



Setting up the innovation support mechanisms and increasing awareness on the potential of Food Innovation and RTD in the South-East Europe area

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WORK PACKAGE 4: SETTING UP MECHANISMS FOR BOOSTING FOOD INNOVATION

D4.2- Operational Plans for food RTD and innovation

Partner	Official name (in English)	Abbreviation	Country
LP	Centre for Research and Technology Hellas- Institute of Agrobiotechnology	EKETA- INA	Greece
ERDF PP1	Federation of Industries of Northern Greece	SVVE	Greece
ERDF PP2	National Research Council- Institute of Sciences of Food Production	CNR/ISPA	Italy
ERDF PP3	Agricultural University of Plovdiv	AUP	Bulgaria
ERDF PP4	Pazardzhik Regional Administration	OAP	Bulgaria
ERDF PP5	National Institute of Research & Development for Food Bioresources	IBA	Romania
ERDF PP6	Constanta Chamber of Commerce, Industry, Shipping And Agriculture	CCINA	Romania
ERDF PP7	Development Agency of Idrija and Cerkno	ICRA	Slovenia
ERDF PP8	European Food Chain Parliament-Foodlawment	EFPF	Hungary
10% PP1	Odessa National Academy of Food Technologies	ONAFI	Ukraine
10% PP2	Chamber of Commerce and Industry of the Republic of Moldova	CCIRM	Republic of Moldova
10% PP3	Institute for Food Technology	FINS	Serbia

Contents:

D4.2- Operational Plans for food RTD and innovation

Annexes:

Annex 1:

Annex 2:

Abstract:

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List of Acronyms and Abbreviations

Acronym/abbreviation	Resolution
GDP	Gross Domestic Product
GERD	Gross Expenditure on Research and Development
ICT	Information and Communication Technologies
NSF.	National Science Fund
NIF.	National Innovation Fund
OP	Operational Programme
R&D	Research and development
RTD	Research and technological development
SME	Small and medium enterprise

TABLE OF CONTENTS

TABLE OF CONTENTS.....	5
EXECUTIVE SUMMARY	6
1. INTRODUCTION, SCOPE AND METHODOLOGY.....	7
2. REGION OF PAZARDZHIK.....	9
3. TRANSNATIONAL SEE ACTIVITIES.....	26
4. IMPLEMENTATION PLAN	27
ANNEX 1 – FRAMEWORK AGREEMENT- INTENTION FOR TRANS-REGIONAL COOPERATION.....	29

EXECUTIVE SUMMARY

(to be compiled by CERTH- INEB)

1. INTRODUCTION, SCOPE AND METHODOLOGY

(to be compiled by CERTH- INEB)

In the framework of this activity, the partners will develop Operational Plans for supporting food innovation in their regional context with a view to promoting knowledge- based economic development in the agrofood sector. The idea is that these Operational Plans will be presented and suggested to regional and national authorities as a part of the debate for the development of the various instruments introduced in the upcoming Programming Period 2014-2020.

How to draft the Operational Plans

Phase 1: *The Inno- Food SEE partners will use the results of D3.3 and D3.4 and develop a set of suggestions for the measures that could be included in the Operational Plans. The partners will use a standard template for drafting the measures (to be provided at a later stage), this will enable presenting the measures in such a manner that would be easy for the stakeholders and decision makers to utilise and comment upon in the 2nd phase.*

Phase 2: *A meeting with the selected stakeholders and decision makers per region/ country will be organised to feed the consultative process for the development of the Operational Plans. The stakeholders and decision makers should receive the suggested measures beforehand, thus the meeting will be dedicated to discussing the measures.*

Phase 3: *One (or two- see below) meeting/-s of 2-3 stakeholders and decision makers from each region/ country will be organised in order to feed the consultative process for the development of the Operational Plans and to propose measures on a SEE/ regional level.*

One meeting is already described under act. 2.5; it is part of the final Conference that will take place in Budapest. In the possible event of securing a 6-month project extension and a consequent organisation of the next project meeting in Plovdiv in September, it is also suggested that a meeting of regional stakeholders is organised adjoined to the meeting in Plovdiv as a preparatory step for the finalisation of the Operational Plans.

