



РЕГИОНАЛНА АГЕНЦИЯ ЗА ПРЕДПРИЕМАЧЕСТВО И ИНОВАЦИИ - ВАРНА

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**РЕГИОНАЛНА  
ИНОВАЦИОННА  
СТРАТЕГИЯ  
НА СЕВЕРОИЗТОЧЕН РАЙОН ЗА  
ПЛАНИРАНЕ  
НА БЪЛГАРИЯ**

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Varna, 2008

**REGIONAL  
INNOVATION  
STRATEGY  
OF NORTH-EAST PLANNING REGION  
OF BULGARIA**

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REGIONAL AGENCY FOR ENTREPRENEURSHIP AND INNOVATIONS – VARNA

## **DEAR LADIES AND GENTLEMEN,**

Bulgaria, as a new member of the European Union (EU), and the North-East Planning Region (NEPR) are facing the challenge of equal participation in the economic and social life of united Europe. It is up to us to decide what position we will take among the community of EU regions – are we going to be equal partner or we will stay in the periphery of the well-developed structures. The opportunities for operating on the strongly competitive European market depend on the competitiveness of the regional economy.

The creation of a modern competitive economy is depending on the introduction of new technologies, products and services. The development of innovations is a main guarantee for market success in the contemporary economic realities and is the main priority of the Lisbon Agenda, aiming at the creation of a most competitive European economy. This can be achieved through the maintenance of consistent policy on national and regional level. One of the main instruments of the EU, supporting regional development, is the development and the implementation of Regional Innovation Strategy (RIS). Such strategies have been realized in more than 150 regions from the EU member countries since 1994, as a result of which wide opportunities for technological and innovative development of their economies have been created. The need of cooperation between the different social and economic entities for the development and implementation of the strategy in these regions has mobilized their social capital for overcoming the barriers to the economic development and carrying out of concrete actions for achieving high competitiveness of the relevant region.

Regional Agency for Entrepreneurship and Innovations – Varna (RAPIV) is coordinator of the project for development of a Regional Innovation Strategy of NEPR – “NE-BG RIS”, developed under the VI Framework Programme of European Commission (EC), activity area “Research and Innovations”. As a result of the active work on the project, wide consensus is achieved among all participants in the regional innovation process, aiming at further development and improvement of the regional innovation policy and development of a sustainable Regional Innovation Strategy. Detailed economical information from official sources has been collected during the process of project implementation, with the closed cooperation of the district governors from the six districts in the region, as well as by conducted own wide-scale researches among enterprises (private and public), universities, research centres and organizations, supporting business. This information contributed to the evaluation of supply and demand of innovations in the region, to conduct a SWOT analysis of the economy and to formulate the strategic goals, priorities and measures and activities of the strategy.

The Regional Innovation Strategy is a necessary document, which is developed on the basis of achieved wide consensus and cooperation in the North-East Planning Region between the business, universities and scientific institutes, local and national authorities and intermediary organizations. The creation of RIS, co-financed by the EC, is a result of the researches and the analyses conducted in NEPR from 2005 until now in accordance with the methodology, approved by the EC.

The Strategy is developed for the needs of businesses and entrepreneurs, local authorities, institutions and organizations which create innovations and for the organizations, supporting their implementation using national and European instruments for supporting innovations.

The surveys, realized within the framework of the project and the subsequent analyses during the strategy development, show that there is a large sphere of action in the field of innovations. There is no doubt that the importance of innovations should be popularized among business representatives and starting entrepreneurs. It is necessary to develop effective pro-innovative infrastructure for technology transfer, supporting of start-up companies, consultations

and supporting of business' innovations, creation of environment for market realization and cooperation between SMEs and research centres. The development and the implementation of NEPR Innovation Strategy is a great chance for accelerating the social and economical development of the region.

Dear Ladies and Gentlemen,

To use fully this chance, we address you, representatives of the business and entrepreneurs, scientific community, local and national authority, non-governmental organizations to join our efforts for participation in the realization of the Innovation Strategy of our planning region – the first present strategy in Bulgaria from the third generation of strategies of the European Commission, which will undoubtedly lead to improvement of the competitiveness of the regional economy and will transform the North-East Planning Region in a successful European region.



YANI YANEV  
Chairman of the Steering Committee  
of project NE-BG RIS  
Member of Parliament in 40<sup>th</sup> National Assembly  
of the Republic of Bulgaria  
Chairman of the MB of RAPIV



DIMITAR RADEV  
Project Coordinator NE-BG RIS  
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## **REGIONAL INNOVATION STRATEGY OF NORTH-EAST PLANNING REGION (NE-BG RIS)**

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with chairman:  
Yani Yanev, member of Parliament

Working groups of experts, formed in the frameworks of the Regional Innovation Strategy for the North-East Planning Region

Zoya Damianova – national consultant of the project

Project Partners:  
– Regional Agency for Entrepreneurship and Innovations - Varna;  
– Alliance of the Regional Authorities in the North-East Planning Region;  
– Ministry of Regional Development and Public Works;  
– University of West Macedonia – Greece;  
– Regional Administration of Liguria, Italy;  
– Regional Administration of Abruzzo, Italy.

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## INTRODUCTION

The full membership of Bulgaria to the EU sets new requirements to the social-economic development of the country and its planning regions. To take its place as an equal partner in the community of EU regions, the North-East Planning Region has to carry out the necessary activities for improvement of the innovativeness and competitiveness of the regional economy, so that enterprises from the region can operate successfully on the strongly competitive European market.

With the renewed Lisbon Agenda the European Union is stimulating the equally distributed, homogenous and uni-directional development of knowledge and innovations at regional level. The innovation policy is focused on the transfer of the research results in business development opportunities and creation of innovations for the society. The policy of integration with the EU is aimed at stimulating of the research activity, technological development and innovations on regional level. Among the main instruments for realization of this policy are the projects for „Regional Innovation Strategy”. Their realization is aimed at increasing the innovation potential of the economies of the separate regions with recognition of their specific conditions and strengths.

Until now more than 150 regional strategies are developed, and in 2005 new 33 projects have started. A Regional Innovation Strategy project is already realized in Bulgaria in the period 2002 – 2004 for the South Central Region. Until now all planning regions in the country are preparing projects for the development of regional innovation strategies – 4 in total, for North East, South East, South West and a joint project for the North West and North Central Region. The first strategy of third generation of strategies of the European Union, present in our country - „Regional Innovation Strategy of the North East Planning Region” (RIS of NEPR) is presented in this publication as well as a description of the activities carried out during its development. In the process of development of the strategic document for NEPR innovative development, partnership is provided among different partners from the social and economic life. With the active participation of a maximum number of participants in the regional innovation system, including the enterprises, universities, research institutes, representatives of the local and national administration, nongovernmental organizations, wide range of experts on regional, national and international level, as well as representatives of the European regions - West Macedonia, from Greece; Liguria and Abruzzo from Italy, the present RIS was developed and implemented. The overall work on the project is coordinated by the Regional Agency for Entrepreneurship and Innovations – Varna.

The Regional Innovation Strategy sets out the priorities of the regional innovation policy in the region until 2020. It is a natural continuation of the trends for innovative development, stated in the National Development Plan, National Innovation Strategy and NEPR Regional Development Plan, with regard to the specific characteristics of the region and is an important sign of the NEPR accession to the community of Innovative Regions in Europe, which have implemented the formerly developed Regional Innovation Strategies.

The presented document does not guarantee the automatic transition of NEPR to innovative development, but the realization of the main postulates, set out in the strategy, provides opportunities for financial support from the Operational programmes (OP) of the EU Structural Funds for:

- increasing the capacity of the enterprises for introducing of new technologies, innovative products and services, improvement of the organization of their activity;
- construction of all elements of the pro-innovative infrastructure;
- improvement of the innovation culture;

- creation of effectively working regional innovation system.



*Project Partners' Committee Meeting*

The realization of the Strategy fosters the economical development of the region, through rational usage of NEPR intellectual and research potential for providing better living conditions.

# 1. STRUCTURE OF THE PROJECT

Project № 014664 „Regional Innovation Strategy (RIS) of the North-East Planning Region (NEPR)“ (NE-BG RIS) is under Six Framework Programme of the European Union (EU), activity area “Research and Innovations” with overall duration 32 months, during which regional consensus is being built, the innovation needs and innovation potential of the region have been studied and a Strategy is developed for fostering innovations and technological transfer. The project started on the 1st of June 2005 together with 32 more European projects. This is the third generation of EU projects.

## 1.1. OBJECTIVES AND STAGES

### General objectives:

- development of a Regional Innovation Strategy of NEPR;
- creation of a stable environment, stimulating innovations in NEPR through development and improvement of the regional innovation policy.

### Specific objectives:

- achieving of regional consensus between all regional participants in the development and the implementation of the Regional Innovation Strategy;
- promotion of innovations in the public sector, small and medium enterprises and the research circles in the North-East Planning Region;
- development of an Action plan for development of RIS in NEPR with pilot projects;
- creation of a mechanism for coordination and monitoring of RIS;
- creation of a framework for midterm- and long-term interregional cooperation in the field of innovations at national and international level;
- improvement of the capacity of the region to manage financing of projects under OP and the Structural Funds.

### Stages:

The project activities are carried out in three stages:

#### Stage 0: Organization Stage:

- establishment of the project management structures;
- building of consensus between the regional key actors in the field of innovations;
- awareness raising and mobilization of the regional key actors and the small and medium enterprises for the development of RIS.
- defining of the project methodology and conducting of a regional survey;
- development of a programme for the actual implementation of the project. Report to the European Commission for Stage 0;
- SWOT analysis of the regional economy.

#### Stage 1: Implementation Stage:

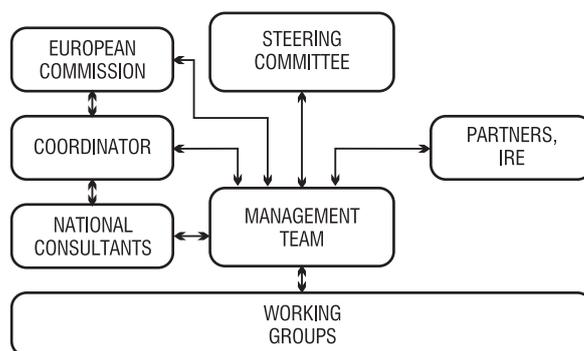
- analysis of the regional demand and the companies’ needs for innovations;
- analysis of the regional supply of innovations, identification of the regional innovation infrastructure and regional experience in the innovation strategy.
- formulation of preliminary directions for the development of strategic framework and specific action plan. Report to the European Commission for Stage 1.

#### Stage 2: Evaluation and monitoring, evaluation of the measures’ efficiency:

- development of a strategic framework – Regional innovation strategy for the North-East Planning Region;
- definition of measures, action plan and pilot projects for the implementation of the strategy.
- creation of a monitoring system for observation and evaluation of the Strategy and the activities.
- Dissemination of results. Report to the European Commission for Stage 2 and final report.

## 1.2. ORGANIZATIONAL STRUCTURE

Principal scheme of the project organizational structure is represented on Fig 1.



*Fig. 1. Organizational Structure of the project*

The following entities are included in the structure of the project:

- Steering Committee - 24 members
- Management team - 7 members
- National and regional consultants - 2 members
- Operational working group for NEPR - 7 members
- 6 district working groups - 12 members
- 10 sector working groups - 50 consultants
- Focus groups - 14 experts
- Interviewers - 43 people.



*Project Steering Committee Meeting.*

**Steering Committee (SC)** – 24 members, including District Governors, University Rectors, representatives of business and intermediary organizations. At the first Steering Committee Meeting held on 7<sup>th</sup> October 2005, Mr. Yani Yanev was chosen for Chairman. He was also the initiator for RIS activities as a District Governor of Varna district in the period 2001-2005. A list of the SC members is given in attachment.

**Management team (MT)** of 7 members from the regional Agency for Entrepreneurship and Innovations – Varna (RAPIV) and the Alliance of the Regional Authorities in NEPR (ANEPR-BG) is managed by the project coordinator – Dr. Dimitar Radev.

## **National and regional consultants - 2**

The Steering Committee has approved for national consultant of the project Mrs. Zoya Damianova, coordinator of the first Bulgarian RIS project for South-Central Region and for regional consultant – Assoc. Prof. Kiril Georgiev, lecturer in Technical University of Varna.

### **Partners:**

- Regional Agency for Entrepreneurship and Innovations - Varna (Coordinator);
- Alliance of the Regional Authorities in NEPR;
- Ministry of Regional Development and Public Works;
- University of West Macedonia, Greece;
- Regional administration of Region of Liguria, Italy;
- Regional administration of Region of Abruzzo, Italy.

### **1.2.1. RAPIV, coordinator of the project**

Regional Agency for Entrepreneurship and Innovations – Varna is a non-for-profit association, operating in public benefit, aiming at fostering the regional economy through the development of entrepreneurship and innovations. The objectives of the association are:

- support of the start-up and existing high-tech SMEs;
- creation of a favourable innovative environment for the development of SME in the field of high technologies and increasing of their competitiveness;
- fostering the growth of high-technologies production share in NEPR districts;
- encouraging technological transfer;
- creation of conditions for the development of high-qualified young specialists;
- establishment of a high-tech park;
- creating of conditions for technology oriented SMEs to introduce to the market their innovation products;
- creating of conditions for attracting local and foreign investors.

The main directions for RAPIV development are:

- High-Technology Business Incubator;
- Innovations and Technology Transfer Centre;
- High-Tech Park – Varna.

Regional Agency for Entrepreneurship and Innovations – Varna is a key participant in the regional innovation system of NEPR, as a main executor of projects under the pre-accession and Structural funds of the EU, in support to entrepreneurship, technological renovation and innovations, support to start-ups and development of civil society structures.

