisations, which are running as distributors of machines, chemicals in agriculture or they are functioning as agencies in tourism, or in the property business. Private advisory input is very rare in other rural activities such as food and processing industry, timber, clothing sectors, etc. The most typical and widespread are consultations implemented in agriculture, as all above-mentioned distributive companies offer advisory services to their customers. The biggest dealer in agricultural technology “Farmer 2000” reported over 2,500 individual consultations in their offices and other counterpart companies resemble this behaviour and results. The company possesses the largest store for spare parts for serving its clients. It is an exclusive representative of the world famous brand "Massey Ferguson" and of other leaders in the production of agricultural machinery, such "Galucho" Portugal, "Manitou" France, "Antonio Carraro" Italy, "Bogballe" Denmark, "Farmet" Czech Republic, etc.

In 2005, "Farmer 2000" was one of the biggest companies offering agricultural equipment. "Farmer 2000" offers the farmers a wide range of services including agri-services, service after selling, consultative services and training. The consultative services and client training constitute the major part of the activities. More than 30% of the personnel are engaged in these activities – 64 leading specialists, scientists and university teachers. Four mobile groups have been created that consult the clients before each agricultural campaign. In 2005, four courses for agricultural technical operators with 350 participants have been conducted and more than 40 meetings with agricultural producers have been performed. Along with “Farmer 2000”, other main distributors of machines as John Deere (Megatron company), Claas (Rapid company), New Holland (Vantotrade company), each year through their premises and established training bases carrying out short term training of all customers who have acquired tractors or combines from them. Usually, the duration of these courses is a fortnight, and they are paid for by the owners of machines separately from the price of those machines, and operators are provided with all conditions and prerequisites to master initial and basic experience and knowledge for handling and using the equipment.

2.2.3 Demand side issues

The rural areas in Bulgaria are burdened by many problems. In these areas, the economy is characterised by high unemployment, low efficiency, single-industry structure and fragmented

ownership of land, which indicates need for diverse measures. The high share of agricultural employment, the unemployment level and the demographic trends in Bulgaria show the need for development of consultancy assistance regarding establishment of a diversified rural economy based on enterpreneurship, knowledge and new business opportunities. In truth, there is a significant chasm between the people's demand in rural areas and the help provided by the State and different project consultancy services. Similarly, it can be noted that a great percentage of agricultural producers do not know about the existence of public extension services, where they can go and receive free advisory help. Especially, it is valid for unfavourable domains, which very often are remote and secluded and transfer of information and knowledge for the possibilities to improve and turn around their conditions is unavailable. Less favourable areas are territories in which most of the population of working age are employed in agriculture and forestry, and which are characterised by a low degree of development of transport, technical and social infrastructure, low skills of the population of working age, limited employment opportunities, high unemployment, low income and depopulation. Usually, the alternative private advisory services, owing to their commercial and profit interest, run in more vital rural regions such as the areas with intensive cereal production (Dobrudja) or thriving skiing or rural tourism (some places in the Balkan Mountains, Rodopy and Pirin Mountains). They communicate and work mostly with the limited number of people who have resources to pay them or are attractive for business relations, such as estate owners or craftsmen and artisans.

Private advisory services, as previously mentioned, represent different distributors and manufacturers of machines and agricultural chemicals as well as estate and tourism agencies and are oriented to work in specific fields and fit the needs only of an insignificant percentage of residents. Rural people are interested to get information mostly in the primary level concerning the possibilities for financial support, subsidies, grants for tourism initiation, access to credit to establish a small enterprise, etc, while usually the private advisory services are ready to provide (against fee) consultancy support but at the implementation level (advisory how to treat the plants, how to use particular technology, co-operation in advertisement and distribution of merchandise) thus a discrepancy between needs and provision is observed. Besides, most of these people's information needs are ensured by public services but because of spatial restrictions (availability of NAAS offices only in 28 administrative centres) or limited capacity, the people have the sense of information inadequacy.