***Phase 4:** In this final step the Inno- Food SEE partners will synthesise the feedback from the previous phases and finalise the measures.*

2. REGION OF PAZARDZHIK

2.1 DESCRIPTION OF THE REGIONAL CURRENT STATE OF PLAY

The agricultural sector being of major significance for Pazardzhik region due to the favourable natural conditions and traditions in this sector, food production holds the second largest share of industrial companies registered in the region (16.36% in 2010). The largest number of these are enterprises producing bread and other food products - 98, followed by enterprises producing beverages - 27, and processing and preserving fruit and vegetables – 18. In terms of revenues of the enterprises the food industry has a leading position with 16.50% of the revenues of all industrial enterprises in the region (2010). However, in terms of share of the regional gross industrial production, GDP, income and employment in industry, the sector is only of modest significance. The food industry is highly dependent on agriculture as a major source of raw materials. Basic agricultural trends in the region involve the production of a variety of cereals, vegetables and potatoes, vine growing, oil-supply crops and orchards for which the region features favourable climatic and soil conditions. Animal breeding has been an important strand for the mountain areas of the region as well. However, in spite of the fact that the food industry has recently shown some visible progress towards achieving European standards and renovation of production facilities (all meet HACCP requirements and approx. 50% introduced ISO9001), agriculture has not been developing towards these goals in the same pace and the rate of modernization is much slower, thus failing to keep up to the increased demand for high-quality raw materials of the food producers.

The results of the Technology Audits carried out within the framework of the current project among regional food enterprises indicate that most of the food SMEs are fairly open to innovations - references to innovation are made in the company's mission or vision for 60% of the SMEs. According to food SMEs' own opinion the main source of innovation is the new process equipment in which 70% of the food SMEs have invested. About 46% of the food SMEs organize their innovation activities externally. The companies in the food Industry report they have adopted in the last 5 years advanced systems, new technologies and processes for product diversification, and increased the production range with new and by-products. In addition to offering new products many other marketing approaches have been adopted as well, especially media advertising, social networking, making comfortable and ecological packaging, branding, improving distribution channels, issuing of recipes, etc. During the past five years, 58% of the SMEs report to have been involved in some type of

innovation and technology projects. The innovation projects address almost equally new technologies and new products. The objectives which companies are willing to set in an eventual innovation project are product quality, production efficiency, packaging, process quality and safety, and only 4% are considering new products. Major obstacles to participation in innovation projects indicated by food companies are the lacking information about the availability of such projects, long time for approval and for implementation of projects, insufficient resources (time, funds, technical and personnel capacity), lack of external funding and partners, as well as the reduced consumption as a result of the financial crisis.

Only a low number of food SMEs report to have their own internal R&D department (28%) while almost all (92%) organize internally their innovation activities. Only 46% of the SMEs report to organize their innovation activities externally most of them (38%) cooperating with companies in the sector and only few working with research centres/universities and consultancy companies (6% and 2%, respectively). Only 10% of the SMEs indicate that their resources allocated to R&D amount to 5% of the annual turnover in the last year, most of them using their internal resources.

On the other hand in the region of Pazardzhik there are no universities or research centres. However, the largest number of universities and research institutes specialized both in the area of agriculture and specifically in the food sector are concentrated in the nearby city of Plovdiv (35 km). The University of Food Technologies is a separate institution from the Agricultural University, and the research institutes in this field are mostly concentrated on studies related to agricultural technologies and not specifically on food technologies. Research in the agri-food sector is predominantly carried out within the units of the national Agricultural Academy through participation in national projects while international initiatives are quite unevenly distributed among the different organizations. Equipment in most of the universities and research institutes is out-of-date and modern devices such as NMR, LC-MS, RT-PCR, DNA sequencer, etc. are rarely to be found. The prevailing patents were acquired before 2000 and the reported later ones refer mainly to new plant cultivars and animal breeds. Actually, the results from fundamental basic research (such as scientific publication) far outreach the results of applied research, such as patents, licenses, spin-off, etc. Spin-offs are not to be found anywhere and few RTD entities manage to generate additional income through commercializing products, providing services or expert advice. Contacts between business and science in many cases are informal and hidden while being either ineffective or not at all institutionalized. A specific form of entrepreneurship popular among universities is the establishment of unincorporated partnerships, set up under the Law on Obligations and