Chairman of the Management board (MB) of the Association is Mr. Yani Yanev.

### **1.2.2. Alliance of the Regional Authorities in the North-East Planning Region**

The Alliance of the Regional Authorities of the districts Varna, Dobrich, Razgrad, Silistra, Targovishte and Shumen is a non-for-profit juridical person and conducts its activity in public benefit, including solving of strategic and current issues in public interest, with regard to the increasing role of the regions for integration of Bulgaria to the EU. The aims of the association are:

- development of a Regional Innovation Strategy;
- establishment of an integrated innovation system in NEPR through support to its three basic components – business, science and intermediary organizations, with regard to proved Euro-

pean practices;

- popularization of the state policy for economic and social development of the North-East Planning Region with regard to the membership of the Republic of Bulgaria in the EU;
- creation of a favorable environment for development of initiatives on a large social basis for acquisition of EU Cohesion and Structural Funds;
- improvement of the organizational structure for facilitating the access to the available information for all regional participants;
- development of the international cooperation and support to activities for the recognition of NEPR in the Network of Innovative Regions in Europe and raising the foreign investor's interest.

The participation of the District Administrations in the project contributed for the achieving of regional consensus and engagement of all interested organizations. The cooperation of the administrations at experts' level supported the realization of the regional analyses and the identification of regional needs and priorities in the field of innovations.

Chairman of the Association is Mr. Petar Kandilarov, district governor of Varna district.

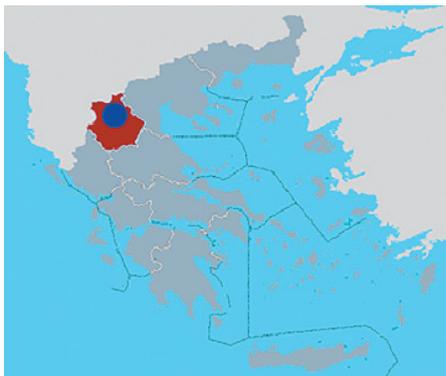
### **1.2.3. Ministry of Regional Development and Public Works (MRDPW)**

In the realities of membership of Republic of Bulgaria to the EU, MRDPW efforts are aimed at building institutional and administrative capacity for the acquisition of pre-accession Funds, Structural funds and the Cohesion Fund of EU and the effective cooperation with the local and regional authorities in investment planning and development of infrastructures. The participation of MRDPW ensured the coordination of the RIS process at national level, supported the regional analyses and the identification of regional priorities and guaranteed accordance between the national policy and regional objectives.

The Ministry had been represented by Mrs. Milena Paunova, Deputy Minister. Mrs. Penka Yordanova, Director of Department, has active participation in the project.

### **1.2.4. University of Western Macedonia – Greece**

The region of Western Macedonia is situated in the north-west part of Greece and borders with the regions - Central Macedonia, Thessaly and Epirus, as well as the Former Yugoslavian Republic of Macedonia and Albania.



The University of Western Macedonia is headquartered in the city of Kozani. West Macedonia has a rich experience in the field of innovations, including realization of the following projects: RIS of West Macedonia (1996-1999), RIS+ of West Macedonia (2000-2002), „K-clusters” Programme for innovation activities in West Macedonia (2003-2005), Strategy for innovation growth in the region of Thessaly, Strategy for innovation growth in the region of Thessaly, second phase, RIS +, Innovative activities in Thessaly, (INVENT ), Innovation Pole.

Prof. Yannis Bakourous is the person responsible for the implementation of the RIS project of NEPR from the University of Western Macedonia, Greece. Mr. Yannis Fallas is also actively participating in the project.

### 1.2.5. Regional Administration of Liguria, Italy



Region of Liguria is divided into four provinces – La Spezia, Genoa, Savona and Imperia. The region has independently developed and approved Region Innovation Strategy, aiming to promote and stimulate innovation dynamics in the regional system with a view to create a network between enterprises, innovation centres, research and scientific institutes, public administration. The Strategy is focused on the increasing of the competitiveness of regional companies and the industrial areas.

The region of Liguria is an example for the new member states with regard to the relationships and contacts established with the administration and the effectiveness achieved in operating with EU financial instruments. It is also an example for successfully established and working relationship of public-private partnership, which is beneficial to both parties.

Mr. Francesco Caso is the person responsible for the implementation of project RIS of NEPR from the Region of Liguria. Mrs. Paola Peresi is also actively participating in the project.

### 1.2.6. Regional Administration of Abruzzo, Italy



Region of Abruzzo is divided in four provinces –L’Aquila, Pescara, Chieti and Teramo. The geographical disposition of Abruzzo between the north and south part of the country affects the level of economical development, which is in the middle between the south and the developed territories in Central and Northern Italy.

The region is the first European region, going beyond Objective 1 of the EU, which is evidence that the transition to integration with the most development regions has already started. Abruzzo is an experimental region, probating new methods for development in economically favorable environment. Through a number of projects the region has achieved increase in the innovation culture and economic growth.

The regional administration of region Abruzzo works in partnership with Metron Company, which provides services to enterprises, consortia and public organizations. Up to this moment Metron is working in the frameworks of the following programmes - Interreg III, Equal and RIS NAC, 14 projects in total, with 66 partners from 50 EU regions and 21 countries.

Mr. Alfredo Moroni is the person responsible for the implementation of Project RIS of NEPR from region Abruzzo. Eng. Ercole Cauti is actively participating in the project.

## 1.3. METHODOLOGY

In the process of development of RIS for NEPR the approved by the European Commission methodology for RIS/RISNAC is applied, which is successfully applied also in the European innovation regions since 1996, based on three basic elements:

- achievement of consensus between the main participants in the Regional innovation system;
- analysis of the Regional innovation system;
- approving of strategic framework for support of innovations in the region.

Additionally the experience and support of the project partners is used, as well as that of other European regions, which have successfully implemented RIS (as Shannon, Ireland, etc.).



*Meeting of Mrs. Alice Wu, representative of EC with Mr. Yani Yanev, Chairman of SC*



*Representatives of the foreign partners (in the forefront): Mrs. Paola Peresi, Prof. Yannis Bakouros u and Mr. Ercole Cauti.*



*Discussion of the Strategy (in the forefront from right to left): Dr. Borislav Borisov, deputy mayor of Municipality of Varna, Mr. Yani Yanev.*



*Project partners.*

The main approach, applied to the development of the Regional Strategy, is the regional perspective, based on the survey of the specific social-economic situation in NEPR. Through applying SWOT analysis for identifying the weaknesses and strengths of the regional economy, opportunities and threats to its development, a strategic framework is formulated for the creative and innovative development of the intellectual and research potential of NEPR. In this regard „innovativeness” is defined as ability for generating processes, aimed at renovation or introduction of new high achievements, affecting the field of technologies as well as the processes and relationships between the main participants in the regional innovation system – enterprises, intermediary organizations, educational and research organizations and the administration (local and national authorities), along with the infrastructure and normative framework (fig.2). Because of that reason the successful process of strategy development should involve the active participation of this wide range of entities with compulsory, ”bottom-up” initiatives. This approach, called “bottom-up”, is in the basis of plans development in those cases in which their realization depends on the mobilization and activity of a majority of local actors.

The Regional Innovation Strategy is not a one-time act, but:

- a process of recognizing the need for development of the innovative potential of the region, closer cooperation between the main participants - enterprises, researches, local and central authorities, non-governmental organizations and building of regional consensus;
- analysis of the research potential of the region, the level of technological development of companies and their needs for innovations, the capacity of intermediary institutions;

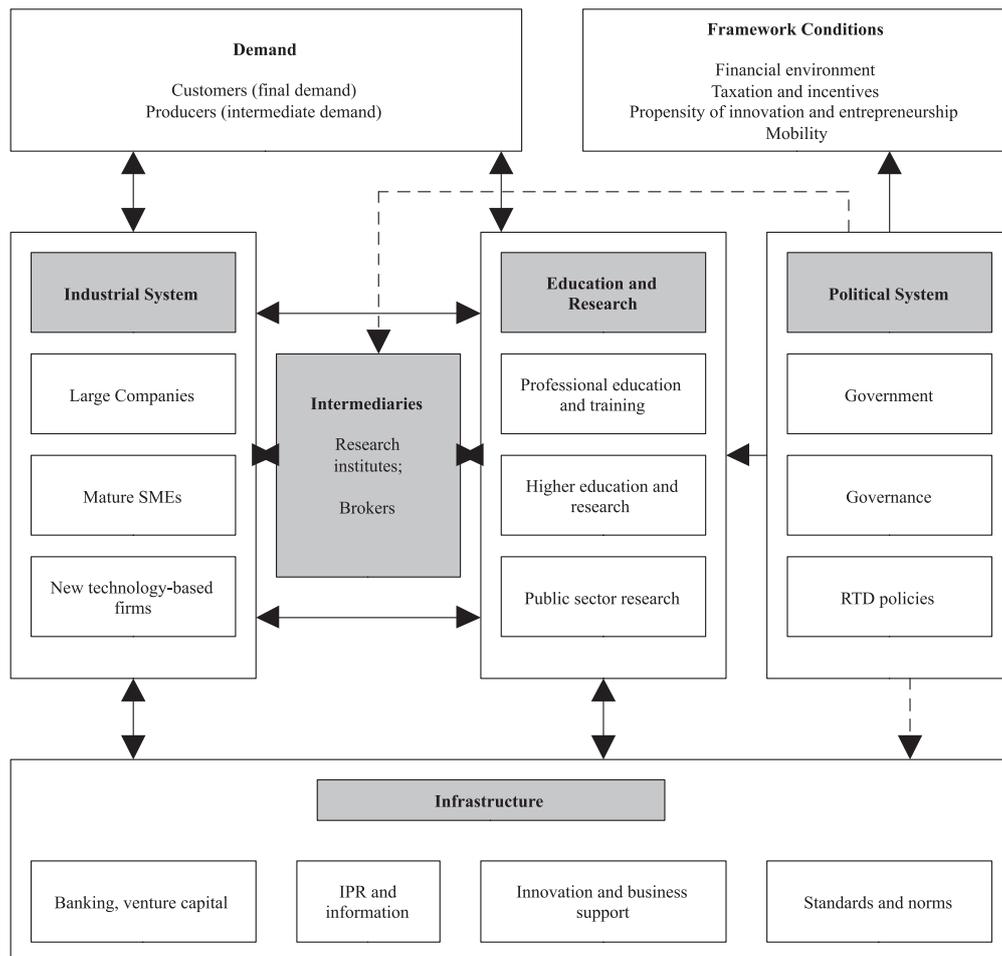


Fig.2. The Innovation System (by Kuhlman, Arnold, Described in „The Cluster Policies Whitebook”, Anderson et al., IKED, 2004)

- document, including diagnostics (SWOT analysis), a set of objectives at different levels and a programme for their realisation;
- actions, leading to the practical realization of RIS objectives.

In the process of development of the Strategy, EC methodological assistance has been used, through the Network of Innovating Regions in Europe (IRE Network). The Committee of the Network has held four methodological seminars with the management team of the organizations, coordinating RIS projects, on thematic areas related to the process of development of the strategies and supported their activities for the formulation of a statement, reflecting the current state and future development of the regions. In addition to the methodological seminars, the Committee formed 3 focus groups: „Promotion of innovation among SMEs”, „Connection with the academic circles – business and innovation culture”, „Clusters and financing of innovations”, in which current issues in the relevant fields are discussed and ways of overcoming the difficulties. RAPIV participates in two of the focus groups „Promotion of innovations among SMEs” and “Clusters and financing of innovations”. In these discussions the characteristic features of the region and the country were presented.

Through the implementation of this project, the participants from NEPR gained access to the collected European experience in the field of regional innovation policy, as well as to new methodologies, means and practices for popularization and realization of innovations.

## **Methodology of the surveys for the state of the regional innovation system of NEPR**

### **1.3.1. General positions**

**Problem of survey:** Low innovativeness of the regional economy, insufficient stimulation and use of the innovative potential of NEPR.

**Object of survey:** Regional innovation system of NEPR includes companies, institutions, administration, intermediary organizations, which interact in the process of demand and supply of innovations as well as in their realization.

**Subject of analysis:** determination of basic characteristics of the regional innovation system and possibilities for its improvement and management.

**Objectives and expected results:** Elaboration of the strategy, measures and action plan for enhancing of the innovation potential of NEPR and innovation activity in the region.

**Conceptual model:** it is a holistic mix, including the known M. Friedman's model of innovation system, M. Porter's concept on competitiveness based on clusters K. Pavitt's taxonomy dividing companies into three groups according to their behaviour at acquisition of knowledge and making of innovations, etc.

**Research hypotheses:** Research hypotheses are suppositions concerning the state and connections between the variables and the participants describing the problem. Examples of hypotheses:

**Factors hindering innovations:** Preliminary expectations are that in answers to the questions during the inquiry the firms will repeat to a great extent the same factors that were pointed out as reasons for difficulties in making innovations in some previous inquiries, such as: high costs of innovations, lack of qualified personnel, etc.

**Hypotheses connected with innovation regimes:** preliminary expectations are that the larger part of NEPR companies are mainly of "product-engineering" and "traditional" type of innovation regime.

### **1.3.2. Strategy and methods for collection of empirical data**

At the start of the survey "Formulative" strategy is adopted, i.e. preliminary "examination" of the object and formulation of questions and hypotheses, then passing to "experimental" strategy, i.e. to establish essential cause-consequential links between the variables or factors describing the object.

Methods for collecting and processing of empirical data in general are as under:

– collection and processing of "secondary" data (reviews, analyses, statistics, cases, examples, etc.);

– collection and processing of "primary" data (through inquiries, interviews, discussions, observations, experiments, etc.).