What is more specific about the rural areas in Bulgaria is not so much the fact that they are "rural" but the fact that most of them are in decline. This means that the people in the villages do not have the choices or opportunities that they should have. They should be able to choose what work to do instead of being forced to make a living by agriculture, and most of all, to choose and influence the policies that concern them. The people in the rural areas should be the engine behind the development policies rather than merely a beneficiary. Participation policies require that the decisions on which sectors are to be supported and how to effect the support should be made by the local community and interested parties. According to the UNDP's National Human Development Report 2003, "Rural Regions: Overcoming Development Disparities", efforts need to be made to consolidate the institutional networks and resources in support of agriculture and the rural areas. However, the formulation and conceptualisation of the consultancy support carried out with public funds is subordinated by a top-down approach and the ordinary people and recipients are commonly not able to participate actively in advisory establishment, thus many consultancy projects and initiations can be reckoned as not efficient enough. Finally, very often the projects devoted to consultancy assistance rely on people's actions and motivations, as they are not accompanied with a good promotion and announcement campaign whence those people

are not aware of particular interesting possibilities and do not know what kind of help they can receive.

2.2.4 SWOT analysis

Extension and advisory services

Strengths	**Weaknesses**
- There are a great number of programmes and projects under which diverse advisory services are implemented and many stakeholders have already benefited or have possibility to use them free of charge - In the comparatively most developed agricultural regions (north-eastern and central-southern areas) many private companies are performing consultancy - Despite the relative backwardness in educational level of the people in rural areas compared with those in urban ones, the stakeholders and residents in rural regions are characterised by a relevant knowledge basis and only with transfer of minimal inherent and pragmatic advice and demonstrations can be achieved high effect	- Serious negatives in the function and role of the only public extension service (NAAS) are observed. This service is very marginal and reaches out a limited number of farmers, while the real producers doubt about the service capacity and reliability to fulfil its tasks - The offices of public extension services are situated only in big administrative centres and the people from remote mountainous and other unfavourable places are impeded to visit their help - Private consultancies are fulfilled mainly by distributors of agricultural equipment and chemicals and they are oriented into comparatively large and profitable farms, which represents only an insignificant percentage, while small and surviving farmers cannot rely on their advice and know-how transfer - Apart from advisory services in the agricultural sector, it is very rare to find such services for other business activities, which are necessary for economic diversification in rural regions. Alternative advisory services are squeezed into property, construction and commercial tourism
Opportunities	**Threats**
- From January 2007, Bulgaria became a full member of the EU, thus it has significant access to EU funds designated exactly for improvement and revival of rural areas, and one of the measure is development of viable extension services - In the near future in Bulgaria, a National Rural Network, which will encompass almost all organisations and target groups in rural areas, will be established - thus the main problem of cohesion in knowledge transfer will be overcome - In the last couple of years, visible progress and economic growth is reported, leading to a gradual increase in adoption of new technologies and production practises, which inevitably will be supervened by spread of advisory services, which will	- Regarding agricultural extension services, it may be cumbered and interfered with as a result of the predominant share of fragmented and self-subsistence farms, whose aims are very often dedicated out of prospective development of their holdings and holders are not interested to use advisory mediators - Currently, the farmers and other rural stakeholders are more interested and eager to receive knowledge, information and ability to apply, justify and win forthcoming structural funds for development of these territories. Indeed, these people are afraid at they will be advised and stood by for absorb these means - Ageing structure of population, especially in villages, where the retention and attraction of young and willing people is very difficult and designation of consultancy efforts and resources

pertain not only to agriculture but consultancy assistance will also be available on how to start and run a small enterprise or guest house - Significant hopes are attributed to genial social capital in rural areas, where the people are communicative, collaborative and helpful to each other, thus they will transfer their experience and knowledge and so produce a synergy effect from even incomplete and limited consultancy access	will be undermined and fail without initiation of complex measures related to providing funds and conditions for economic activities and works accompanied with valuable consultancy help

