



Balkan Agro Food Network

Support the opening of the European Research Area by developing
a sustainable network in agricultural and food sector in the Western Balkan

Agri-food research in the Western Balkan Countries:

AGRIFOOD RESEARCH IN ALBANIA **National Mapping Report**

This publication is part of a project called “Setting up of an agricultural & food research network in the Western Balkan countries”, which has been awarded financial support by the European Commission through Contract no. 026361 under the Sixth Framework Programme for Research, Technological Development and Demonstration Activities (2002 to 2006), and its specific programme ‘Integrating and Strengthening the European Research Area – Specific measures in support of international co-operation’.

Editor's note

This 'mapping report' is a country-specific synthesis of the statistical information and the survey results available to describe agrifood research in Albania. The main source of information was the web-assisted survey conducted in the BAFN project frame in 2006 and 2007. When relevant, available complementary statistics were also used.

It needs to be stressed that Albania has only few agrifood research capacities. Altogether, a total of 26 research units were identified of which 9 have answered the survey questionnaire. This gives an acceptable yet rather moderate base for most of the statements in this report. It means that although no major deviations would be expected if there were more responses, still, the survey results should be considered more as orientating and not as exact figures.

In providing a more general context to the mapping, GKI Economic Research Co. has relied upon the statements in the *Review Document* prepared by our BAFN project partners: Sustainable Energy Development Authority, Agriculture University of Tirana, and ETAT S.A.

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1. Agriculture and agrifood industry

Albania is **one of the poorest European countries**. Between 1990 and 1992 Albania ended 46 years of a closed Communist rule and established a multiparty democracy. Overall, the transition period is considered to be a success, but Albanian governments still have to deal with the underground economy. Although it has been improving considerably, but energy shortages and inadequate infrastructure contribute to Albania's **poor business environment**, which make it difficult to attract and sustain foreign investment. On the positive side, growth was strong in 2003-06 and inflation is low and stable. In the long term, **Albania would like to become an EU member country** (for more details see the *CIA World Factbook*).

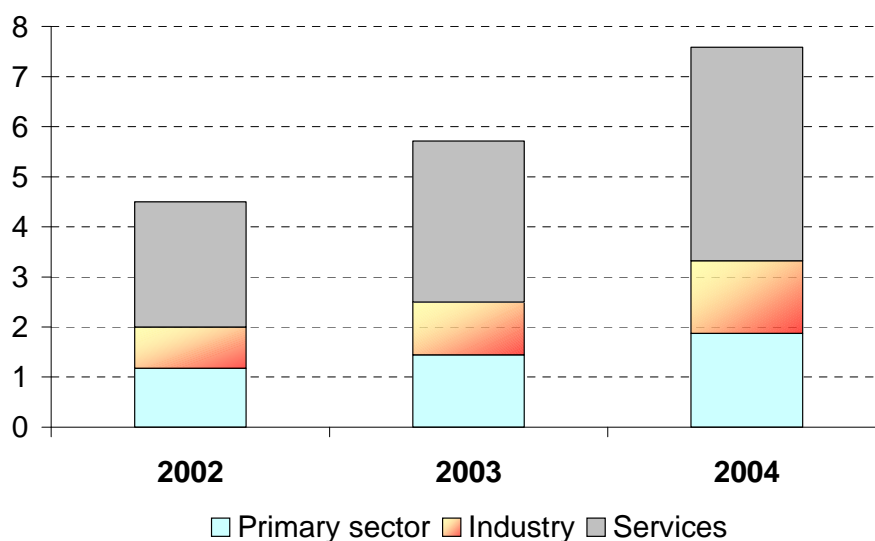
The per capita GDP in Albania today is about 2100 euros, unemployment is unemployment rate continued to fall below 14% in 2006. External debt is about 16% of GDP. The economy is bolstered by **annual remittances** from abroad of US\$ 600-800 million, mostly from Albanians residing in Greece and Italy; this helps offset the towering trade deficit (*CIA World Factbook*).

Corruption is widespread and constitutes a very serious problem in Albania. The government has drafted a new anti-corruption strategy for 2007-2013. A strategy covering an extended period shows a positive change in approach from short-term solutions to more effective and sustainable measures. Albania has made good progress in implementing the GRECO (Council of Europe Group of States against Corruption) 2002 recommendations. This has included, in particular, new public procurement legislation, measures to strengthen the independence and transparency of the Public Procurement Agency and the appointment of a public procurement ombudsman. (*European Commission, Progress Report [2007]*)

The service-sector accounts for 47%, industry for 32% and agriculture for 21% of the GDP. **Albania has a traditionally agricultural society**. Agriculture is the principal income source for rural households (54% of the population) accounting for **60% of the employment**. The food industry has high significance (for more details see also the *Review Document [2007]* and the *European Commission, Progress Report [2007]*).