Contracts mostly for R&D, education and training but these only in isolated cases directly commercialize R&D results. In general, there is lack of enterprise initiative among scientists, researchers and the management of R&D and academic institutions. The economic crisis had a considerable negative effect on the number of personnel engaged in R&D and latest data (2010) show a decline in the number of staff engaged in R&D while the ageing of R&D personnel continues. The prevailing number of RTD entities consider that their strengths lie in the highly qualified staff, and their disadvantages – in the limited funding for research and poor links between the researchers and industry.

In terms of governance the research system in Bulgaria is centralized and policy-making and policy implementation are divided between various ministries and different governmental agencies reporting to the ministries at national level. The executive body for innovation policy implementation plays a variety of roles and implements innovation together with research or entrepreneurship measures as several ministries are adopting innovation agendas. As a consequence more coordination is needed since innovation governance provides a relevant role for these ministries other than the main one or two coordinating ministry(ies). The participation of the private sector and civil society in the policy-making process is through their involvement in different consultative bodies and is notably limited in most of them. Government representatives usually hold the majority of votes in decision-making. On the other hand, in terms of legal framework research priorities are formulated in a number of different strategic documents, e.g. *National Strategy for Scientific Research for the Period 2005-2013*, *National Strategy for Scientific Research for the Period 2009-2019*, *National Innovation Strategy*, *National Reform Programme 2007–2009*, *National Strategic Reference Framework 2007-2013*, etc. However, no new innovation policy support measures have been launched in the country between 2009 and 2011. Additionally, no clear distinction of responsibilities between R&D and innovation policies is made and they remain strongly intertwined which can lead to R&D being given priority over innovation. On the other hand, limited policy attention is displayed towards demand-side innovation so that the innovation policy debate is still strongly geared towards the supply-side. While the subject has only recently started to be considered in certain policy circles and examples of demand-side initiatives from other domains (such as environment or economic policy) exist, the demand-side is not a key focus of innovation policy and the policy focus is rather on fostering business innovation activities and linking academic and industrial research.

A large number of regulations affect innovation activities in the country but often, the impact of regulation on innovation is implicit rather than explicit, setting general framework conditions for businesses to operate. The bulk of regulation activities impinging upon

innovation are carried out outside the realm of innovation policy and is technology and industry specific. For instance, on a national scale there are examples of regulations used to promote the uptake of existing products such as in the field of e-services, payment methods, e-government but innovation was not the intended purpose. Specific priorities related to food innovation are formulated in the National Strategic Plan for Rural Development and National Strategic Plan for Fisheries and Aquaculture. These also envisage public funding which is the primary means of financing the centralised research system. EU financing of research and innovation has been increasing its importance in Bulgaria being dispensed more specifically through Operational Programmes under the National Strategic Reference Framework 2007-2013. EU funds have become the primary source of finance for R&D and innovation during the crisis. In fact, R&D financing from abroad has compensated for the decline in national public and private funding of R&D. Financial flows from the state budget are allocated for direct subsidies to the budgets of public research performing organisations but also the National Science Fund and the National Innovation Fund are the main funding bodies for public research based on the competitive project selection principle. However, no funding was allocated to the National Innovation Fund in 2009 and 2010. (GBAORD 2009 117,82 (million €) down to 99,713 in 2010)¹. The distribution of research and innovation policy funding grants amongst policy priorities in 2010 gave priority to research infrastructure and R&D cooperation and some to stimulation of PhDs and to management innovation and advisory services (Based on the ERAWATCH-TrendChart database). At regional level research related initiatives can be found in three types of documents relevant to regional policy – the Regional Plans for Development, the Regional Innovation Strategy of South –Central planning region (strategic documents at NUTS II level) and the Regional Development Strategy 2005-2015 for District of Pazardzhik (strategic document at NUTS III level). However, no mechanisms at regional or national level support their actual implementation and no authority is given to regional administrations in the distribution of EU funds on which these documents primarily rely for financing their priority measures.