3 Overview and prospects

3.1 Training

In Bulgaria, there is not an integrated and single strategy for development of agricultural professional education. The reform of the old structure is not completed yet. From an institutional point of view, agricultural education is overseen by the Ministry of Agriculture and is quite disconnected from the local authorities and agri-business. There is no accomplished system for assessment and planning of the needs for specialists and other professional instructors. Besides, there is no link between the system for training and qualification of the unemployed (run by the Ministry of Labour) and the Ministry of Agriculture and Forestry. A significant number of problems with material resources is also reported concerning the lack of new and contemporary agricultural machines, where the students from professional schools and other stakeholders can learn and practice. There is also a shortage of computers, unavailability of Internet, etc. This situation is observed widely. The exceptions are really few. One of them is the private Agricultural College in Plovdiv, which works closely with the State and with firms from the private sector. The availability of enough financial resources has allowed this college to establish a modern and advanced material base. This is unlike the 96 State professional schools, where no project with foreign sponsorship was obtained. Whereas at Plovdiv within the period 2000 – 2006, 87 different projects have been done, out of which 52 were supported by the EU.

A remarkable increase is reported regarding the training programmes and demonstration courses carried out by the distributors of machines, chemicals and other input in agriculture, which is due to the gradual recovery and incremental demand for acquisition of new technology. Prospective advantages in the training process can be extracted and utilised from the diverse EU programmes. For example, the programme “Leonardo da Vinci” is necessary to be improved and it can contribute much in adoption into Bulgaria of the policy for professional training used in the EU, taking into account the local specifics. This programme can transmute into an effective tool for promotion of trans-border co-operation, use of EU experience and models in order to ameliorate the existing quality, to stimulate innovation, to give insights and to prepare for successful widespread adoption of good European practices in professional training. Agricultural and rural training in Bulgaria is generally implemented by the 96 State professional schools belonging to MAF, which make up the institutional pattern for the training process. During the educational period 2005/2006, these schools taught 31,302 students. The total number of the teaching and subsidiary staff is estimated as 5,453 people, while only teachers and lecturers are 3,477. Another important organisation in the training process is the Agency for Employment belonging to the Ministry of Labour and Social Policy, where the efforts are exerted in training predominantly the

unemployed, 36% of whom come from rural regions. A significant share in the training, mostly in agriculture, is offered by different private agencies and firms (agricultural colleges, centres for professional training, distributors, etc), which are owned by both Bulgarian and foreign shareholders and entrepreneurs.

3.2 Extension

The farmers should be categorised and extension resources should be allocated to each group according to their respective priority and structure. Hitherto, Bulgaria had the model of public extension services, which are completely subordinated by the Ministry of Agriculture and the system of policy making and planning was by a centralised approach. Hence, it is very often ascertained that a very small fraction of the farmers are really visiting the extension services and relying on extension services assistance. The NAAS, which is the mandatory extension service in Bulgaria, reported that in 2005 it visited 6,584 farms, while the total number of running farms during the same year is estimated up to 534,613 farms. Those farms contacted account for about 1.2% of all farms, testifying to the unreliability and insufficient outcomes of these services. The reasons can be attributed to several factors, the most important of which are those related to fragmented and self-subsistence features of Bulgarian agriculture and the restricted capacity of extension services in terms of material and technical deficit and limited staff competence. The perceived and real needs of different groups of farmers should be identified accurately and extension programmes should be designed to meet the requirements of the different groups.

The links between client groups and advisers should be strengthened in order to match advisers abilities to the farmers needs, as inadequate confidence of the farmers about reliability and usefulness of information in the extension offices is a critical reason why these people neglect and criticise the extension service activities. Many advisers within NAAS are there because they lost their jobs in research institutes or on the collective farms. In these circumstances it is, perhaps, surprising that there are so many highly motivated advisers. However, if standards are to be improved further then better-qualified people will be needed. Pay and prospects for advancement are key incentives but the perceived status of advisers as being lower than that of "proper scientists" working in universities and institutes means that some of the best people will not make a change of career to extension work.