Fig.1

GDP in the three main economic sectors (billion euro)



Source: WDI Database

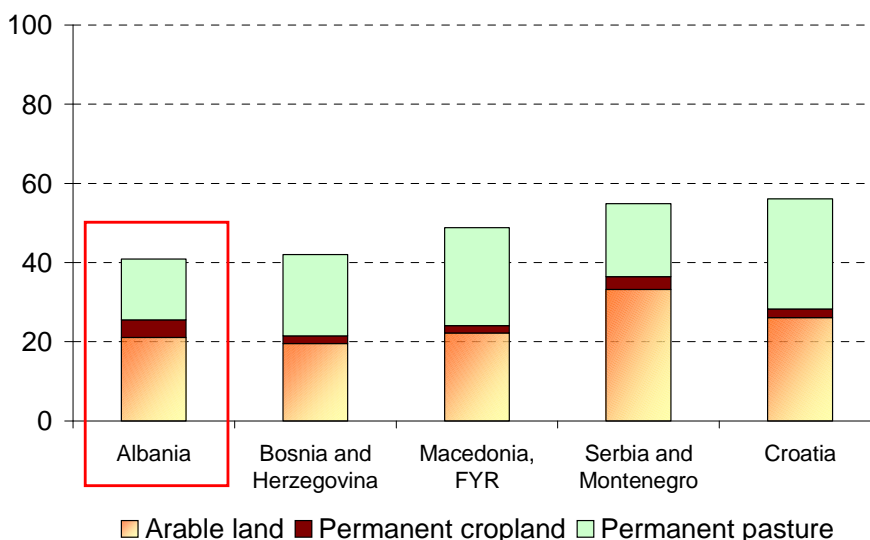
Although Albanian agriculture **lacks modern equipment**, as a result of land privatisation the sector has experienced high growth rates in the last years. Although the total number of farms is decreasing, the prevalence of **small, inefficient plots of land** is an obstacle in the long run. The *Review Document* [2007] also emphasises that poverty is higher in rural areas, and **migration towards urban areas** have given birth to new problems. Additionally, animal husbandry suffers from the shortage of fodder.

Agricultural production is predominantly for family consumption. Though Albania is a typical agricultural country, since the change of the regime it has become a **net importer of agrifood products**. The export of agricultural products is about 67 million US\$ of which food products account for 38 million euros per annum, the import is about seven times higher (WTO statistics for 2005).

The natural conditions are not bad for agriculture, although the general landscape is mountainous. The area surrounding Albania has relatively abundant fresh water resources. Seven main rivers run from east to west and there are substantial water storage capacities as well as potential to develop the fisheries sector. **About 41% of the land is used as agricultural land**. More than half (51%) of the agricultural land is arable land, about 38% is permanent pasture, the rest (11%) is permanent cropland (in 2003, see the WDI 2006 database for Albania). The *Review Document* [2007] notes that **the average agricultural land per capita is the smallest in Europe**.

Fig.2

Agricultural land as a % of land by type



Source: WDI 2006 database

Table 1

Agrifood industry performance indicators: Albania

	1990	1995	2004
Agriculture value added per workers in agriculture (constant 2000 US\$)	823	1 167	1 492*
Agriculture value added per sq. km of agricultural land (current US\$)	67 306	119 948	144 797
Export of agricultural products (% share of world trade)	n.a.	0,01	0,01
Export of food products (% share of world trade)	n.a.	0,01	0,01
Food export per agricultural worker (current 1000 US\$)	n.a.	0,0	0,5
Food import per population (current US\$)	n.a.	88	148

Source: WDI 2006 database, *1992, WTO statistics, **2003

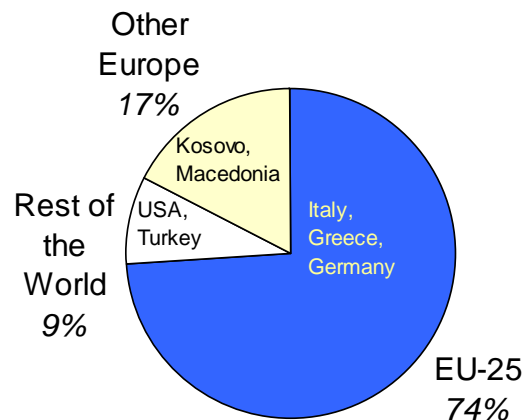
Despite the low volumes, the main exported agrifood products of Albania as identified by the *Review Document* [2007] are the following:

- tinned fish;
- medicinal plants;
- mineral water;
- unprocessed tobacco;
- raw leather;
- fish; and
- tinned vegetables.