At the initial stage of the survey, inquiry by post was used from the existing methods of survey (sending a questionnaire to a company after notification in advance) with subsequent interview on the spot.

For the elaboration of the questionnaires, the Likert's scale (3-5 point scale estimation of preliminarily suggested statement: "I agree, ... It is probably so, ... I disagree") is used or semantic differential (3-5 point scale at comparing, expressing preferences, opinion, etc. regarding the presented facts: "High/Good ... Fair ... Bad/Low").

### 1.3.3. Model and scope of the sample

Surveys connected with collection and analysis of “primary” data are most often based on the so-called sample approach, when the target totality (general totality, population) of specimens of the object is studied through analysis of a definite number of its representatives.

In the present survey a “stratified” extract is used, with certain inner differentiation in the target totality (dividing the companies according to branches, number of personnel, amount of sales/incomes, etc.).

During the process of survey of the innovativeness and competitiveness of the enterprises, the theoretical scope of the sample is calculated on the basis of the number of economically active companies in NEPR (about 40 000) and a tolerance of 5 % maximum allowable error is accepted. Minimum scope of the sample of  $n = 400$  firms is accepted and subsequent doubling of the number of companies, due to the risk of big % of not respondents.

The sample is “stratified” in the following way:

– according to geographical principle, depending on the percentage which the 6 regions have in the formation of the Gross domestic product (GDP) of NEPR, with slight priority of the rest of the regions in relation to Varna and is divided on a sector principle, depending on the importance/relative share, which is accepted for each of the **ten priority sectors**, defined and ascertained by the SC, for survey of the state and tendencies for development and introduction of innovations, through consensus achieved among the participants in the innovation process:

- Energy Industry, Energy Efficiency, Environment (EEEE).;
- Information and Communication Technologies (ICT);
- Machine-building, Electro-technical Industry and Electronics (MEIE);
- Marine Industry (MI).;
- Processing Industry (PI);
- Agriculture (A);
- Construction and Transport (CT – „transport” is related to transport infrastructure (CT);
- Tourism (T);
- Services – financial, logistics, etc. (S);
- Chemistry, Biotechnologies and Pharmaceuticals (CBP).



*Meeting of a sector's working group.*



*Meeting of a sector's working group.*

The interviewed companies are selected by chance (through numbering and pulling out) from the list of suggestions prepared in advance with companies from the 6 districts, distributed according to the 10 priority sectors.

In the process of survey of the potential for creation and support to innovations information has been gathered for all universities (incl. faculties), research and intermediary organizations from NEPR, which are interviewed face-to-face.

### 1.3.4. Data processing and analysis

The data processing and analysis is carried out with the means of the SPSS programme package. For all organizations, included in the sampling lists, MS Access database is created.

The next stages include:

- **Preliminary data analysis:** description of the data through calculation of frequencies, percentages, average values, diffusion measurers and data presentation in cross-tables, histograms etc. through SPSS.
- **Checking of hypotheses and analysis of dependencies**
- **Final data processing and analysis**
- **Formulation of conclusions and proposals.**

## 1.4 PROJECT ACTIVITIES

The persons **directly involved in the project development are 159**, 104 of which are experts and consultants.

**The total number of participating juridical persons is above 600. The total number of participants is above 1500.**

In the process of project implementation a number of activities are carried out, aiming at the establishment of a functional structure of the project, increasing the social awareness, including of partners, strengthening the regional consensus on issues related to the project. The coordination of project activities is being carried out by RAPIV in cooperation with the representatives of the district administration.

In all stages of the project deliverables and activities are envisaged, grouped in working packages – 14 in total, each of them having its objectives to be fulfilled as coherent part of the Project common objectives. The total number of deliverables is 42.



*Mr. Yani Yanev Member of Parliament opens the Launch International Conference RIS of NEPR, 07<sup>th</sup> October 2005. From right to left: Mr. Ercole Cauti, Dr. Dimitar Radev and Mr. Yani Yanev, Mrs. Milena Paunova, Deputy Minister; MRDPW, Mr. Marshal Hsia, representative of EC, Mrs. Zoya Damianova.*



*Mr. Lachezar Borisov, Deputy Minister, MEE opens the Final International Conference RIS of NEPR, 30 January 2008. From right to left: Dr. Dimitar Radev, Mrs. Penka Yordanova, Director in MRDPW, Mr. Lachezar Borisov, Mr. Alexander Farashev, Deputy district governor, Varna.*

During the development of the Regional Innovation Strategy of North-East planning Region the following summarized activities are carried out in chronological order:

- Establishment of a Management Team and defining the structure and methodology of the project;
- Establishment of a Steering Committee, to monitor the RIS development and to ap-

prove all important decisions for RIS of NEPR;

- Formation and training of project working groups (WG);
- Collecting of „secondary” data: periodical working meetings of WG;
- Collecting of „primary data” through questionnaire surveys;
- development of questionnaires and selection of objects for survey;
- survey of the innovativeness and competitiveness of NEPR companies for identifying the needs and demand for innovations;
- survey of the organizations creating and supporting innovations for defining the supply of innovations in the region;
- data processing;
- development of reports for the current state by sectors and sector SWOT analysis;
- horizontal analysis in three focus groups;
- recommendations and conclusions for RIS of NEPR;
- development of an overall SWOT analysis of the region;
- defining of a strategic framework and action plan;
- defining of pilot projects;
- development of a monitoring system.

### **Popularization of project results**

The popularization of the project objectives, raising the innovation culture and reaching out to a wide range of interested subjects, were carried out through different activities, in support to the formation of positive attitude in the society for the process of RIS development. Stable contacts and useful partnership with local and international organizations have been established. In this connection, the Management team held a series of information days and discussion seminars in the frameworks of the projects in the administrative centres of the NEPR - Dobrich, Razgrad, Silistra, Targovishte and Shumen. At the meetings the methodology and the final results are discussed, which are achieved in consequence of the elaboration of RIS. At the presentations representatives of the district and the municipal administration, the academic society, the scientific society, the local branch organizations, the small-and medium sized and the large business, and the non-governmental organizations took part.

Several meetings, discussions and working meetings of the sectoral and the district working groups and the focus groups are held, as well as seminars with the national and the regional consultants. Articles, interviews and announcements are published in the local and the central press and broadcastings are performed in the electronic media for the realization of the project. A partnership network from a wide range of experts is established (at regional, national and international level), enterprises, universities and research institutes, the local and the state authority and non-governmental organizations.



*Launch Conference 07<sup>th</sup> October 2005.*



*Final Conference 30<sup>th</sup> January 2008.*

## 2. ECONOMIC PROFILE

The North East Planning Region, is situated in the north-east part of Bulgaria, covers territory of 19 966,6 sq. km and is the third in territory and population (1,3 mln. inhabitants) from the six planning regions in Bulgaria (18.0% of the territory and 16.5% of the population of the country). NEPR consists of 6 administrative districts - Varna, Dobrich, Razgrad, Silistra, Targovishte and Shumen.



NEPR is important for the economics of Bulgaria and Europe:

- three very important European transport corridors are passing through NEPR: **Corridor № 7** (Danube water way), **Corridor № 8** (Douras-Skopie-Sofia-Burgas-Varna), **Corridor № 9** (Helzinki-Kiew-Ruse-Alexandropoulos). Via the Varna Port complex, Bulgaria is connected to the Black Sea region (Ukraine, Georgia, Russia, Turkey).
- NEPR is leading in: tourism, arable land, density of the road network;
- takes second place in: investments, Internet usage, relative RTD expenses;
- is at the third place in: population, GDP and GVA, volume of sales, amount of FTA.

### 2.1. GROSS DOMESTIC PRODUCT. GROSS ADDED VALUE

NEPR is at third place in contribution to the gross domestic product (GDP) in the overall national product (13,7% for 2005) after the South West and South Central regions. During the period 2000-2005, the rates of GDP growth in the region are near the average for the country and its contribution to the national GDP of the country is relatively standard value (between 13-14%). With the greatest contribution is Varna district (over 40%), followed by Shumen, Dobrich, Razgrad, Silistra and Targovishte. GDP per capita for the region is 4589 BGN. (2005), and the average for the country is 5529 BGN (2005), i.e. GDP per capita from NEPR population is 83% from the average for the country. District Varna has considerably higher amount (with about 1/4 above the average for the region), and in the other five districts GDP per capita is considerably lower.

NEPR is on the third place in the country by reported value of Gross Value Added (GVA) - total 4 811 109 thousand BGN (2005) or 13,7% from the general GVA of Bulgaria. With the greatest share of GVA in the region is the services sector - 2 889 063 thousand BGN (2005) or 60 %, followed by the industry – 1 175 179 thousand BGN (2005) or 24,4 % and the agriculture sector – 746 867 thousand BGN (2005) or 15,6 %. (Almost twice above the country's average).

The shares of services and industry in the economy by districts are highest in Varna district, followed by the districts of Shumen and Razgrad. The following districts have the greatest share in the agriculture sector of the economy have: Silistra district (above 23%) Dobrich district (above 22%) and Razgrad district (about 13%).

**Table.1. Distribution of production and fixed tangible assets (FTA) in NEPR by sectors and sub-sectors**

Thou. BGN	Gross production 2001		FTA 2001		Gross production 2005		FTA 2005	
<b>Gross for NEPR</b>	<b>4895641</b>		<b>3068795</b>		<b>7989062</b>	<b>Growth 63%</b>	<b>6552379</b>	<b>Growth 113,5%</b>
<b>Agriculture sector</b>	7,90%		6,40%		7,60%		6,50%	
<b>Industry</b>	41%		41,50%		41,70%		37,20%	
Incl.		Incl.		Incl.		Incl.		Incl.
Food products		28,40%		20,10%		24,80%		21,30%
Textile and clothes		6,50%		3,90%		5,90%		3,50%
Chem. products		27,20%		27,80%		17,70%		19,10%
Metal products		5,40%		3,60%		8,60%		
Machine building		10,70%		7,60%		11,60%		6,10%
Energy, gas, water & sewage		17,80%		17,40%		13,70%		25,50%
<b>Construction</b>	8,80%		3,40%		12,60%		3,50%	
<b>Trade</b>	10,40%		9,10%		11,10%		9,70%	
<b>Hotel industry</b>	4,30%				4,70%			
<b>Transport</b>	17,40%		12,40%		13,70%		16,80%	

Among the most developed industry sub-sectors (according to the gross production value) in NEPR are the production of food products and beverages (about 25% from the industrial production for 2005), of metal products and machine building (about 20%), of chemical products (около 18%), production of electric and heat power, gas supply, water (around 14%) etc. Very fast development has been registered by the construction, trade, transport and hotel industry (tourism). Agricultural sector (incl. fisheries and agriculture) have constant considerable share of about 7,5-8% from the gross production of NEPR.

**Table.2. Distribution of production and FTA by districts within NEPR**

Thou. BGN	2001				2005			
	Gross production	%	FTA	%	Gross production	%	FTA	%
Gross for NEPR	<b>4895641</b>		<b>3068795</b>		<b>7989062</b>		<b>6552379</b>	
Agr-sector	386698	7,90%	195978	6,39%	604237	7,56%	427460	6,52%
Industry	2007838	41,01%	1273464	41,50%	3332082	41,71%	2438032	37,21%
Services	2501105	51,09%	1599353	52,11%	4052743	50,73%	3686887	56,27%
By districts								
<b>Varna</b>	<b>2952121</b>	60,30%	<b>1847146</b>	60,19%	<b>4608383</b>	57,68%	<b>4041534</b>	61,68%
<b>Shoumen</b>	<b>531297</b>	10,85%	<b>285610</b>	9,31%	<b>973365</b>	12,18%	<b>632286</b>	9,65%
<b>Dobrich</b>	<b>509276</b>	10,40%	<b>472484</b>	15,40%	<b>847196</b>	10,60%	<b>812364</b>	12,40%
<b>Targovishte</b>	<b>263302</b>	5,38%	<b>109113</b>	3,56%	<b>537758</b>	6,73%	<b>457356</b>	6,98%
<b>Razgrad</b>	<b>398831</b>	8,15%	<b>203484</b>	6,63%	<b>622849</b>	7,80%	<b>338060</b>	5,16%
<b>Silistra</b>	<b>240814</b>	4,92%	<b>150958</b>	4,92%	<b>399511</b>	5,00%	<b>270779</b>	4,13%

From the data shown in Table 2 it can be seen, that in spite of its absolute domination the relative share of Varna district in the gross value of NEPR production is slowly diminishing during the period 2001-2005, as the relative share of districts like Shumen and Dobrich is growing and the share of districts Dobrich, Razgrad and Silistra is remaining relatively stable.

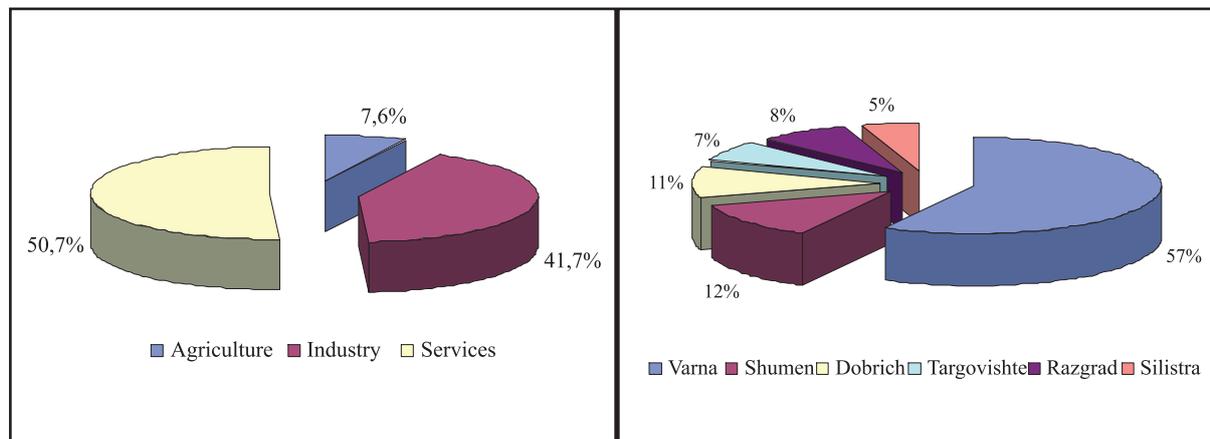


Fig.3. Gross production by sectors

Fig.4. Gross production by districts

## 2.2. INVESTMENTS

If the foreign direct investments made until 31.12.2001 in the enterprises from the non-financial sector of Bulgaria amount to 2 524 385.8 thousand dollars, until 31.12.2006 they already amount to 12 401 663.2 thousand dollars (growth of about 5 times for a period of 5 years).