The farmers are still confused in the market economy and generally sceptical of the value of advisers, especially if they come from the government. The farmer's financial resources are very small and for the great majority of farmers the land provides for their own needs with a small surplus being sold. In these circumstances greater credibility can be expected to be given to an adviser who is known to have relevant knowledge. However, the government selects only suitably qualified personnel but very often these staff are far from the real cultural sensitivities of farmers and without practical skills to fulfil competent help to them. In practice, the government advisory services tend to take existing government staff who are probably technically qualified but who often have, at best, only a small interest in and understanding of extension. In Bulgaria, any idea about emergence and launch of private extension services is not heard yet. These could contribute to increased competitiveness and may give greater credibility to advisers in the farmers' eyes, and also provide a measure of control for governments in the administration of support for the advisers.

3.3 Linkages between technology transfer agencies

From an institutional and organisational point of view, the education in the system of State professional schools subordinated by the Ministry of Agriculture and Forestry is antithetical from the preceding socialistic period. Nowhere in EU countries is there direct governance of the schools by the State, and Ministries of Agriculture are not responsible and commissioned as the principal overseers of such schools. Usually, the agrarian authorities have a decisive and important role in formation and creation of curriculum and educational programmes. Also, the State authorities determine the subsidies and State quotas for matriculation of students. Along with the professional schools handled by the MAF in Bulgaria, a system for professional education has been established managed by the Ministry of Education. Some of these schools belong to the municipalities and are run by local authorities, while another part of them are mandated by the State through the regional State administration. The agrarian professional schools are being governed directly from the Directorate “Science and Education” in the Ministry of Education. It leads to interception of the interaction between regional needs from specialists and number of students determined by the Ministry for enrolment. In fact, it is not yet the practice for the State authorities to discuss with local businesses and other economic entities the needs for specialists, majors and the number of students educated in particular fields. Therefore, as a result, the linkage between the State organised and mandated education structures is disjointed, there are a great number of leakages and faults and a great part of the courses, classes and educational programmes are inexpedient and irrational.

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ANNEX

Training provision and use by the rural population

Approx. % of population that is rural by:	
(a) place of residence	11%
(b) place of work	48%
Approx. % of all workers in rural areas in:	
(a) agricultural employment	75%
(b) non-agricultural employment	25%
Number of universities and similar institutions with agricultural courses	44
Number of colleges and similar institutions providing agricultural training	98
Number of other training providers:	
(a) publicly funded	90%
(b) privately funded	10%
Approx. % of agricultural personnel with:	
(a) degree or equivalent	1%
(b) diploma or equivalent	3%
(c) certificate or equivalent	2-3%
(d) full secondary education	21%
(e) less than full secondary education	53%
(f) little or no formal education	20%
Estimated level of demand for further training: (use A=high, B=moderate, C=low)	
Agriculture – arable/cropping production	C
Agriculture – livestock production	C
Business management	B
Agri-tourism and alternative tourism	A
Business planning and project management	A
Marketing of agricultural production	A
Organic agriculture	A

Advisory and extension services available to agricultural and rural businesses

Public sector organisations by name	Approximate number of advisors or consultants
National Agricultural Advisory Service	230 Advisors (5 000 consultations)
National Veterinary Office	30 Vet Advisors (17 000 consultations)
Executive Agency for Livestock Breeding and Reproduction	160 Advisors (5 000 consultations)
National Service for Plant Protection	30 Advisors (4500 consultations)
National Department for Cereal and Fodder Science	30 Advisors (2500 consultations)
Executive Agency for Vines and Wines	10 Advisors (250 consultations)
National Centre for Agrarian Science	2 000 Scientists (4000 consultations)
Private sector organisations by name	Approximate number of advisors or consultants
Bulgarian Agricultural Chamber	500
Bulgarian Farmer Association	1 000
Agricultural Production Association	1 000
Bulgarian Economic Chamber	500
Union of Agricultural Co-operatives	2 500
Association of Milk Processors	1 000
National Vine and Wine Chamber	200
Association of Meat Processors	200
Union of Poultry Producers	300
Union of Processors of Vegetables and Fruits	300
Estimated % of farmers actually *using* advisory services of some sort	37%
Estimated % of NAE rural businesses actually *using* advisory services of some sort	4%
Estimated demand for *new* advisory services - % of all farms and other rural businesses	18%