The most important agrifood export markets are Italy, Kosovo, Greece and Germany – **in high correlation with the number of ethnic Albanians.**

Fig.3

Export products by main trading partners



Source: *Review document* [2007]. Note: correct statistical reference will be needed.

In addition to what was mentioned above, the *Review Document* [2007] identifies **a number of problem areas** that affect agricultural development in Albania. The most important ones are:

- uncertainties regarding land ownership;
- partial rehabilitation of the irrigation system;
- high prices of inputs and disorganized and inefficient systems of production and delivery;
- low level of crediting activities in the agricultural and food sector;
- poor transport infrastructure;
- high cost of agricultural machinery;
- electricity and the other uncertain energy sources (although the electricity situation is improving rapidly);
- underdeveloped, but improving marketing and market information;
- underdeveloped, but improving agro processing industry.

We can state that Albania has serious problems to cope with in its agriculture and agrifood industry **before attention can be paid to agrifood or any scientific research** as understood in the developed world. This is also evident by the number of policy documents developed with international aid. “Albanian agriculture is at a stage when growing and qualitative changes are occurring, but it needs to be oriented and supported in harmony with the whole social and economic development process.” (quoted from the *Review Document* [2007]).

Direct payments per area were introduced for vine, olive and fruit growing, providing incentives to increase production. The agricultural extension and research system is currently under review to adapt it to policy priorities. (*European Commission, Progress Report* [2007])

2. Agrifood research capacities

2.1. Institutional structure

Albania's first university was set up in 1957 and the other universities were established in 1992-1993 (*Review Document* [2007]). This implies that **the institutional system for R&D** is not a mature one and it is the case for agrifood research as well.

Scientific Research in Albania is regulated by two laws, respectively the law Nr.7893 of year 1994 about "Science and technological development" and the recently approved law on "The Higher Education" Nr.9741 of the year 2007. Additionally there are several bylaws and governmental normative acts controlling the field. The principle trend of the scientific research reform consists in the creation of a unique and integral education and research system in Albania. This implies the revision of the status of the existing research institutes under the administration of several ministries and the Academy of Science, as well as their transformation and integration within the University of Tirana, the Polytechnic University of Tirana and the University of Agriculture of Tirana. In the field of the Agricultural Research this implies that several public research institutes such as the Institute of Fisheries, the Institute of Plant Protection, the Institute of Arboriculture are now part of the University of Agriculture of Tirana and can not be considered as public research institutes, but as university research institutes instead.

Some former institutions have been dissolved and have given rise to several technology transfer centres which do still reside under the administrative control of the Ministry of Food, Agriculture and the Consumer Protection. These centres can no longer benefit from state funds for research and development which are allocated annually under a competitive basis to Universities upon application. Although the technology transfer centres pertaining to the Ministry of Agriculture can not be funded by the state budget on science and research, they are financed by funds allocated for agricultural services and extensions. According to some provisions of the law Nr.7893 of year 1994 technology transfer can be considered as part of the applied research and therefore although as not treated as such, those centers might be considered as involved in the agricultural research activities of the country.

The null response rate, reported in the questionnaires distributed to the public research institutions of Agriculture in Albania might be related to their not yet well defined status in the research area following the reform. (This short overview of the situation as of March 2008 was written by *Edmond Panariti*).

In Albania **no private business was identified** as an organisation that conducts agrifood research. Probably there are some companies, which undertake such research activities, but the fact that they are presumably very few in number as compared with state-owned institutions (especially higher education units) contrasts global agrifood research trends in the developed countries.

Table 2

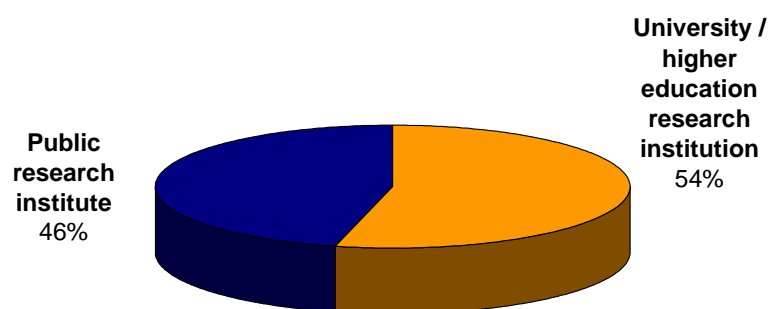
Number of agrifood research groups identified and response rate to the BAFN survey in March 2008