The North East Planning Region takes the second-third place in the country by amount of the accumulated foreign direct investments – about 14% from their total size. Their volume shows considerable growth in the last few years.

The biggest investments in the region are made in „Solvay Sodi”- Devnya, in „Shishedjam” - Targovishte; in „Amilum” - Razgrad etc.

They are unequally distributed by districts. The predominate share of foreign direct investments (over 60%) are on the territory of Varna district, about 10% in Razgrad district, about 9% in Shumen, about 6% in Dobrich and Targovishte, and about 4% in Silistra.

Considerable amount of the investments (about 2/3) however are in real estates, warehouses and shops and not in production assets.

The exponential growth of the Fixed Assets in NEPR has to be marked (growth of 113% for 5 years in comparison with 63% growth of NEPR gross production), which shows the active change and modernization of the technological equipment in the enterprises in the region – guarantee for increasing the productivity and quality of production in future.

## 2.3. ENTERPRISES. AGRICULTURE. SERVICES

On the territory of NEPR 16% of the enterprises of the non-financial sector in the country are situated, more than 15% from the employees are working, deploys with over 14% from the tangible material assets - TMA.

The total number of companies in NEPR is about 37 thousands, of which 91% are micro companies (up to 10 employees), 7,2% – with 11-50 and 1% – with 51-100 employees. Domination of micro and small companies is typical.

**Entrepreneurship. Barriers to its development.** The development of entrepreneurship has proved to be an important base for the economic growth of the country, which imposes improvement of the conditions supporting the development of companies.

The lack of financial support, complicated administrative procedures and the shortage of qualified personnel are still identified as key barriers for starting and enlargement of business. The level of self employment (relative share of entrepreneurs – employers and self employed persons in the total number of employed) for the country is 13,1%, and for NEPR – 13,5% ( 3 points above the average for the country). This aligns the region on third place in the country after the South Central (14,9%) and South East (13,7%) regions.

**Business supporting infrastructure.** It is starting to develop in NEPR. Although there is growth in the employed in business services and their number in the region is on second place among the planning regions (128 per 10 thousands people from the population), they are concentrated mainly in Varna district (189). Their number is exceptionally low in the districts of Silistra (44) and Razgrad (66).

The presence of industrial zones in good technical state is important resource for development of the business services sector and business as a whole.

With the aim to support entrepreneurship and increasing the employment in the North East Planning Region a network has been established consisting of:

- Business centres /BC/ in the following cities: Dobrich (with office in General Toshevo), Duloovo, Isperih, Novi Pazar, Silistra, Targovishte and Shumen.
- Business incubators /BI/: Varna, Silistra, Targovishte and Shumen.
- Agrobusiness centres /ABC/: Duloovo, Novi Pazar, Silistra.
- Information business centre /IBC/: General Toshevo – Liubenova Mahala.
- Regional Development Agencies: Varna – Regional Agency for Entrepreneurship and Innovations – Varna, Economic Development Agency, Dobrich – Regional Economic Development and Investment Agency, Razgrad – Regional Development Agency, Shumen - Agency for sustainable development and investments, Silistra – Agency for economic development and investments, Targovishte - Regional Development Agency.
- Euro Info Centres: in Chamber of Commerce and Industry – Dobrich.

**The industry** in the North East Planning Region is a mixture of big and small companies, presented on a wide industrial base.

Among the most developed sub-sectors of the industry (according to the gross production volume) in NEPR, which are of national importance, are the production of food products and beverages (about 25% of the industrial production for 2005), of metal products and machine building (about 20%), of chemical products (about 18%), of production of electric and heat energy, gas and water supply (about 14%) etc. Very fast development is registered in construction, trade, and transport and hotel industry.

The industrial sector is distinguished with high degree of concentration in the district centres and in the industrial agglomeration Varna-Devnya-Beloslav.

This way for example in the industrial sub-sectors as chemical substances production, products and fibres, electric and heat energy production, gas and water supply as well as in the sector of services in the field of transport, warehousing and communications district Varna gives above 90 % of the total gross production for 2005.

District Varna gives 80 % of the production of vehicles, and district Shumen - about 17% of the gross production for 2005.

The remaining sub-sectors of the industry are comparatively more equally distributed between the districts, with Varna district remaining a leader, with the exception of food (in which Razgrad

and Shumen are leading), production of textile and clothing (leading districts are Dobrich and Targovishte), and also metallurgy and ferrous products (leading district is Shumen). Graphic representation of the distribution of industrial sub sectors in every district is given in Fig. 5.

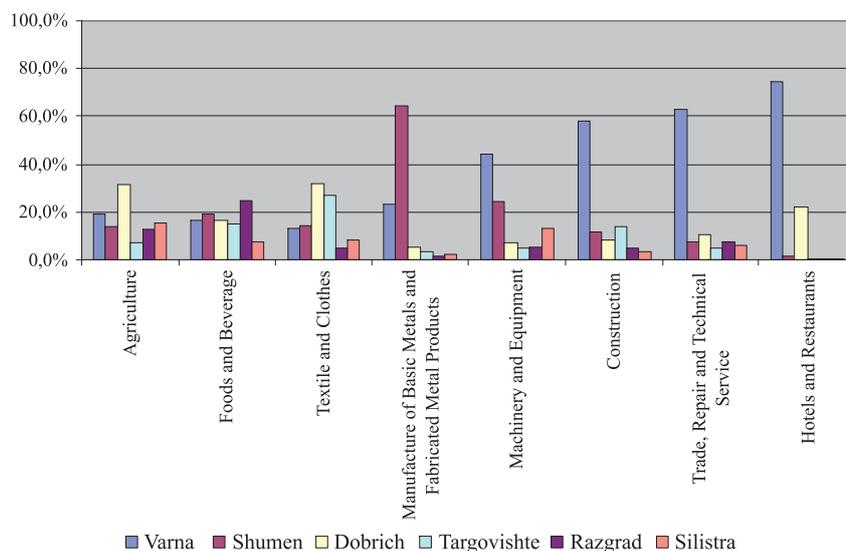


Fig. 5. Distribution of gross production by sectors in different districts

**Emerging and development of regional clusters.** Favorable prerequisites for the emerging and development of **clusters**, which can lead to future territorial and production integration and inclusion of smaller settlements as elements of effective and dynamically developing clusters. The formation of the following clusters is observed in NEPR:

- “Devnya” Cluster – joint representation in front of the state authorities of: “Agropolihim”Ltd, “Devnya cement”Ltd, “Solvay - Sodi”Ltd with common usage of the unique deposits of natural resources near Varna;
- “Marine industry” cluster – includes shipping, harbors, ship building and ship repair, sea resources, marine science and education, all activities and services, serving the marine business; growing importance in the regional economy and especially of Varna district in compliance with the international requirements and standards in market environment.
- “Tourism” cluster

Opportunities for establishment of clusters have been identified: „Shoe production” in Dobrich municipality /around 20 small companies – shoe manufacturers/; „Glass” in Targovishte district /”Shishedjam” – construction of three glass factories – flat glass, household glass, automobile glass, raw material – from Opaka municipality, wooden pallets for packing - from the municipality of Antonovo/; „Food processing industry” /integration between „Amilum” factory in Razgrad – main manufacturer of sweeteners and starch in the country and the corn producers in Dobrudja (raw material for the production of carbonated and alcohol beverages).

**Agriculture** in the region is one of the priority sectors. There are favourable prerequisites for its existence as follows: Traditions and experience in the growing of agricultural; Presence of large leaseholders and producers of agricultural production; Presence of large gene pool and sorts. The municipalities, producers and companies in the region show high entrepreneurial activity in terms of acquiring funds on SAPARD Programme.

At the same time negative trends have been registered as: Enduring decline in the development of stockbreeding; Non-functioning depreciated irrigation systems; Ineffective production,

broken connection between science, production and market; Low level of organization of producers, lack of functioning organization structures at local level; Fragmentation, small size of a large part of the terrains and farms. Independently of the building of some elements of the entrepreneurial infrastructure of agriculture in the region, it will be additionally developed in future.

NEPR has the greatest relative share of used agricultural land in Bulgaria – 23,6% of the total for the country (1 259 thousand hectare). The arable land here is 1 049 thousand hectare (32,4% of the arable land in the country). NEPR is leading in the production of grain, sunflower etc.

The North East Planning Region takes leading position in the country in **tourism** development with over 40% of the total bed space in the country, from the night stays in exploitation, the realized night stays and the income from accommodation. Compared to the other planning regions, NEPR is distinguished with longest stay of visitors – 7,1 days, highest base occupation – 35,7%, highest density of bed space– 3,5 per km<sup>2</sup>, beds per 100 habitants – 5,1 and night stays per 100 habitants – 412. This classifies NEPR as the region with greatest „impact on the environment” and socially economic influence of tourism, measured with the indicators density of beds and night stays, beds and night stays per 100 inhabitants, through the urbanization of the sea shore from Varna to Balchik, etc.

NEPR is with rich cultural and historical heritage which is good prerequisite for alternative forms of tourism – cultural, agricultural and ecological.

## 2.4. INNOVATIONS AND TECHNOLOGIES. RESEARCH CENTRES



*Innovation forum.*

NEPR is taking second-third place in the country after the South-West and South central regions in absolute and relative share of RTD expenses in GDP – with average for the country – 0,4%, which is a considerable lagging behind the objective set out in the Lisbon Agenda (4% of GDP). The invested funds are quite minimal and do not serve as a solid base for new technological and competitive development.

NEPR universities are mainly concentrated in Varna (5) and Shumen (1).

The existing research and development potential is limited, which does not contribute to the

development of the region innovative capacity. The number of functioning organizations in the field of RTD in the region is quite low and concentrated mainly in Varna (4– for fisheries; for marine research and oceanology; for hydro- and aerodynamics and for metal sciences). With the National centre for agricultural sciences in General Toshevo and Shumen there are research and development structures. In the sector of agriculture the following should be mentioned: branch in Loznitsa Municipality of the Farming Institute in Kostin Brod, Experimental Apricot Station – Silistra etc. A trend for cooperation is observed between the universities and the research institutes with regard to the actual demand of the market, but with limited range and with lack of commercialization of the scientific products.

There is a lack of technological infrastructure, namely technological parks, incubators, technology transfer centres and other structures and other structures for technological partnership with the business.

Innovations are still a priority of the large enterprises.

## 2.5. STATE OF THE INFRASTRUCTURE

**Transport infrastructure.** NEPR is main transport-logistic centre of the country. In the region important **Black Sea** harbours are constructed and functioning – Varna and Balchik and on the river **Danube** – Tutrakan and Silistra. NEPR has well developed **road network**. The relative share of highways and first class roads presents 20% from the country total. This shows good construction of the road network with indicators, higher than the country average and among the best from the planning regions. The density of the **republic road network** for NEPR is 181,9 km/1000km<sup>2</sup>, higher than the country average (173,7 km/1000km<sup>2</sup>), and also with total density - 358,3 it is higher than the average for the country and highest among all planning regions. NEPR is one of the regions with most poorly developed **railway network** in the country in territorial aspect, but relatively more modernized. The districts Varna and Shumen obtain the best developed railway infrastructure, because they are served by the main railway destinations Sofia-Varna and Ruse-Varna.

**Communication infrastructure.** The construction of communication infrastructure in NEPR is lagging behind the average figures for the country. Varna and Dobrich districts have the best indicators for communication infrastructure development, most poorly developed is the infrastructure in districts Shumen and Silistra.

**Water supply infrastructure.** NEPR has the heaviest **water supply** difficulties in the country. The water sources are underground and situated on a great depth. The water used for supplying the settlements is constantly diminishing. In the recent 20 years the share of the effectively used water is diminishing due to depreciation of the water supply network equipment. The water losses are above 65%, which determines the high energy intensiveness and highest price of the water supply services in the country. In spite of that, the share of the population, supplied with water is 99,6%, while the country average value is 98,4%. Also the relative share of population with regime on water supply is 14,7%, with average value for the country almost 22%. The situation with waste water treatment is quite better: from totally 55 WWTP, built in the country, 13 WWTP are on the territory of Varna district. The relative share of NEPR population, covered by WWTP, is 43,1%, higher than the country average (38,1) is also one of the highest by planning regions. The water supply systems in the districts Silistra and Razgrad are with lowest coverage.

**Energy infrastructure.** Bulgaria imports about 60 % from the necessary energy resources and a large part of them (natural gas, coal, petrol and by-products) “enter” through NEPR, which is the base for the development of highest class transit energy infrastructure in the region, as energy infrastructure corridor has been formed over the destination Kardam-Dobrich-Devnya. The well developed gas transition network in NEPR gives an opportunity for development of a gas supply network with low pressure for domestic and public gas supply. The gas distributing region “Dobrudja” has been identified, which is already licensed for development of the network in these regions. In many municipalities – Varna, Kavarna, Popovo, Targovishte, Dobrich, Razgrad, Novi Pazar, Isperih etc., the gas supply networks for domestic and public consumers are already built.