Bulgaria's research policy can be described as generic with no specific thematic focus. Although policy documents outline visions and contain specific thematic areas, the available financing is scarce and cannot cover all proposed actions. Measures in support of food innovation which are implemented or have been implemented in the region of Pazardzhik comprise three priority axes of two national Operational programmes: the Rural Areas Development Programme and the Development of the Competitiveness of the Bulgarian

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http://ec.europa.eu/enterprise/policies/innovation/facts-figures-analysis/files/innovation-funding-trends-2011_en.pdf

Economy (“Improving the competitiveness of the agricultural and forestry sectors” and “LEADER”, and “Development of knowledge based economy and innovation activities”, respectively). Main categories of research and innovation measures undertaken were promotion and sustaining the creation and growth of innovative enterprises; research and technologies, and human resources (education and skills). However, according to a recent study Bulgaria shows both strengths and weaknesses in the same fields: strengths in human resource, intellectual property rights and economic effects innovations, and weaknesses in funding and support for innovations, networking and entrepreneurship, intellectual property and innovation results. This implies that the innovation system in the country is generally unbalanced.

Future policies, strategies and plans at national and regional level include the National Strategy for Research Development 2020, the National Strategy for Scientific Research for the Period 2009-2019, the National Reform Programme of the Republic of Bulgaria 2011-2015, the National R&D goal in the framework of Europe 2020 strategy, the National Roadmap for Research Infrastructures and the next programming period 2014-2020 national and regional documents envisaged for allocation of EU funding. A major change in this new period is the fact that a separate operational programme ‘Science, Education and Intelligent Growth’ is envisaged for funding science and the “Innovation and Competitiveness” OP will include an innovation strand as a major priority for funding RTD. The “Environment” OP and the “Human Resource Development” OP also envisage some support for innovative project applications in the fields of environment and social innovations, respectively. The National Innovation Strategy envisages that RTD spending should reach 1.15% of GDP by 2013. Also, in 2010 the Government declared an ambitious national GERD goal for 2020: 1.5% - 2% of GDP. These targets however are out of line with the current level of RTD financing which has been decreasing in the recent years and as a result of the general economic crises. However, in the last 15 years the structure of the RTD financing has been showing a stable trend of increase of the private funding and decrease of the public funding shares in the overall GERD.

2.2 KEY POINTS FROM THE SWOT/ SOR ANALYSIS AND POLICY RECOMMENDATIONS REPORT

Based on the SWOT and SOR analyses carried out for Pazardzhik region within the project the following main conclusions can be drawn up:

- The most significant strength of the regional food business is the high quality of products and processes in the food sector. This is a serious advantage that should be exploited in order to take maximum benefit from the external factors which are expected to be present in the future. For the food RTD entities a strong point is the availability of highly skilled personnel in some areas of the agro-food sector.
- The second in importance are local traditions in the production and processing of food products and the good economic relations maintained with EU and international companies. For food RTDs a second strong point is the growing number of collaboration activities between R&D entities and companies in the sector and the developed network of RTD units in the sector with established system of research, training, teaching and advisory bodies.
- In terms of weaknesses regional food SMEs experience lack of funds to invest in modern equipment, know-how and production diversification. Since this is considered of highest significance it should be dealt with the highest priority when considering future possibilities for food industry innovation. Other weaknesses of significance are the poor relations between food companies, RTD actors and organizations/institutions responsible for political decisions, and the poor innovation commitment and innovation mindset among entrepreneurs and managers in the food sector.
- For food RTDs the most significant weaknesses are extremely low size of the state budget for scientific development and out of date research infrastructure and equipment not managed effectively for the implementation of precise and profound scientific research.
- On the other hand, the most significant opportunities to be utilized to help boost the strengths and face the weaknesses of the regional food SMEs' innovation capacity are: EU funding for investment in production modernization; new programming period for EU funding allowing for giving priority to targeted support for food sector innovations; and available initiatives (ex. RAF regions project, InnoFOOD project) for establishment of clustering networks between business, research and policy makers.
- For the food research entities most significant opportunities are their access to European and international organisations' and research infrastructure and involvement in international research networks with available EU funds for research and exchange of knowledge; establishment of partnerships, networks, clusters,

technology transfer units and other forms of cooperation; and launching of new European and regional programs for scientific and technology development.