	Number of research groups	Response rate (%)
University / higher education research institution	14	64
Public research institute (e.g. Academy of Science, government research organisation, etc.)	12	0
Private non-profit institution	0	0
Business enterprise	0	0
Other	0	0
Total	26	35

Source: BAFN Survey, March 2008

In Albania the number of agrifood research groups totals 26, of which 54% (14) is in a university or a higher education institution and the remaining 46% (12) is in a public research institute (e.g. Academy of Science, government research organisation, etc.). Thus, **the majority of agrifood research groups belong to a higher education research unit**. The detailed list of organisations can be seen in the Annex.

Agrifood research groups identified by type (%)



Source: BAFN Survey, March 2008

By March 2008 the BAFN Survey questionnaire was responded by 9 university and higher education unit, but no public agrifood research institute.

2.2. Financing agrifood R&D

The main institution responsible for R&D is the Ministry of Education and Science, but a **reorganisation is under way** with the creation of a unique National Centre for R&D and the introduction of standards on research indicators following OECD guidelines, together with well-defined procedures for financing and accreditation of Universities (Science, Technology and Economic Development in South Eastern Europe, UNESCO, quoted by the *Review Document* [2007]). Not surprisingly, **there are no official R&D statistics available**.

The *Review Document* [2007] identified the following key S&T policy trends:

- agrifood research policy is part of the national agriculture policy (has small weight and lack of financial resources, though);
- increase of the productivity and competitiveness of the agrifood sector and integration into EU and regional markets are medium-term policy goals;
- the Albanian Academy of Sciences focuses on 6 priority areas, these are: Albanology; natural resources; ICT systems; biotechnology and biodiversity; agriculture and food; and geology, mineral extraction and elaboration;
- there is a debate about funding the Agricultural University on a programme / project basis.

The state of economic development assumes low research spending in general and **very low agrifood R&D** spending in particular. The *Review Document* [2007] mentions that the main national funding opportunity is the state budget. The program “Agriculture and Food” has a 2 million euro annual budget. Its main beneficiaries are farmers and agro-businesses; policy makers; the NGO-sector and students of Agricultural University. The target areas of the program are plant breeding, technology improvement, environmental protection, food safety, sustainable resource management and organic agriculture.

The *Review Document* [2007] identified a number of international initiatives and programmes that could help Albanian agrifood research. However, they mean only potential and **thus far no account of significant assistance** to Albanian agrifood research can be given. Bilateral cooperation is more successful and Albania is or was collaborating with Belgium, Croatia, France, Germany, Greece, Italy and Spain.

By March 2008 9 agrifood research organisations from Albania took part in the BAFN survey. Their response to the question on research budget financing shows that **funds from abroad and the government** are the most important source of financing agrifood R&D in Albania.

The *Review Document* [2007] notes that investments for laboratory equipments and staff training with foreign and own government support could take place. The private sector does not provide funds to the Research/Technological Institutions and/or Universities for research. There is a traditional lack of university-industry relationships, so some measures have been taken by the Albanian government in 1997 to stimulate cooperation with the private sector. **Albanian institutions can keep 90% of the income from work for third parties**, of which 60% can be used as a salary supplement for their employees (Science, Technology and Economic Development in South Eastern Europe, UNESCO, quoted by the *Review Document* [2007]).

2.3. Human resources

Over the last fifteen years, there have been two processes directly affecting the R&D sector: the massive and continuous **'brain-drain'**, frequently of top experts who emigrated to seek employment opportunities abroad; and the so-called **'brain-waste'**, when specialists left their professions for better paid jobs in the private and/or informal sector of the economy. (Science, Technology and Economic Development in South Eastern Europe, UNESCO, quoted by the *Review Document* [2007]).

Over the last ten years, the University of Tirana lost some 40% of its academic staff, of which 90% were under 40 years old (see Popa, Eftimi and Fuga, 2002, quoted by the *Review Document* [2007]). Currently, Albanian universities and research institutes are in a critical situation because of lack of human resources.