The renewable energy sources are another local resource which can reduce the dependency on import, improve the security in energy supply and to relieve the protection of the environment, despite of that they have been used inconstantly and insufficiently.

## 2.6. PRIORITY ECONOMIC CENTRES OF NEPR

Following the proposals received and the consultations and discussion held on various levels,

SC on its meeting, held on 15<sup>th</sup> May 2006, accepted the following ten priority economic sectors to be inquired:

- Energy Industry, Energy Efficiency, Environment (EEEE).
- Information and Communication Technologies (ICT).
- Machine-building, Electro-technical Industry and Electronics (MEIE).
- Marine Industry (MI).
- Processing Industry (PI).
- Agriculture (A).
- Construction and Transport (CT).
- Tourism (T).
- Services (S) (financial, logistic, etc.)
- Chemistry, Biotechnologies and Pharmaceuticals (CBP).

Ten reports are developed by the sector expert working groups, in which the innovative state of the region is being analysed and the trends for the innovative development of NEPR are shown. The main identified opportunities for the sectors' development are presented.

### **Energy Industry, Energy Efficiency, Environment (EEEE)**

- Construction of facilities for the utilization of renewable energy sources.
- Exploitation of co-generators in the thermal heating power stations and detander-generators in the gas distributing stations for the manufacturing of electric power.
- Utilization of the energy of wood waste, bio-mass and domestic waste for the manufacturing of bio-fuels.
- Creation of a system for planned renovation of buildings.
- Mass gas supply to houses and buildings.
- Making use of new light sources and systems for management of city lights.
- Creation of clusters.
- Decreasing the losses of drinking water and electric power during the supply process and increasing the efficiency of geo-thermal and running water utilization.
- Creation of high-technology laboratories.

### **Information and Communication Technologies (ICT)**

- Integration of the telecommunication structures of the countries from the Middle East, West Europe and North Africa.
- Creation of networks for cooperation between companies and scientific institutes and fostering RTD.
- Risk capital financing.
- Introducing of 4G technologies and products.
- Increasing of the e-trade and the personal consumption market.
- Expansion of the market towards the field of tourism, the public sector and the transnational cooperation.
- Supporting the companies' export strategies, providing information about the market and assistance to the companies' participation on foreign markets.
- Preferential crediting and stimulating the ICT companies for technological renovation, decreasing the territorial disproportions and RTD.
- Introducing licensed Quality Management Systems, unified quality standards and establishment of classification system.
- Development of aggressive marketing policy.
- Improvement of the personnel qualification and decreasing the human resources

deficiency.

### **Machinebuilding, Electrotechnical Industry and Electronics (MEIE)**

- Manufacturing of el. household appliances, transport vehicles - equipment and spare parts.
- Agricultural machinery cluster establishment.
- Specialization of the sector economy towards serving the marine industry – ship building and ship repair.
- Industrial zone construction in connection with the marine, chemical and agricultural industries.
- Implementation of cross border cooperation with Romania.
- Business participation in the training of engineers.
- Encouraging the young specialists, as well as attracting them in the universities and research institutes.
- Strengthening RTD and directing international projects for solving the companies' innovation problems.
- Formation of expert groups on regional level, conducting research and organization activities for the development of innovative projects.
- Adopting tax relief for the companies, investing in their innovation development.
- Increasing the companies' efficiency in the process of Intellectual Property Protection.
- Introducing of energy saving production methods.
- Timely companies certification of companies according to the EU standards.

### **Marine Industry (MI)**

- Development of shipbuilding with regard to the favourable trends on a world scale and the positive development of the international freight market.
- Training of personnel in the existing educational institutions.
- Modernization of the fleet of the shipping companies.
- Fast expansion and modernization of the ports and their parallel transformation to logistic centres.
- Finalizing the process of decentralization in the sector and giving of the harbour terminals under concession.
- Development of a tanker shipping company with a view to the construction of oil pipeline.
- Introduction and certification of quality management systems.
- Adjusting legislation related with the sector to the requirements of the international norms.
- Clusterisation in the sector.
- Creation of technology transfer centres in the marine transport and in the harbour activity.

### **Processing Industry (PI)**

- Protection, development and improvement of the quality of traditional productions and introduction of new products.
- Protection of the origin of traditional products.
- Purchasing new machinery and technologies, and improving the qualification of the personnel.

- Creation of clusters „Glass”, „Ceramics”, „Food and beverages”, „Shoe manufacturing”. Joining the processing of fruit and vegetables to the clusters.
- Introducing and approving of own trade marks, especially in the tailoring and FPI.
- Cooperation on horizontal level of the meat production, milk production and processing and preparation for their vertical cooperation on the basis of a tourism cluster.
- Support to RTD and innovations in manufacturing through establishment of regional centres for research and innovations.
- Automation of the processes, and reduction of the influence of the subjective factor on quality.

### **Agriculture (A)**

- Production of the traditional for the region vegetable crops and animals.
- Technological renovation and construction of contemporary facilities, buildings, orchards, vineyards and stock-breeding farms.
- Realisation of production in the EU.
- Development of ecologically oriented production, systems for the manufacturing of healthy foods and herbs.
- Development of agricultural tourism, growing plants for the pharmaceuticals and other untraditional plant growing and stock-breeding productions.
- Maximum replacement of the manual labour with mechanical.
- Development of RTD in the sector and creation of an organization for transfer of research results to practice.
- Training and improving of the personnel qualification.
- Cooperation in the field of innovations and creation of clusters.
- Construction of exchanges for plant-growing and animal production.
- Overcoming the fragmentation and small size of the land areas in the farms.
- Widening of the nomenclature and the range of offered goods, enter in new markets.

### **Construction and Transport (CT)**

- Common activities with neighboring regions for development of the transport corridors and widening the cross-border cooperation in the Black sea basin.
- Development of a regional cluster in the sector.
- Increasing the qualifications of the employed in the sector at all levels, and actualization of the educational network according to the contemporary requirements.
- Introducing of new technologies, equipment and raw materials, keeping the ecological equilibrium and increasing the energy efficiency.
- Restructuring, rehabilitation and technological renovation of old industrial zones, renovation of housing complexes, building of infrastructure and public utilities development.
- Creation of a regional innovation network and regional consultancy and innovation center for information exchange and technological transfer in the sector.
- Increasing of the knowledge and skills of companies and their cooperation for the development of joint innovation projects. Establishment of consortia.
- Development of intramodal transport corridor „Northwest Europe” on the Danube or railway transport with block of trains through Russe across Varna to the countries from the Caucasus region, South Russia and Middle Asia.
- Construction and modernization of the transport infrastructure – railway, land, marine and achieving compatibility with the main arteries, including those of neighboring countries

- Completion of the construction works of auto motor ways „Hemus” and „Black sea”.
- Construction of the ferryboat Toutrakan-Oltenitsa..
- Construction of a bridge Silistra-Kalarash and RO-RO terminal Silistra-Reni (Ukraine).

### **Tourism (T)**

- Inclusion of recreation territories and objects from the inner part of the region.
- New models for tourism development exposing the natural and cultural heritage – rural, eco-, ethno-, cultural ,cognitive tourism, and their integration.
- Creation of new beach lines and conditions for yacht, hydro-therapeutic, congress and festival tourism.
- Introduction of company quality certificates and certification of tourist activities and products.
- Creation of new high class tourist complexes and vacation villages and infrastructure.
- Reconstruction, renovation, adding aesthetics to the infrastructure and furnishing with a unified system for visual information.
- Creation of a regional information system and a network of a regional information system and a network of tourist information centres.
- Support of a unified regional web-site.
- Improving the quality of education and raising the qualification of personnel in the field of tourism.
- Creation of tourism clusters and a regional association of the companies from the tourism sector in the region.
- Creation of a cross-border, regional tourist product.
- Offering a package of self-contained tourist products from the districts Razgrad, Shumen, Targovishte and Silistra, which should support the Black Sea tourism as well.

### **Services (S)**

- Development of new bank and insurance products incl. those offered through internet.
- Introducing of low rates of interest, existing in the euro zone.
- Development of alternative sources of financing on the non-banking financial sector.
- Professional training and qualification of the personnel in the sector.
- Creation of logistic transport nodes and introduction of technologies for securing of grouping, interim processing, etc.
- Construction of freight intermodal terminals and schemes for combined transport.
- Development of corridor 8 with freight turnover from and to Southeast Europe and the countries from the Black sea region, with regard to the construction of oil pipelines.
- Preparation of new transport schemes overcoming the coming into exploitation of new customs points, Danube Bridge II, etc.
- Introduction of technologies leading to increasing the security of transport.
- Development of the transport axis Bucharest-Oltenica-Toutrakan-Targovishte-Razgrad-Varna.
- Development of an Eastern Balkan transport corridor Romania-Silistra-Shumen-Yambol-Lesovo-Turkey, alternative of corridor № 9.
- Construction of the bridge Silistra-Kalarash and RO-RO terminal Silistra-Reni

(Ukraine), securing transport of goods from Turkey and the Middle East to Ukraine and the Scandinavian countries.

- Fostering the usage of new energy sources and energy saving technologies to compensate the increase in prices of fuels.

### **Chemistry, Biotechnologies and Pharmaceuticals (CBP)**

- The development of clusters in the production of chemical and biotechnological products.

- Utilization of the raw materials and sewage from the agriculture and the enterprises for biotechnological production and energy sources.

- Utilization of the secondary energy resources from the chemical production for the receiving of technological steam and hot water supply.

- Creation of regional networks for cooperation between companies, business incubators, universities and scientific institutes with the aim to foster innovations.

- Training of the executive staff and support of young qualified specialists with the aim of restricting their „drainage” from the sector.

- Construction of a training centre for the training of personnel in the sector with the help of the higher education institutions and the professional high-schools in chemistry in Varna and Razgrad.

- Support of the export activity of companies with market information.

- Support for ISO standardization under etc.

- Introducing of tax relief with the aim to foster the investments and reinvestments in the sector.

- Preferential financing of technological schemes for revolving usage of water, purchasing equipment for purification of water and the usage of own water sources in the companies.

### **3. INVESTIGATION OF THE INNOVATIVENESS AND COMPETITIVENESS OF COMPANIES FROM THE NORTH EAST PLANNING REGION**

The main objective of the Regional Innovation Strategy is the creation of social environment, providing mutually beneficial cooperation between the participants and innovation environment in the region and creating of conditions for support and coordination of its innovative development. For the development of an effective Regional Innovation Strategy full and objective information is necessary for the innovation activity and the innovative needs of the entrepreneurs from the region.

The proinnovative needs of the enterprises have been investigated (basically small and medium enterprises) from NEPR. The following goals have been followed during the process of investigation:

- evaluation of the innovation potential of entrepreneurs, the need to be improved and hinders for its development;
- evaluation of the scope of proinnovation activities realized during the last three years, barriers for the introduction of innovations and improving the competitiveness;
- evaluation of the state and the needs for support of the companies' pro-innovation activity, their research and development activity (RTD), as well as the strategic planning of innovations;
- evaluation of the cooperation of companies with other main participants in the Regional innovation system of the region (research, administration, NGO);
- study of the external sources of financing the companies' activity, including innovations financing, existing barriers in cooperation with the financial institutions and preferred financial instruments.

On the basis of economically active companies in NEPR (about 40 000) and the accepted tolerance of 5 % maximum allowable error, the theoretical scope of the extract have been calculated. A minimum scope of the extract  $n = 400$  companies is accepted and its duplicating due to the risk of a big % of not respondents. The inquiry has been carried out through direct interviewing of the companies by interviewers. A questionnaire is developed, containing 40 basic questions and 206 sub questions. For elaboration of the questionnaire Likert's scale have been used, point scale estimation of preliminarily suggested statement.

In the inquiry the model of casual „stratified” extract is used, with certain inner differentiation in the target totality (dividing the firms according to branches, scope of sales/incomes, etc.). It is accepted that the responses evaluated the relative shares of accepting/not accepting or determining their agreement/disagreement according to 3, 5 or 7-point scale respondents to the survey.

#### **General characteristics of the investigated companies**

Answers have been received from 538 companies, out of 1100 to whom the questionnaire was sent, distributed according to the criteria in the developed project methodology in ten priority sectors and the six NEPR districts.

Among the SMEs included in the inquiry, companies with thoroughly Bulgarian capital are prevailing (93%). Insignificant share of companies (about 7 %) are with joint or thoroughly foreign capital, which present the state sector and the joint enterprises.

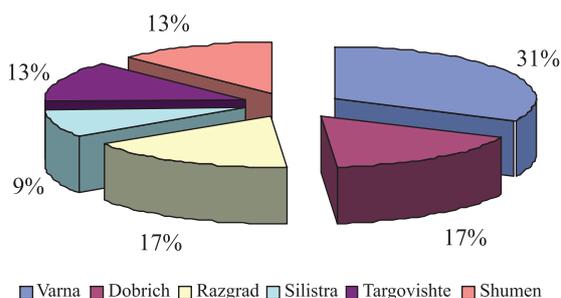


Fig. 6. Distribution by districts

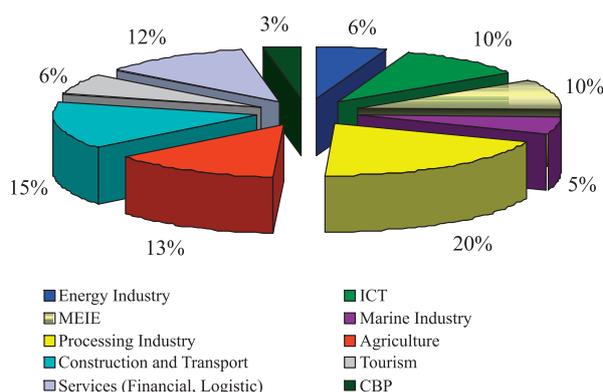


Fig. 7. Distribution by sectors

By criteria “juridical status” 80 % of the companies are capital entities, as more than a half are with limited liability (Ltd) – 56.1%, and 24.4 are joint-stock companies (JSC). The share of companies with personal ownership is 14.7 % of the respondents. The remaining insignificant part of about 4.5% is general partnerships or limited joint-stock companies.