- Significant threats that should be taken into account in future strategic policy planning in order to mitigate their influence are: 1. for food SMEs: increased competition from third countries; insufficient national and European funding for investments in RTD; and insufficient incentives targeted specifically for the food sector. 2. for food RTD entities: inadequate governmental concern for developing science and research; corruption and bureaucracy barriers; poor correspondence between funding programs and current research interests and innovation needs with slack market of scientific products and low absorption capacity.

The SOR analysis carried out based on the findings from the SWOT above indicated the following interdependencies:

1. For the food sector SMEs:
 - The opportunities of having EU funding for investment in production modernization and of increasing trends for exports have the greatest chances of success for contributing to develop further the current strength of the food industry of ensuring high quality of products and processes in the sector. On the other hand, in order to avoid the negative influence on this strength, targeted priority in future strategic policy planning should be given to dealing with possible increased competition from third countries and with possible insufficient national and European funding for RTD.
 - Likewise, the two opportunities of having EU funding for investment in production modernization and of available initiatives (ex. RAF regions project, InnoFOOD project) for establishment of clustering networks are a good chance to consider for tackling the current weaknesses of lacking funds to invest in modern equipment and know-how and of poor relations between food companies, RTD and political decision-makers. The lack of funds to invest in modern equipment is also expected to be influenced to a great extent by the possible threats of having insufficient incentives targeted specifically for the food sector and insufficient national and European funding for RTD.
- 2. For food RTD entities:
 - The opportunities of launching new European and regional programs for scientific and technology development have the greatest chance to contribute to the current strength of the food RTDs of having a developed network of RTD units in the AgroFood sector as well as established system of research, training, teaching and advisory bodies. In addition, the opportunity of establishing partnerships, networks,

clusters, technology transfer units and other forms of cooperation should be grasped to develop further the current strength of having collaboration activities between R&D entities and companies in the sector. On the other hand, in order to avoid negative influence on this current strength and on the current availability of highly skilled personnel in some areas of the agro-food sector the threats of possible inadequate response of the educational system to the requirements and needs of the business and of inadequate or insufficient regulatory basis for developing symbiosis between science and business should be tackled in future policies.

- Likewise, the two opportunities of introduction of food issues as priority areas in science and launching of new European and regional programs for scientific and technology development are a good chance to consider for tackling the current weaknesses of low size of the state budget earmarked for scientific development and out-of-date research infrastructure and equipment. The currently low size of the state budget earmarked for scientific development is also expected to be negatively influenced by the possible threats of loss of intellectual potential, unattractiveness of the sector to the young people and negative public attitude to the image of the scientist, and of continued inadequate attention of the Government for developing science, education and research, corruption and bureaucracy barriers. Therefore, these threats should be considered when formulating future policy measures.

As a general conclusion from the SWOT and SOR analyses carried out it can be said that in terms of overall strategic orientation of future food RTD policy planning it is vital to undertake an offensive strategy of attacking current weaknesses and future threats utilizing to a maximum extend the most significant opportunities and strengths of the regional food SMEs and RTD entities. Considering this in terms of political measures targeted political support should be provided in the future in order to improve research and innovation in the food sector. This is expected to facilitate the necessary transition to an economic model based on knowledge diffusion and innovation, by exploiting the opportunities offered by research and technological development for improving the competitiveness of the region in the food industry. In order to achieve this technology-based economic development and the innovation performance of companies should be enhanced through spreading the trend to innovative activities, supporting industrial research and R&D and innovation projects within enterprises. In addition, support for leading-edge research and the invention of new production methods by strengthening scientific and technological areas of strategic importance and infrastructures of public scientific research institutions should be given.

Networking activities and cooperation among companies and research institutions should also be supported in order to respond better to the innovation needs of the industry and improvement of human resources in research and innovation should also be targeted.