By March 2008, the 9 respondent agrifood research organisations (35% of the total) reported 126 researchers on a Full Time Equivalent (FTE) basis. Therefore, **the number of researchers in the agrifood sector is estimated at around 300**. This estimate is in line with the numbers in the *Review Document* [2007]:

Table 3

Total number of researchers in the agrifood sector as estimated for 2006

	Research Institutes & Ministry of Agriculture	Agricultural University	Total
Agriculture and Veterinary Science	77	85	162
Food Science & Technology	10	19	29
Natural Resources Management & Agricultural Engineering	28	15	43
Rural Economics & Development	10	50	60
TOTAL	125	169	294

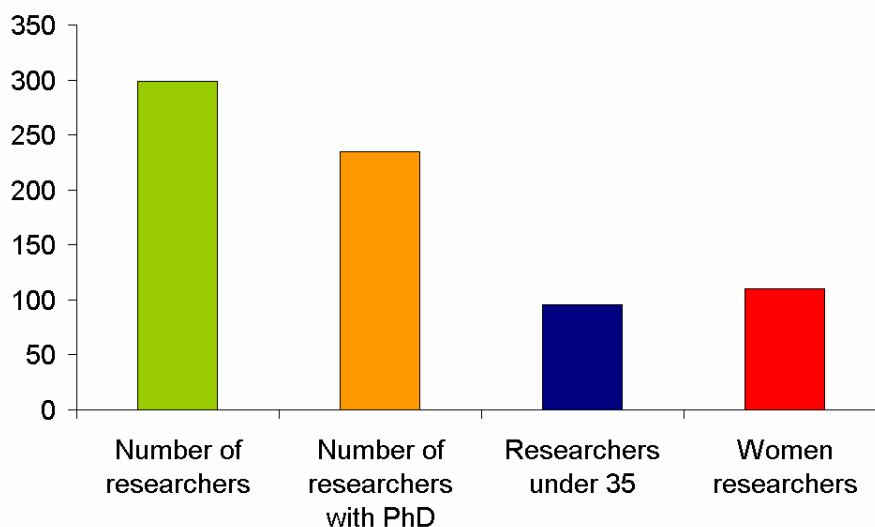
Source: *Review Document* [2007]

All of the surveyed agrifood research organisations employ less than 50 employees (56% of them has less than 15 employees).

79% of the agrifood researchers have a Ph.D. degree or higher. Slightly less than one third of the researchers are under 35 and the proportion of women reaches 37%.

Fig.5

Estimated number of agrifood researchers (FTE) in the public sector 2006-2007



Source: BAFN Survey, March 2008

More than half of the research personnel in Albania work on three scientific fields:

- plant production and protection,
- management of natural and biological resources,
- animal health and welfare.

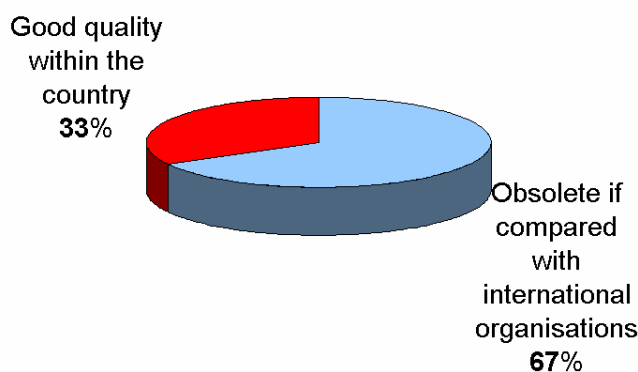
The *Review Document* [2007] also notes that **age discontinuity** is a serious problem in scientific institutions in general and agrifood research units in particular.

2.4. Research infrastructure

In Albania 67% of the research institutions have obsolete research infrastructure, 33% has good quality infrastructure within the country, while none of the institutions has internationally competitive research infrastructure.

Fig.6

Quality of the research infrastructure



Source: BAFN Survey, March 2008

Most of the few agrifood research units in Albania has **obsolete research infrastructure** if compared with international organisations and it is an obstacle to international research co-operation.