The distribution of the interviewed companies according to their annual turnover clarifies the scale of their activity. By this indicator, the largest group of companies is that of small companies, realizing sales up to 250 thousand BGN, which includes about 36% of all inquired companies. The inquiry includes companies with activity in scales that have serious influence on Bulgarian economy. The share of companies with turnover above 1 mln. BGN is above 22%, and of companies with turnover above 5 mln. BGN is above 14 %.

### 3.1. INNOVATIVENESS AND COMPETITIVENESS

The innovation activity of the enterprises is determined by the amount of the expenses made for innovation activity inside the company and by the total amount of expenses made for research and development activity (RTD). The data show that practically about 45% of the interviewed companies have not made expenses for RTD, and above 20% - hardly from 3 to 6%. Significant expenses, which can really lead to substantial innovation practices (over 20%), are made by only 6 % of companies.

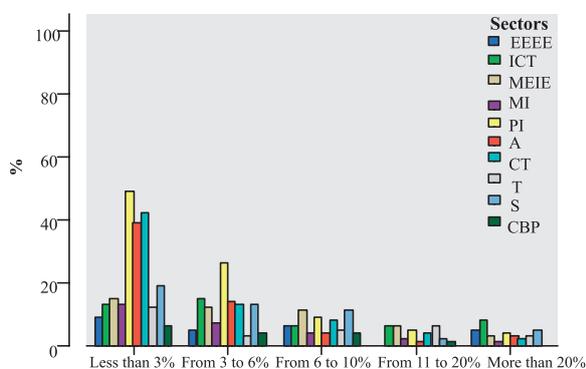


Fig. 8. Expenditures for R&D compared

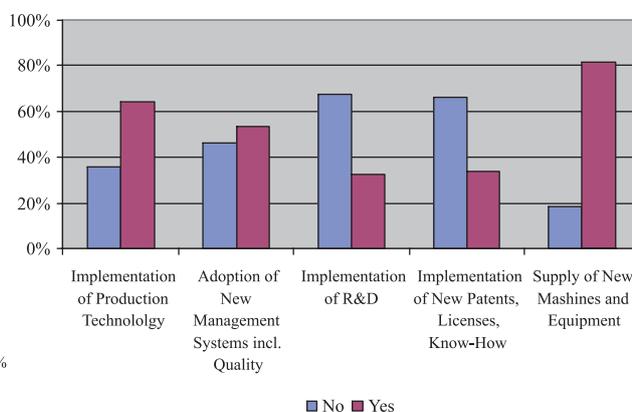


Fig. 9. Proinnovative activities realized with turnover in the last 3 years

The distribution of fund for RTD by sectors shows that least amount of funds for RTD have been allocated by the companies in the sectors Construction and Transport (CT), Agriculture (A) and Processing Industry (PI). Considerable amount for RTD are allocated by the companies from Machinebuilding (MEIE), Services (S) and Chemistry, Biotechnologies and Pharmaceuticals (CBP). The greatest amounts for RTD in NEPR are allocated by companies in Information and Communication technologies (ICT) and Energy sector (EEEE).

Almost one third (32%) of the respondents organise their own research and development activity, even if in a scale according to their opportunities. Almost the same is the share of the interviewed, who point out the training expenses as a part of their innovation policy.

The companies from the sectors PI, A, Transport (T) and S do not consider the of realization of RTD inside the company as an important factor for its competitiveness. At the same time the companies from CBP, ICT, MEIE, Marine industry (MI) consider this an important condition for the good competitiveness of the enterprise.

The policy for expenditures in the field of innovations is characterized with the main directions, towards which the spending of the allocated amounts is oriented. The most general idea for this process is being obtained by the expenditures made for a certain type of innovation products in the company's budget. Prevailing are the companies, buying new machines and equipment – on this stage this is apparently the main trend for investing in innovative decisions. In general, a few basic moments can be outlined, related to the technological renovation:

- over 81% of the SMEs have purchased new machines and equipment for their production activity during the last three years and this is referred to all priority sectors;
- around 64,4% of the interviewed companies point out that during the period 2004 – 2006 they have introduced new production technologies, as the higher percentage is being observed in the sectors EEEE, MI and T. This is related to the invasion of major foreign investors in sector EEEE and the high rates of development of T and MI;
- more than half of the companies during the last three years have used new management systems, including quality management systems. Again EEEE and MI are leading sectors. PI is also being outlined by this indicator, which is due to the strengthened export orientation of the sector during the recent years;
- about 34% have implemented new patents, licensees and know-how, as here CBP, PI and EEEE sectors are outlined. Sectors MEIE, MI and A practically do not use new patents and licensees;
- during the realization of the upper activities over 90% of the companies rely mainly on their own strengths and opportunities;
- acquisition of innovative products, developed thoroughly by other enterprises and specialized institutes, is more rarely met and is pointed out by 15 % of the companies.

## **Factors influencing the competitiveness of NEPR companies**

The inquiry evaluates the results from the innovation activity of companies through a group of indicators, characterizing the effects of this activity over the economic state of the enterprises. They are measured through the relative share of some financial indicators, connected with the supply of innovation products on the different markets.

Following the introduced new technologies and patents, as well as the purchasing of machines and equipment, improvements in the companies' functioning on the market are registered:

The increasing of the company market share could be added as well, valued as a very important result by the companies. The improvements made have influenced mostly the quality of products and services.

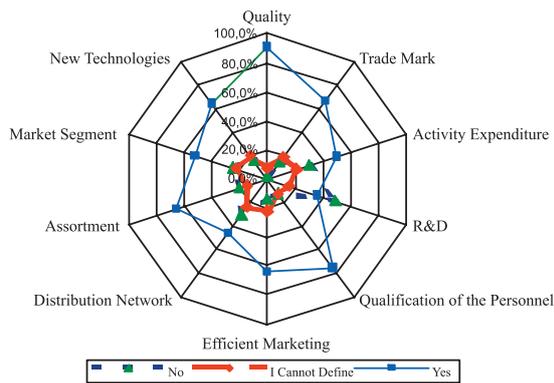


Fig.10. Factors influencing the competitiveness

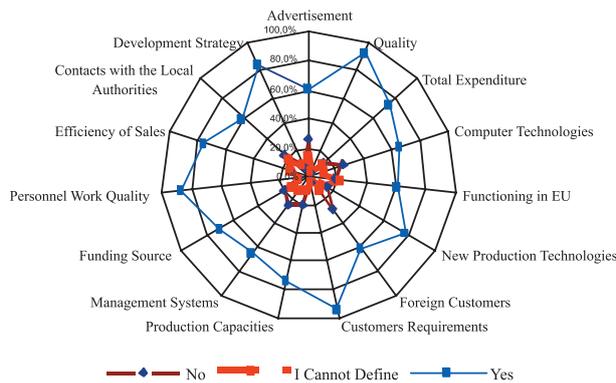


Fig.11. Factors improving the pro-innovative activities

The results from the inquiry show that at this stage, irrespective of the innovation activity carried out in the different sectors, this is not always leading to introducing to the market of a new product or service. Apparently the unchanged products are still major source of profitability for the companies in the region, although it is not explicitly stated by them during the inquiry.

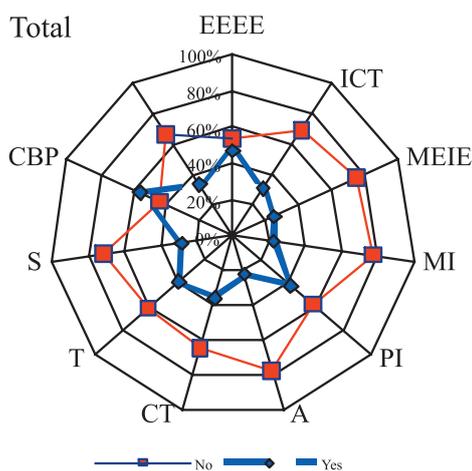


Fig.12. Implemented new patents, licenses, know-how in the last 3 years

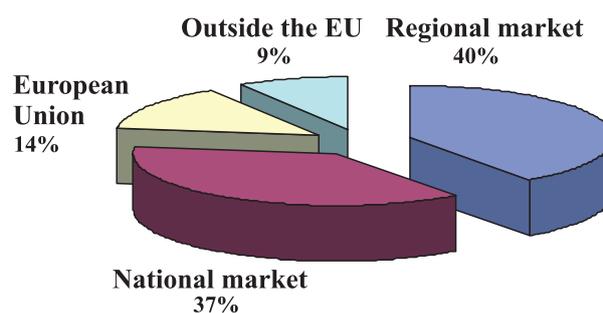


Fig.13. Profile of companies' sales

The companies' sales profile on the different markets is an important indicator for innovativeness and competitiveness. From Fig. 13 it is seen that 40% of the companies are operating on the regional markets, 37 % have national sales, i.e. 77% of the companies are operating only on the Bulgarian market. The export for the European Union is only 14%, and for the countries outside the EU 9%. This indirectly proves the low competitiveness of the companies from the region.

### 3.2. COOPERATION AND TECHNOLOGY TRANSFER

Cooperation of business with universities and incubators is very poor at regional scale and is differentiated by sectors. In sectors PI, A and CT between 60 and 80% of the enterprises have never been in cooperation with such organizations. At the same time 10% of the companies from the pro-innovation sectors ICT and CBP are in constant cooperation with universities.

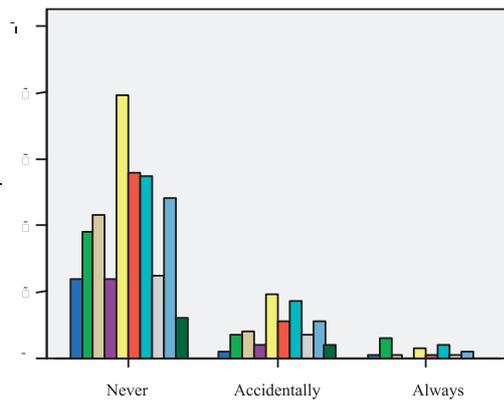


Fig.14. Cooperation with universities and incubators

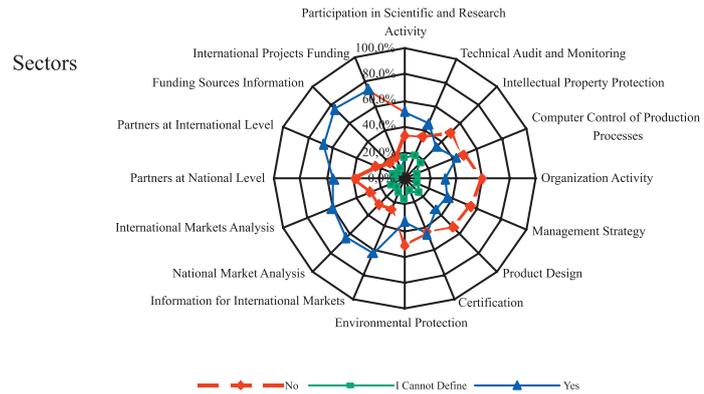


Fig.15. Directions in which the companies need external assistance

### 3.3. FINANCING OF THE INNOVATION ACTIVITY

Of great importance to the state of innovation activity of enterprises is the cooperation with different sources of financing. Practically the crediting for the enterprises' activity is missing and only in the Agriculture sector they find access to credits.

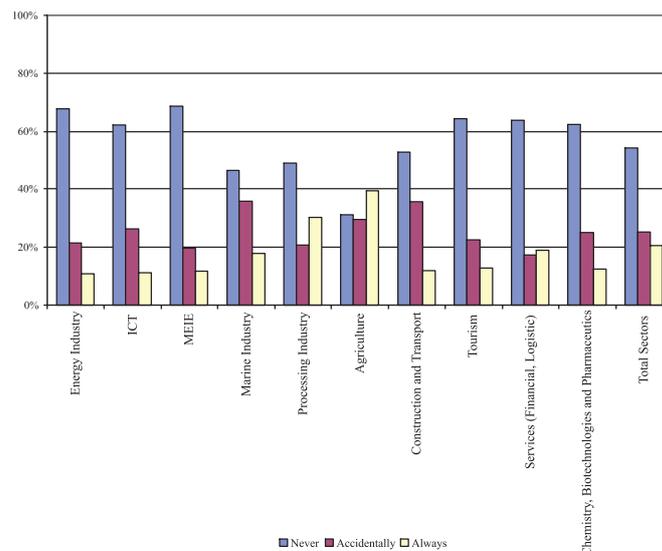


Fig.16. Access to credits and preferential loans for the activity of the companies

The data from the inquiry carried out show firmly that companies use mainly own funds as a major source of financing of these activities.

At the same time a large part of the companies from all sectors either do not have information or do not use it with regard to the opportunities for financing of the companies activities through the pre-accession or structural funds of the EU.

The results from the inquiry categorically show practical lack of financial sources outside the companies – Bulgarian or foreign, for financing of the innovation activity.

The loans offered by financial institutions to the industrial companies do not include in their requirements criteria for evaluation of the projects investment level. From here the main hinders for financing these activities follow, which practically block them.

### **3.4. HUMAN RESOURCES**

The human resources are of great importance for the technological development of companies and for provision of the activities, which require special qualification of the personnel. In this regard the results from the inquiry are indicative for the lack, in general, of enough specialists with higher and secondary professional education in the region.