Moreover, since current policies do not distinguish between research and innovation activities, strategic planning is necessary in the field of innovation based on intelligent specialisation to determine the long-term political vision for enhancing the development of innovation processes and facilitating scientific knowledge and results in reaching the business. Such strategic planning should also consider measures to enhance the innovation capacity of the country and increase investment in research and innovation in key sectors with development and growth potential and of high added value to the economy, the food sector being a priority among them. It should envisage modernisation of research and scientific infrastructure, enhanced cooperation between scientists and researchers, both within the country and internationally, and support to innovative entrepreneurs through targeted public measures.

In addition, targeted political support should also be provided to SMEs from the food sector as a priority industry. Food sector SMEs are second in significance with the second highest number of newly started businesses in the industrial production field but however, food companies are lagging behind EU SMEs in terms of technological development and knowledge-intensiveness. Therefore, political support for measures for starting new companies and improvement of staff training and educational background as well as for encouraging entrepreneurship should be taken, along with measures for promoting exports, innovations and green technologies.

Above political measures should necessarily be supported by targeted public funding to improve research and innovation as a factor for competitiveness of the economy. Innovation is a key factor to competitiveness since in the period 2010-2012 only 0.6% of the national GDP was dedicated to innovations while the majority of SMEs have no capabilities to develop their own innovative solutions and the relations between RTD entities and the businesses are poor. Favourable conditions for innovation activities should be provided and cooperation between the business and RTD entities established while stimulating clustering in the food production sector.

Targeted public funding is also necessary to improve the quality of science, research and education. In the current programming period no targeted EU funding through an operational programme was given to science, research and relevant infrastructure while national funding was too low and even decreasing with cuts in funding to the National Innovation Fund (NIF) and the National Science Fund (NSF) – the two main instruments through which national

public funding is provided to RTD entities. Therefore, specific need exists to introduce such an operational programme for the next programming period utilising the innovative approach of providing joint funding from both the European Social Fund and the ERDF. Not only will this instrument provide additional funding to R&D and innovation activities but it should also target the current mismatch between the quality of education and the quality of the research activities carried out which is more that evident in the food sector. Currently there is no institutional relationship between research activities and educational activities thus casting a negative effect on the innovation and research capacity by not familiarising students with the latest achievements in leading edge research. On the other hand only a few leading R&D entities deliver internationally comparable quality of their research and this is mostly of fundamental rather than applied nature since the results of the former (scientific publications) greatly outreach in number the results of the latter (patents, licenses, spin-offs), the ratio between publications and patents being 281:1.

2.3 DESCRIPTION OF KEY MEASURES

Description of key measures to be suggested for implementation at a regional/ national/ SEE level; the measures should stem from the SWOT/ SOR analysis and the recommendations elaborated in D3.4.

Indicative types of measures could be as follows:

- *Supporting mobility of personnel between Industry and Research and vice- versa;*
- *Development, improvement and more efficient use of existing R&D infrastructure and facilities relevant to food innovation;*
- *Development of R&D projects funded either by National or European Funds;*
- *Matching of R&D results with R&D needs between research entities and Food SMEs;*
- *Networking between the involved actors and at a wider level with selected institutions and organisations from around Europe;*
- *Assistance to SMEs to more efficiently access business support schemes and to the participating partners that are involved in such schemes to improve their operations*
- *Updating of academic curricula of relevant university departments in order to better match the current industry trends and innovation needs.*

6- 8 measures to be elaborated for each region. Below is presented the tabular template to be used and an indicative example of a measure:

Name of the measure	Clusters in sectors with high development potential, incl. the food sector
Region	<i>Pazardzhik (Bulgaria)</i>
Timeframe	Medium Term (2- 5 years)
Rationale	Low level of RTD expenditure in enterprises and poor relations between research and the manufacturing industry are major reasons for poor innovation results currently observed in the region. The private sector is dominated by SMEs which do not have their own technologies or capacity to develop innovations of scale for specific sectors. Meanwhile, enterprises are facing huge difficulties with access to funding since most of them lack credit histories, experience in dealing with financing institutions and cannot meet the high requirements for guarantees since they have no clear visions for the future development of their businesses. Therefore, concentrated interventions are necessary in the sectors which have potential to carry our innovation activities, the food sector among the leading. Focused support will ensure more efficient distribution of EU funding since it will target “natural” clusters with traditions, human capital, good export positions and high potential for developing and implementing innovations in accordance with natural territorial specialisation of production and innovation activities. Such specialisation for food and agricultural production is available in the area of Plovdiv, a close neighbouring region to Pazardzhik and the major supplier of RTD in these sectors.
Particular sector and subsector	Agriculture, Food Processing, Food Industry
Objectives	<ul style="list-style-type: none"> ➤ Improve partnership between research and business entities by establishing centres for cooperation activities, for commercialisation of research results and for links with national and international actors; ➤ Optimisation of technological commercialisation based on some existing technological centres and establishing a central technology transfer office for coordinating the network and providing advisory services, exchange of best practices, training, statistical information and dissemination of successful project results. ➤ Establish a network of thematically focused laboratories with one central one based in Sofia or Plovdiv to provide coordination and information and financing services, as well as training ➤ Encourage new entrepreneurs and initiatives by setting up incubators/accelerators for new start-up businesses. ➤ Provide grants for innovative business to fund studies, advisory services and trainings involved in innovations; ➤ Support services for design, development of new products,

	<p>technology transfers, innovation management and engineering, quality certification, through a voucher scheme to facilitate the funding application and reporting processes for applicants;</p> <p>➤ Provide institutional support to business-support organisations</p>
Core activities	<p>Support for technological parks, technology transfer offices, certification laboratories, business incubators, grants for investment studies, advisory services and training for innovative companies, innovation vouchers supporting cooperation between research and business entities, institutional support for business-support organisations in the field of property rights, standardisation and accreditation .</p> <p>Initiate legislation changes to allow for the establishment and registering of the so called “start-up” companies (currently this is impossible due to lack of legislation) and for the establishment of technological parks.</p>
Implementing entity	Ministry of economy
Financial resources	“Innovations and Competitiveness” 2014-2020 national Operational Programme
Target groups	Food SMEs, research entities, consumer associations, business-support organisations in the field of property rights, standardisation and accreditation, etc.
Indicators for implementation success	<ul style="list-style-type: none"> - Number of entities applying for funding - Grants, funds and investments directed to the food cluster in Plovdiv - Number of patents/ number of spin- off

Name of the measure	Modernisation of R&D infrastructure and improvement of the capacity of RTD entities to apply research results
Region	<i>Pazardzhik (Bulgaria)</i>
Timeframe	Medium Term (2- 5 years)
Rationale	There is an urgent need for setting up modern information and technological research infrastructure to provide favourable conditions for innovations. On the other hand, the capacity of RTD entities and universities for applied implementation of research results also needs to be improved in order to facilitate take-up of research results.
Particular sector and subsector	RTD, science
Objectives	<ul style="list-style-type: none"> ➤ <i>Setting up new and modernisation of existing research laboratories and equipment;</i> ➤ <i>Optimisation of the system of research organisations and universities to improve the quality of their scientific activities;</i> ➤ <i>Improve funding mechanisms for research and innovation and support research in strategic sectors, the food sector being among those on top of the list</i> ➤ <i>Encourage the development of partnerships and networking between laboratories, universities, research entities and business;</i> ➤ <i>Support the participation of research centres and universities in international networks, clusters and initiatives</i> ➤ <i>Technological improvement through introducing modern IT solutions in RTD entities and universities;</i> ➤ <i>Setting up and maintenance of informational portals for dissemination of research results</i>
	➤
Core activities	<p>Support for new rooms, educational laboratories, libraries and museum collections of scientific archives, research laboratories at research centres and universities; support for establishment of centres of excellence in the food sector; support for total digitalisation of scientific and document content; support partnerships</p> <p>Support for maintenance of equipment already available in research entities – spare parts and consumables for running the equipment.</p>
Implementing entity	Ministry of Education, Ministry of Labour
Financial resources	“Science and Education for Intelligent Growth” 2014-2020 national