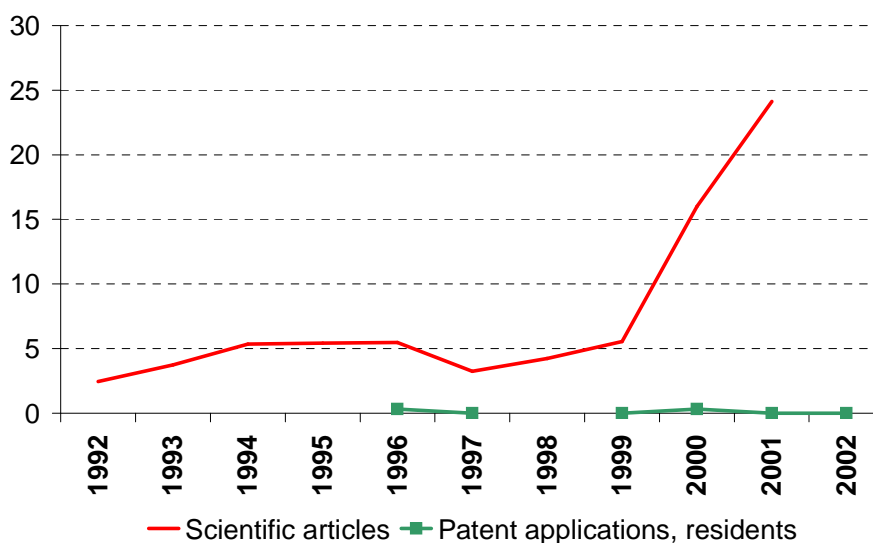
3. Agrifood research performance

3.1. Innovative and scientific output

After the first years of political and economic transition the number of scientific and engineering articles started to grow sharply, but the level is still very low in international comparison. In terms of patents per population **no development** can be seen.

Fig.7

Scientific articles and resident patent applications per million people



Source: WDI 2006 database

Over the last 3 years all agrifood research units published articles, but none of them commercialized new products and technologies, while only one patent applications was filed. These numbers show **very poor innovation capabilities** even if compared with the New Member States of the European Union (preliminary results from the *AgriMapping* project).

According to the *Review Document* [2007] 50 varieties are registered by National Seed Entity (1995-2006) and released by Albanian Research Institutes and Agricultural University.

To measure the real innovative impact and relative scientific performance, the BAFN consortium decided to measure the following:

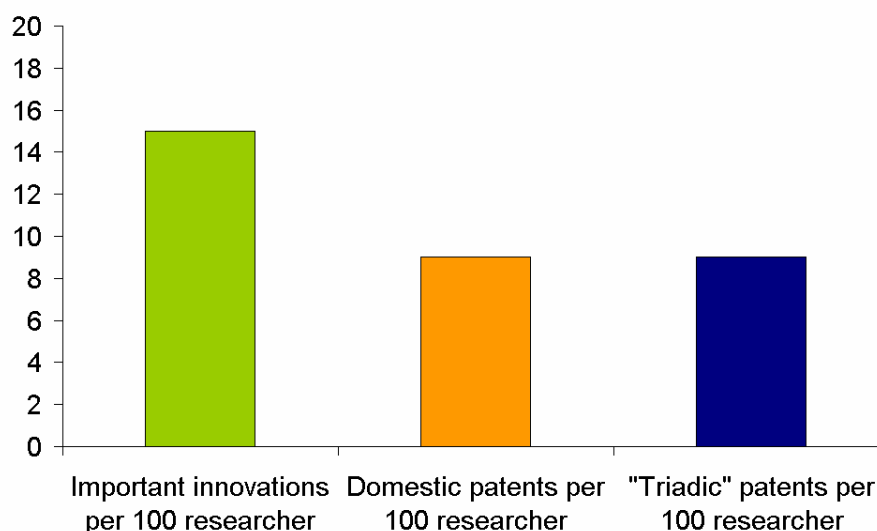
- *Important innovation*: a new product / technology / organisational mode / tool or method had or contributed to an additional turnover of more than EUR 100 thousand or more than 500 people use a new product/technology or it saved life or improved the quality of life substantially. The research organisation's contribution is substantial if at least one third of the new knowledge came from the research organisation.
- *Triadic patents*: patents granted by the EPO (European Patent Office) and/or JPO (Japan Patent Office) and/or the USPTO (United States Patent and Trademark Office).
- *International publications*: publications in journals reviewed by the Institute for Scientific Information

The research units of Albania developed 15 important innovations, patented 9 domestic and 9 Triadic patents per 100 researchers between 2003-2005. These numbers are slightly lower than

the average as compared with the New Member States of the EU, but among the BAFN countries, Albanian **publication intensity seems high** (preliminary results from the *AgriMapping* project).

Fig.8

Innovation indicators



Source: BAFN Survey, March 2008

Table 4

Agrifood research activity by research areas

	Number of important innovations	Number of international patents (EPO, JPO, USPTO)	Number of large projects	Number of articles in international journals	Number of studies and reports*	Number of standards written**
Economic, social and political aspects	0	0	1	1	4	0
Food technology, human nutrition and consumer concerns	0	0	0	0	0	0
Engineering, mechanisation, ICT	0	0	1	1	0	0
Plant breeding and biotechnology	0	0	1	1	0	0
Plant production and protection	0	0	0	0	5	0
Animal production and husbandry	0	0	9	4	6	0
Animal health and welfare	0	0	3	1	2	0
Aquaculture and Fisheries	0	0	1	1	3	0
Forestry and landscape	0	0	0	1	0	0
Management of natural and biological resources	0	0	4	3	17	0
Horizontal issues	0	0	0	0	0	0
Not identified research area	16	10		115		
Total	16	10	20	128	37	0

Source: BAFN Survey, March 2008

* Only reports financed by and / or supplied to national (and international) organisations. The research group is a major contributor to these reports: at least one third of the knowledge should come from the research group.