The total share of employees with higher education in the companies is about 24%, most of the employed are with secondary professional education – about 53% and primary education – 23%.

### **3.5. RECOMMENDATIONS**

The enterprises have accurate idea of their innovation potential and the directions in which it should be improved as:

- widening of the research and development activity, improvement of the cooperation with universities and research institutes;
- creation of financial instruments for supporting of the innovation activity of companies;
- improvement of the distribution network, reduction of the total expenses and improvement of the payment and working conditions of the personnel.

The main barriers for the innovation activity of the companies are:

- limited access to financing and difficult cooperation with the financial institutions;
- lack of qualified specialists on the labor market;
- low profitability of new products and high growth related with the innovations;
- lack of information for new technologies;
- difficult procedures for protection of the intellectual property;
- unfair competition;
- low interest in organizations, creating innovations to cooperate with the business.

The pro-innovative activity in the region during the last three years is generally limited to the purchasing of new machines and equipment. Insignificant funds are allocated for RTD, new patents, licenses and know-how.

The introduction of innovations in the enterprises generates positive effect with relation to:

- quality of products and services;
- company's competitiveness;
- market segment and the number of clients;
- organization of the company's work;
- interaction with other participants in the innovation system of the region.

The sufficient number of inquired enterprises allows accepting the received results for representative and reliable for NEPR. The registered dependencies and trends characterize in a good way the analyzed aspects of innovativeness and competitiveness of economic entities from the region. This information is used in the process of development of the Regional Innovation Strategy of NEPR, in formulating of conclusions and recommendations for creation of conditions for increasing of the innovativeness and competitiveness of the regional economy.

## 4. RESEARCH OF THE POTENTIAL FOR CREATION AND SUPPORT OF THE INNOVATIONS



During the period between August 2006 and January 2007 the Regional Agency for Entrepreneurship and Innovations – Varna elaborated a questionnaire „Research of the potential for creation and support of the innovations” in order to carry out a research among the organizations in NEPR, which create and support the entrepreneurship. In the period February – March 2007 the real survey of the academic organizations, scientific and research institutes, business unions and intermediary organizations from NEPR was performed.

### 4.1. OBJECTIVES OF THE SURVEY

- Research of the potential and revealing of the innovation activity by the academic organizations, scientific and research institutes, and intermediary organizations from NEPR for creation, adoption and support of innovations.
- Determination to what extent the scientific and research units, which generate the innovations, collaborate between themselves and with representatives of the business.
- Reveal to what degree the organizations that create innovations utilize the national and the European instruments for support of the scientific and research projects.
- Work out a precise evaluation of the condition of the innovation environment, including the particular sectors in NEPR.
- Provide primary data for the sector and focus groups for analysis and formulation of conclusions and recommendations.

### Determination of background information

Based on the survey carried out among the companies from NEPR and the analyses of the sector working groups, the primary background positions for the condition of the innovation activity among the organizations that support the innovations were determined:

- Insufficient collaboration in the field of innovations between the organizations that create and support innovations and the enterprises.
- Inadequate innovation activity in NEPR.
- Insufficient coordination between the policy of the organizations that create and support the innovations and the companies’ development strategies.

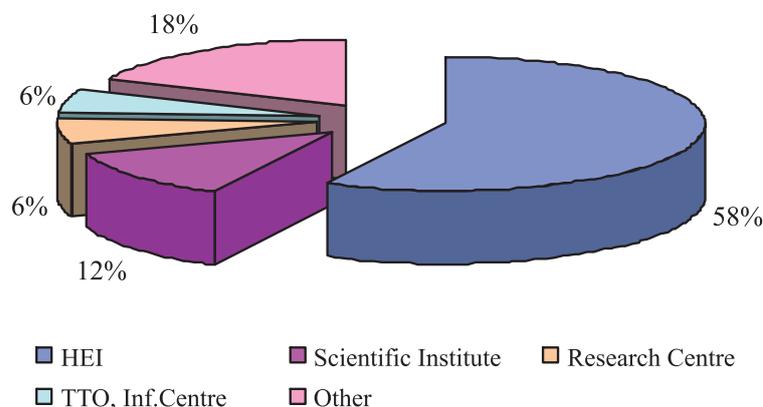
## Target group

For research purposes, primary data was collected through the conducted survey of „potential for creation and support of innovations in NEPR” among:

- Higher educational institutions (HEI);
- Scientific institutes (SI);
- Faculties of Higher educational institutions;
- Research centres – Centres for research and development, laboratories;
- Organizations for technology transfer and Information Centres;
- Other – Chambers of Commerce and other chambers.

Questionnaires were disseminated among 60 organizations and responses from 33 of them were received. The size of the target group can be explained with the small final number of organizations to be covered.

NEPR is the second university and scientific centre in the country with large number of academic and scientific organizations. There are six universities in the region – Technical University – Varna, Economical University – Varna, Varna Free University, Medical University – Varna, Naval Academy, Shumen University. The scientific and research institutes are represented by the Bulgarian Ship Hydrodynamics Centre, Institute of Oceanology – Varna, Institute of Metal Science - Varna, Institute of Metrology and Hydrology, Agricultural Institute – Shumen, Dobroudja Agricultural Institute, Institute of Fisheries and Aquacultures etc. A number of technological colleges, industrial associations, trade chambers and business centres are functional in the region.



*Fig.17. Distribution of the participants in the survey*

## 4.2. SURVEY

The issues in the questionnaire are distributed in directions as follows:

- Information for the organization – groups from 1 to 8, aiming at shaping the overall picture for the basis of the organizations – information regarding the statute and the scope of the activities of the universities, scientific and research institutes, qualification of the specialists, financial resources.
- Determination of the experience in research and development of the universities, scientific and research institutes – groups from 9 to 19. The questions aim at revealing the most significant factors, which determine high competitiveness and discover the most important obstacles for improvement of the competitiveness.

- Evaluation of the innovation activity and capacity – elaboration of innovations and marketing, participation in programmes, supporting of innovations, groups 20 - 29.
- Evaluation of the cooperation with the business in NEPR – groups 30 – 34, revealing the obstacles for adoption of innovations, offered services, attracted users and results from the mutual activity.
- Improvement of the commercialization of innovation – assessment and suggestions on behalf of the universities, scientific and research institutes concerning the process of creation and application of innovation, groups 35 – 39.
- Group 40 – contact details.

During the questionnaire composition Likert scale is used, i.e. 3-5 point scaled evaluation of preliminary suggested statements, and in the responses of the questionnaire the relative parts of acceptance/non-acceptance or determining regarding 3 to 5 grades the agreement/disagreement of the correspondents of the survey are evaluated. Except the questions, which are answered in 3- or 5- point scale, questions which require only one answer “Yes” or “No” are used. The questionnaire consists of 40 groups of questions, which include sub-questions. The total number of the questions is 205.

The elaborated questionnaire provides possibilities for further statistical processing with specialized software for this kind of research. Software SPSS of SPSS International is used. Based on the results received from the processing, an analysis of the activity and the potential of the universities, scientific and research institutes, business unions and intermediary organizations for creation and support of innovations from NEPR is made.

### 4.3. RESULTS

Fig.18 represents the distribution of the activities of the surveyed organizations. In spite of the relatively uniform distribution of the work load in the separate directions, the activity „Education of students, PHD students, postgraduate qualification, and courses for improvement of qualification” is clearly outlined as the most practiced activity, followed by „Scientific and research activity” and „Experimental applied research activity”. The share of „Support of innovations”, as a direction, which would have to take significant part of the activity of the surveyed organizations, regarding their character, is under the middle level.

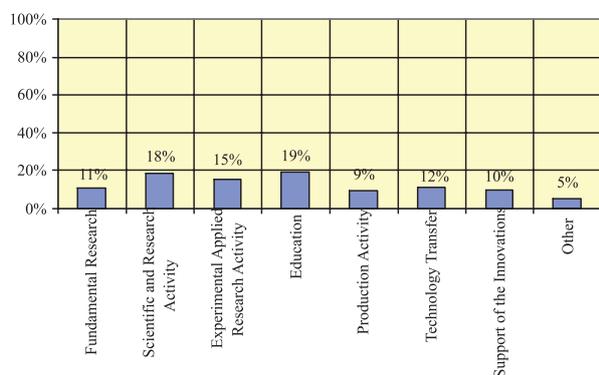


Fig.18. Types of activity

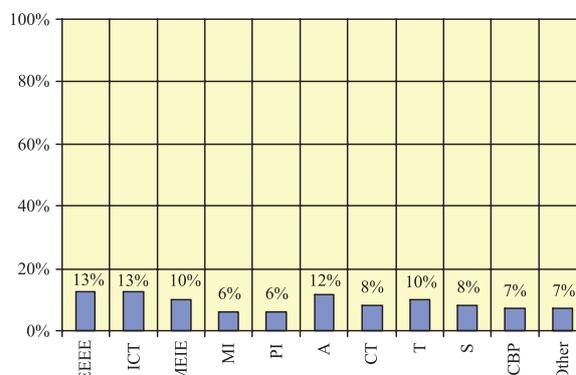


Fig.19. Activities by sectors

In Fig.19 the relatively uniform distribution of the activity of the surveyed organizations with regards to the economic sectors in NEPR is represented, in terms of provision of regional economy with the necessary scientific, research and expert activity in the main sectors. The sectors

EEEE and ICT stand out, followed by A and T. The reasons for that can be searched in the fact that 60% of the import of energy resources for the country crosses NEPR, which implies the availability of well qualified specialists and implementation of activities connected with this sector. The activities in sector ICT are conditioned firstly by the great number of specialists, who are educated in the universities and by the fact that NEPR is the second centre in the country with the largest number of enterprises, which work in this field. Naturally, NEPR as a leading region concerning certain indices for the country in sector A and the presence of institutes related with A, assigns the large share of these activities in the general distribution by sectors. For explicable and similar reasons, in view of the good development and importance for the region, the activities provided by the surveyed organizations in sector T take proper place as well. An impression is made, that in the direction of MI, despite the importance and the development of that sector, the activities on behalf of organizations in the general volume, do not have leading role. The same applies to sector PI, which together with CBP are leading in NEPR regarding the amount of produced gross production, but do not take leading places in the activity of the surveyed organizations.

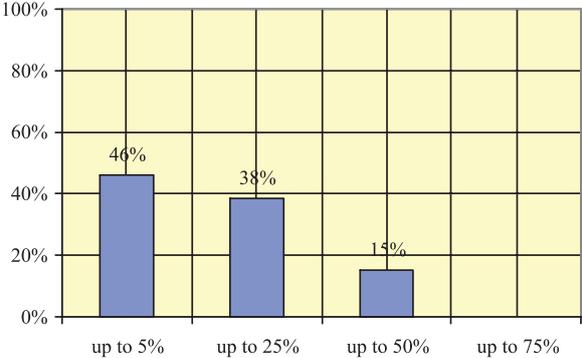


Fig.20. Supporting of innovations as part of the activity

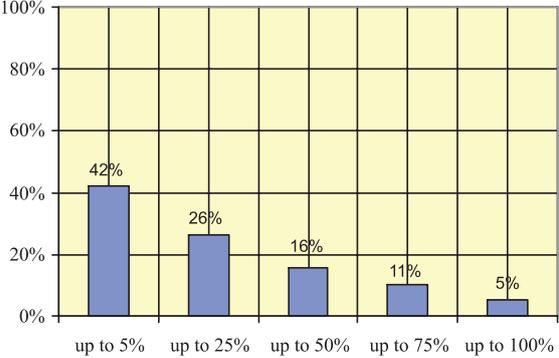


Fig.21. Purchased new research equipment in the last 5 years

Fig.20 presents clearly the condition, regarding the share of the activities directed to support of innovations. Despite the character of the organizations and the assumption that this kind of direction must take larger share in their activity, it can be seen that totally 84% of the surveyed organizations indicate that the support of the innovations takes barely 25% of their activity. The results, which concern the presence of programme for creation and offer of innovations, are in these lines as well. Here 95% of the surveyed organizations indicate that these programmes are missing.

The novelty of the research equipment is an important factor for the creation of new technologies, products and services, in view of the adequacy of the contemporary rate of development to the conditions of the technical equipment. The results presented in Fig.21 indicate clearly the rate of renovation of the research equipment in the organizations which are performing research, development and innovation activity. For the last 5 years only 5% of the surveyed organizations have renovated 100% of their equipment, while totally 68% of them have changed a quarter of their equipment.

Despite the outdated research basis 77% of the organizations implement projects related to creation and adoption of new technologies, products and services. That activity is not canalized and managed rationally; the projects do not follow preliminary prepared strategies and plans.

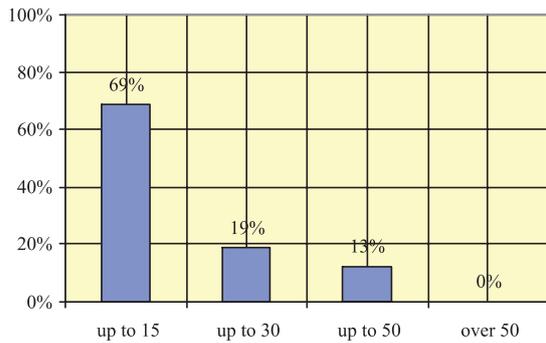


Fig.22. Projects which have finished with implementation of technology, product, service in the last 5 years

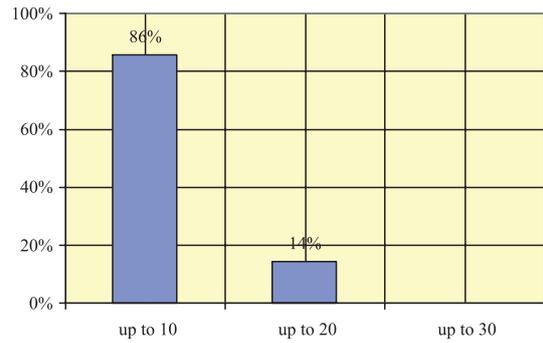


Fig.23. Number of registered patents in the last 5 years

Market realization is one of the characteristics for successful innovation. Regarding this indicator 69% of the surveyed organizations point out that they have elaborated projects during the last 5 years, whose results have reached the market, but in contradiction to the great percent, the number of the projects does not exceed 15, which is low in view of the nature of the organizations (Fig.22). A positive result is observed for the rest 31%, of which 19% have reached the market with 30 projects, and 13% of them - with 50 projects.