	Operational Programme
Target groups	Researchers, innovators, academia staff, students
Indicators for implementation success	<ul style="list-style-type: none"> - Number of increased scores in the Innovation Union Scoreboard - Number of RTD infrastructure sites built - Share in the GDP of RTD expenditure of the public and private sector

Name of the measure	Improvement of the capacity of RTD personnel to apply research results
Region	<i>Pazardzhik (Bulgaria)</i>
Timeframe	Medium Term (2- 5 years)
Rationale	<p>Bulgaria is among the last 30 in the world ranked by capacity of personnel in the educational field. Most often researchers are not motivated to acquire higher degrees since this does not necessarily entail better incomes resulting in an out-flux of brain drain to EU and other countries leading to a notable ageing of the scientific and research community. Adding to these the constantly negative demographic trends results in a major problem for the country of insufficient and inadequate human resource in science, research and innovations. The number of personnel and researchers involved in scientific research and innovations is among the lowest in Europe. On the other hand, a serious deficiency in high qualified labour with potential for developing and applying research and innovations is present placing challenges to the future development and functioning of entire sectors of the economy and the social sphere. This raises the issue of the quality of current education and matching it with current needs and trends of the industry and research.</p>
Particular sector and subsector	RTD, science
Objectives	<ul style="list-style-type: none"> ➤ <i>Updating of academic curricula of relevant university departments in order to better match the current industry trends and innovation needs</i> ➤ <i>Improve the capacity of researchers and innovators in the field of entrepreneurship and intellectual property rights;</i> ➤ <i>Setting up a system for registering, protection and management of intellectual property rights resulting from public funding research</i> ➤ <i>Support for education and research capacity in the field of fisheries and aquaculture;</i> ➤ <i>Support for qualification and mobility of educational and research personnel to match the requirements of the labour market</i>
	➤

<p>Core activities</p>	<p>Support for trainings for re-qualification of researchers according to EU priorities and for career development of researchers in priority research areas; support for stimulating students to participate in innovative research activities; support for developing a system for evaluation of research results and support for setting up a Register for research activities; support to attract foreign researchers for priority research activities; support for dissemination of research results (scientific conferences, forums, workshops, congresses, etc.); support for acquiring information for research activities through access to national and EU info databases), support the participation of Bulgarian researchers in EU and international networks and partnerships;</p> <p>Support and tax incentives for business organisations funding research activities; support for companies funding master's and PhD degrees on topics to be applied in their production.</p> <p>Support for establishment of business – university committees for improvement of curricula such as the inclusion of entrepreneurship subject.</p> <p>Support for the establishment of centres for career development in universities along with business organisations (companies, associations).</p> <p>Support for awareness rising and marketing for RTD supply.</p> <p>Support for maintenance of accreditation of laboratories and scientific units</p>
<p>Implementing entity</p>	<p>Ministry of Education, Ministry of Labour</p>
<p>Financial resources</p>	<p>“Science and Education for Intelligent Growth” 2014-2020 national Operational Programme</p>
<p>Target groups</p>	<p>Researchers, innovators, academia staff, students</p>
<p>Indicators for implementation success</p>	<ul style="list-style-type: none"> -Number of research and education staff with enhanced qualifications - Number of increased scores in the Innovation Union Scoreboard - number of research results (publications, patents, licenses, spin-offs)

3. TRANSNATIONAL SEE ACTIVITIES

To be compiled by CERTH- INEB: Identifying and planning synergies and common activities of a transnational SEE character, e.g. on how to exploit future common financial instruments in order to enhance the agrofood research and innovation cooperation in the Southeast Europe area.

4. IMPLEMENTATION PLAN

(to be compiled by CERTH- INEB), Roles and responsibilities for the implementation of the OP measures, Financial Plan, Time Plan.

ANNEX 1 – FRAMEWORK AGREEMENT- INTENTION FOR TRANS-REGIONAL COOPERATION

(to be compiled by CERTH- INEB and signed by partners and stakeholders). This will provide the framework for continuous cooperation beyond the end of the project among the Inno- Food SEE partners and further stakeholders of strategic importance.