** Only approved standards. The research group is a major contributor to these reports / standards: at least one third of the knowledge should come from the research

The **most active research areas** in the agrifood sector by research activity according to the BAFN Survey (March 2008) are the **management of natural and biological resources** and **animal production and husbandry**. In this respect there may be some change as the response rate to the survey increases.

It is worth stressing that according to the *Review Document* [2007], the research priorities of the Albanian agrifood scientific community seems to be in accordance with socio-economic needs. It is also true, however, that we do not know the actual weight of these priorities:

- conservation and breeding of plant and animal resources;
- food quality and safety management;
- soil erosion, pollution, irrigation and drainage;
- sustainable and integrated development of forestry;
- plant and animal diseases monitoring and control;
- biological diversity and biotechnology;
- application of new technologies and improvement of existing ones;
- identification and preservation of the genetic authenticity and diversity of plant, animal and fish in Albania;
- organic agriculture;
- studies on food analysis and biochemistry, veterinary diagnosis and prophylactics, studies on main pests and diseases and preventive actions, etc.;
- marketing system in agriculture;
- migration related problems in the rural areas;
- implementation of the mathematical and applied informatics in agriculture;
- influences of the climatic changes in the agriculture, environment and human health.

For the private sector, quality and safety issues of local raw materials and processed products and ways for their improvement seem to have outstanding importance.

3.2. Research competence

Research competence is shown by two rather different measures:

- the ability to take part in and conduct large *research projects*, in which the total project budget is above EUR 100 thousand and the research organisation's share is at least EUR 20 thousand;
- the ability to *attract foreign researchers* for doing real research work, which is defined with the help of the hosting period (hosting a foreign researcher for more than 6 weeks).

The number of ongoing large research projects¹ was 44 in 2005 in Albania, of which 23 was realized in collaboration with industry, 23 was co-ordinated by the surveyed research organizations and 18 of the projects were organized relating the EU Framework Programme. 24 large projects were completed in 2005, 92% of these in collaboration with industry and 92% in co-ordination of the research organisation. 10 of the large projects run in the framework of European Union programmes. Large projects per 100 researchers is higher than the average as compared with the New Member States of the EU (preliminary results from the *AgriMapping* project).

Table 5

Number of large agrifood research projects

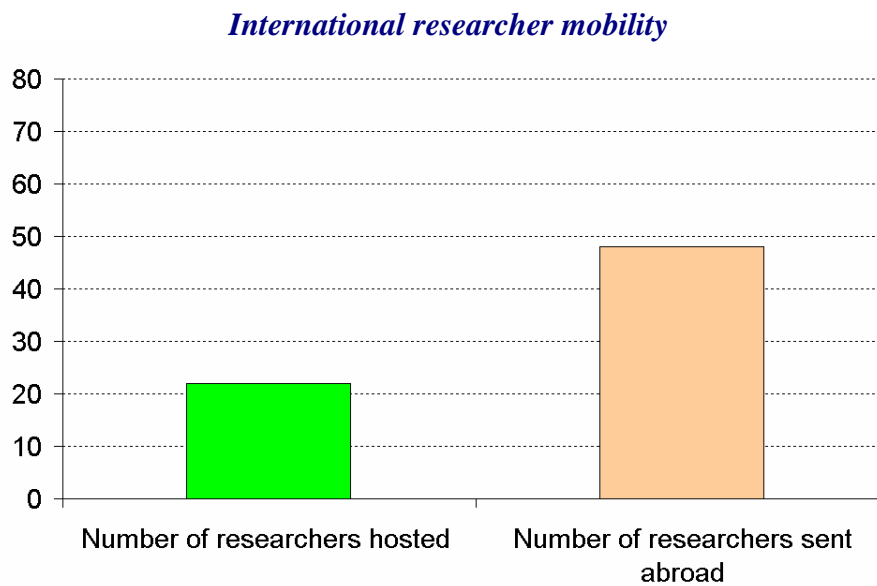
	Ongoing / started in 2005	Completed in 2005
Number of large research projects*	44	24
<i>Of which</i>		
projects in collaboration with industry	23 (52% of total)	22 (92%)
projects in which the organisation co-ordinates	23 (52%)	22 (92%)
European Union Framework Programme projects	18 (41%)	10 (42%)

* the total project budget is above EUR 100 thousand and the organisation's share is at least EUR 20 thousand
Source: BAFN Survey, March 2008

¹ The total project budget is above EUR 100 thousand and the organisation's share is at least EUR 20 thousand.

In 2003-2005 the total number of foreign researchers hosted for more than 1,5 months (without those, who came to acquire a Ph.D. degree) in the period 2003-2005 was 22, at the same time the number of researchers sent abroad to do research for at least 1,5 months was 48.

Fig.9



Source: BAFN Survey, March 2008

Nevertheless, **international researcher mobility is the most intensive on the scientific fields of economic, social and political aspects and food technology, human nutrition and consumer concerns.** This finding is in line with the importance of these research areas in terms of human resources and infrastructure.

In relative terms (as a percent of researchers), Albania attracts more foreign researchers than the New Member States of the EU, whereas the country is an above-average sender of its own researchers abroad (preliminary results from the *AgriMapping* project). This shows some dynamics on the few agrifood research fields the country pursues.

4. Concluding remarks

For nearly a century Albania has been a sovereign state, but the country has chosen the hard road of transition after a closed communist regime. Albania has always been a peripheral area of continental Europe, with traditions in subsistence farming. Although some industrial progress and economic growth has started, the country is still very much hit by poverty and low-technology agriculture based on very small plots of land has a major weight in the economy. This means that a longer period is needed before Albania can focus on science and technology, because building basic infrastructures need to come first.

In Albania there are only few and rather small agrifood research capacities. Together with Bosnia and Herzegovina, Albania has the smallest agrifood research capacities among the BAFN countries (Albania, Bosnia and Herzegovina, Croatia, Macedonia, Montenegro and Serbia). The sector is dominated by state-owned institutions. Many university and public research institute capacities lack middle-age researchers, which is a consequence of migration of the qualified personnel. Altogether, the number of researchers in the agrifood sector is estimated at 300. Brain drain and brain waste processes are still going on, hopefully they will slow down in parallel with economic catching up, which has started.

Agrifood research capacities are concentrated on scientific fields, which are less technology-intensive (economic aspects and horizontal issues), but food technology, human nutrition and consumer concerns also has some importance. The general state of agrifood research infrastructure is rather poor.

Agrifood research in Albania has the chance to develop if the whole country develops and if the agrifood sector catches up in terms of technologies. If managed well, the state owned agrifood research could help the modernisation process.

References

Agrifood research in Europe. GKI presentation of the findings of the AgriMapping project. Project workshop in Istanbul, 24-25 May 2007

CIA World Factbook

EU Commission working document on Albania 2007 progress report, Enlargement strategy and main challenges 2007-2008

Nations Encyclopedia

Review document on the current situation for Albania. BAFN working paper 2007. Written By: Sustainable Energy Development Authority, Agriculture University of Tirana. Information Compiled - Revised by ETAT S.A.

World Development Indicators 2006 database

Annex: Agrifood research organisations in Albania

Name	X, if took part in the BAFN survey
Academy of Science	
Hydrometeorological Institute	
Department of Meteorology	
Agrometeorological Sector	
Agricultural University of Tirana (AUT)	
Department of Agro-food Technology	X
Faculty of Agriculture	
Department of Animal Production	X
Department of Agroenvironment and Ecology	X
Department of Crop Production	X
Department of Economics & Agrarian Policy	X
Department of Farm Management and Agrobusiness	X
Department of Horticulture and Plant Protection	X
Faculty of Forestry Sciences	
Department of Wood Processing	
Forestry Department	X
Faculty of Veterinary Medicine	
Department of Clinical Subjects	
Department of Morphofunctional Subjects	X
Department of Preclinical Subject	X
Center of Agricultural Technology Transfer-Korca	
Department of Agriculture	
Plant Laboratory, Milk Laboratory; Experimental Station	
Livestock Department	
Center of Agricultural Technology Transfer-Lushnja	
Department of Vegetables	
Laboratories: Germoplasm Room; Experimental Station	
Wheat Section (Technology Transfer & Seed Production)	
Center of Agricultural Technology Transfer-Shkodra	
Department of Agriculture	
Plant Laboratory & Experimental Station	
Centre of Agricultural Technology Transfer-Fushe Kruja	
Department of Agriculture	
Land & Water Service Department	
Livestock Department	
Centre of Agricultural Technology Transfer-Vlora	
Department of Agriculture	
In-Vitro Laboratory and Experimental Station	
Institute of Food Safety and Veterinary-Tirana	
University of Korca Fan S. Noli	

Source: *Review Document* [2007]