On the basis of the results shown in Fig.23 two conclusions can be made. First, larger part of the organizations (86%) have registered just 10 patents for the last 5 years, which in view of their nature suggest exceptionally low activity with regards to the industrial property protection. If a comparison with Fig.22 is made it can be concluded that large part of the projects, which have reached market realization are not provided with the necessary intellectual property protection.

The results for technology transfer clearly indicate low activity in that form of collaboration between science and business – only 15 actions of transfer for the last 5 years are realized. The reasons can be lack of initiative on the part of the companies, as well as on the part of the organizations.

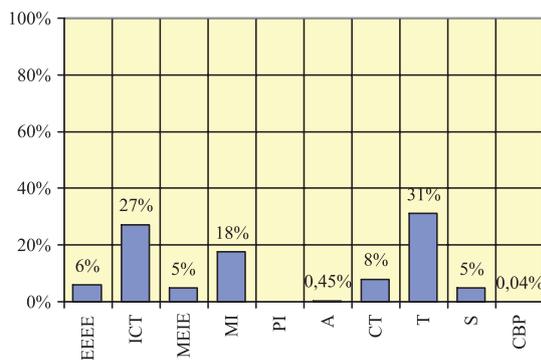


Fig.24. Relative share of graduated specialists

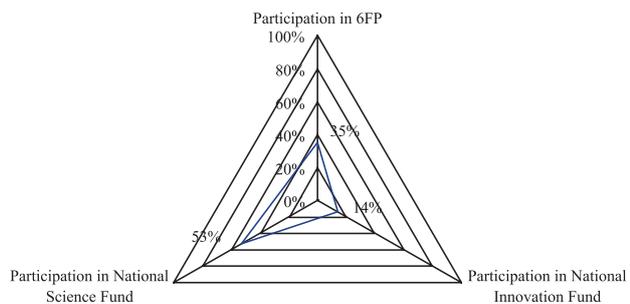


Fig.25. Participation in grant programs

From the research conducted in ten sectors of NEPR and the subsequent analysis from the expert groups a clearly outlined tendency is observed towards a thorough lack of qualified specialists in all directions of the economy of NEPR. The educational level of the specialists is considered as a key factor for the success of the enterprises. In that relation the process of qualification of human resources in NEPR is an important one. Fig.24 describes the share of the graduated specialists with regards to the sectors from NEPR qualified in the regional HEI, which corresponds to Fig.19. The number of the qualified specialists who graduated ICT, MI and T is the greatest, which is determined by the fact that these sectors are well developed. It is

an indisputable fact that sector Tourism is exceptionally developed in NEPR; concerning ICT the region takes second place in the country regarding the number of functioning enterprises in the sector, as well as qualified specialists. The sector Marine Industry is sharply outlined, in view of the presence of sea and river natural resource, specialized HEI and over 5 sea and river ports. On the other hand the profile of the graduated specialists is determined by the concentration of greater number of the universities in the town of Varna, where exactly these sectors are well developed. The result that sectors as Agriculture, where NEPR is leading in the country with regards to certain indices, Processing Industry and Chemistry, Biotechnologies and Pharmaceuticals, which sectors are leading for the region concerning the amount of the realized gross production, are not at all or partially provided with qualified specialists from the located in the region HEI, is indicative.

The activity of the surveyed organizations taking part in international and national funding programmes and projects with opportunities for grant funding can be followed of Fig.25. The possibilities for participation in that kind of initiatives are determined by different factors, but leading ones are the presence of perceived needs, as well as self-initiative and activity on behalf of the applicants. The tendency for the participation in National Science Fund is clearly outlined – 53% from the surveyed organizations have taken part, in view of larger number state organizations under the Ministry of Education and Science. The level of participation in international projects, particularly under the 6<sup>th</sup> Framework Programme of the European Union, is lower like 35%, and the participation in the National Innovation Fund (NIF) is only 14%. Naturally, the low level of participation with projects under NIF is due to the fact that the leading organizations, which can apply are enterprises collaborating with research organizations. Here a conclusion can be made immediately that the level of collaboration and cooperation with the companies is too low. This conclusion corresponds to the results, shown in Fig.26, where the part of the mutual projects with enterprises from the total number of projects of the surveyed organizations that create and support the innovations is presented. The results clearly indicate again low level of collaboration with business, as 55% from the surveyed organizations only 5% from the projects are elaborated together with the enterprises, and at 36% from the surveyed organizations this part reaches 25%.

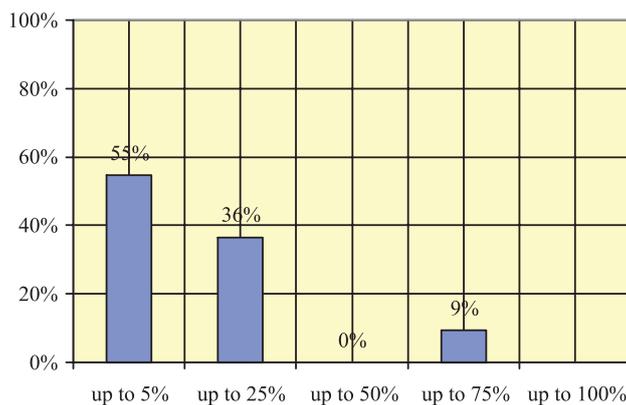


Fig.26 Joint projects with enterprises as a share of all projects

At first place the surveyed organizations collaborate with the businesses towards consultation and education however the interaction with SMEs regarding the creation of new technologies is low.

The main directions of the results from the cooperation with the business are described in Fig.27, and gaining of new experience is clearly outlined. The relation with the enterprises and the presence of relative adaptability is indicated even by the small rates of the final re-

sults - development of new research directions, new specialties, postgraduate qualification and courses are launched, and more detailed information for the innovative needs of the companies is received. One of the characteristics of the implementation of mutual projects and the level of collaboration and cooperation is the receiving of additional funding, which takes last place with only 9% share of all presented results.

The surveyed organizations as a part of the Innovation System of the Region (ISR) participate in the process of its improvement and the raising of the efficiency. As leading factor for the improvement of the ISR the organizations pointed (Fig.28) the creation of the innovation centres, and the creation of the technology transfer offices and the expansion of the international cooperation in the field of innovations as well. The enhancement of the innovation culture through training and the development of the innovation infrastructure through creation of high technology incubators and parks, take their place within the main factors for improvement of the action of ISR.

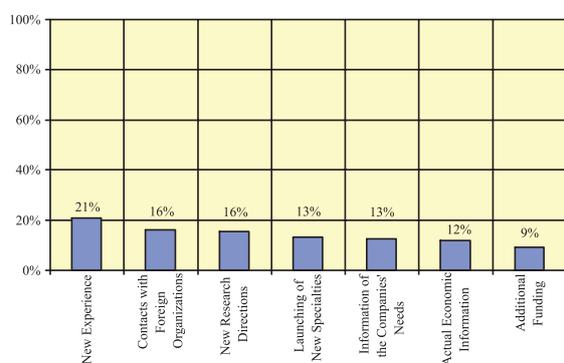


Fig.27. Results from cooperation with the business

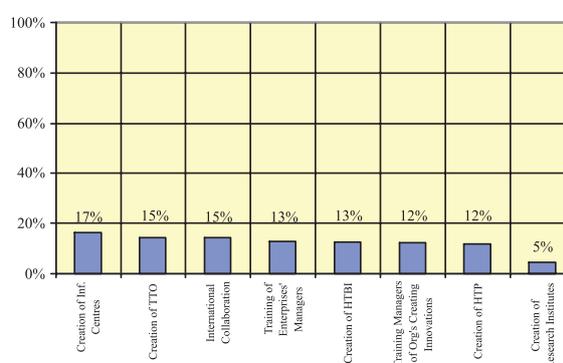


Fig.28. Important factors for improvement of the innovation system in NEPR

#### 4.4. RECOMMENDATIONS

- Only part of the elements of the regional innovation system is present.
- There is a perceived need of development of innovations and collaboration with the enterprises.
- The part of that activity within the organizations that support the innovations is small.
- There are sectors of the regional economy which are not provided with educational and scientific organizations.
- For funding of the projects it is relied mainly on the state budget.
- The renovation of the equipment is performed with low rate.
- The applied projects that end with market realization and adoption have small share.
- There are sectors of the regional economy, which are not provided with HEI specialists from the region.
- There is a lack of planning in implementation of the innovation activities.
- The relations between science and business are insufficiently developed.
- The main contacts with the business are for consulting and training.
- It is necessary to develop the existing and to build-up the missing units of the regional innovation system aiming at its transformation into efficiently operating system.

## 5. HORIZONTAL ANALYSIS

Based on the study done, three groups of experts focused their analyses in the following three horizontal directions:

- collaboration, cooperation, networks and clusters;
- financing of the innovations;
- education and innovation culture.

General conclusions are made for the condition of the chosen directions.



*Working meeting of focus groups.*



*Working meeting of focus groups.*

### 5.1. COLLABORATION, COOPERATION, NETWORKS AND CLUSTERS

**Networks in the region.** Several traditional for the region and determining for the national economy sub-sector productions are available, which could form specific image of the regional economy. In the specific networks different levels of innovation readiness and availability of opportunities for adoption of innovations can be seen. They are shaped along the following lines:

- production of details, units and raw materials;
- provision of raw materials;
- supplying and processing;
- end product/service production;
- large production organizations and well constructed engineering network;
- cooperation between producers and adherence to the requirements for control of the

production.

The networks are available in the industrial centers, which are missing in the peripheral areas of the districts. Well developed networks exist in the sectors Energy Industry and Energy Efficiency, Processing Industry, Marine Industry, Construction and Transport, Finances and Insurance, ICT, Agriculture, where they can lead to territorial-production integration and cooperation.

**Clusters.** They increase the employment; contribute to development of the innovations, improve the professional skills, enlarge the productivity of the enterprises, increase the export, create conditions for efficient utilization of the available resources. The results from the performed surveys of 10 leading sectors of the regional economy show that there are trends for cluster creation in all examined sectors of NEPR. In most part of the sectors the networking of the companies and the good cooperation between the companies is indicated. The latter is most

clearly evident in the sectors Energy Industry, ICT, Marine Industry, Tourism, Construction, where the processes are natural.

**International cooperation.** The factors, which impede the companies in receiving and utilization of funding from the European Funds and Programmes, through which they can develop international cooperation are as follows: complex procedures for application, provision of co-funding, high costs for application, lack of information for the programmes, additional costs for intermediaries during application, lack of qualified personnel in the companies, difficulties with foreign language, complex procedures for financial accounting.

**Cross border cooperation.** There are possibilities for cross border cooperation with regions in Romania in the field of transport networks, energy industry and environment protection. The benefits for the Bulgarian country are improved capitalization and the alleviating funding under European programmes, which would promote the interregional cooperation and the adherence to the established standards in the production and the environmental protection; improvement in the infrastructure.

**Intra-regional cooperation.** The settlement network in NEPR determines intra-regional differences among separate districts as among separate municipalities. First of all these differences are due to difference in the level of development of the cities. Firstly, the distinction between the district Varna on one side and the other districts in the region – on the other side must be emphasized. Secondly, there is difference between the three Eastern districts Varna, Shumen and Dobrich in relation to the districts located to the west. This difference is due also to the large cities – the centres from the Eastern districts compared to the smaller towns – the centres of the Western districts.

The analysis presents the following directions for development:

- Stimulation of the cross border partnership for development of the cooperation within the Euroregions “Lower Danube”, “Danube East” and “Danube South”;
- Development of new and strengthening of the existing relations with European regions through transnational and interregional cooperation;
- Implementation of particular actions with transnational and interregional character with the participation of the Bulgarian regions and the regions from the member countries of EU, aiming at supplying of needs of general interest in the field of environmental protection, development of the European transport and communication networks for transfer of technologies and knowledge Europe wide.

The activity under these initiatives demands active part of the municipality and district administration in the region for building up a cooperation with other regions of EU in order to overcome the intra-regional differences.

## **Cooperation of business from the region with the other main actors in the Regional Innovation System**

**Intermediary organizations.** From the sectoral studies done it is obvious that the cooperation of the business from the region with the regional development agencies is weak – less than 10% on the average of the surveyed companies from the studied sectors respond that they have collaborated with an agency for regional development. The companies collaborate more actively with the branches of Bulgarian Chamber of Commerce and Industry. Regarding the innovations the conclusion can be made that the innovation services in the region are poorly

developed or they are nearly missing – the services and consultations are offered from general business character on the one side, and the companies do not see the innovations as a significant factor for company development and improvement of the enterprises' competitiveness – on the other.

Regarding the barriers before the cooperation with organizations that support the business development, the following ones come to the fore: complicated procedures for collaboration, lack of training in the institutions for support of the business; the support is directed to the limited number of companies, which comply with certain requirements.

**Research institutes and universities.** Based on the implemented survey among the companies from NEPR it is obvious that the cooperation between science and business is weak. The collaboration with the institutes for all the ten sectors is less than 10% on the average. The collaboration between the business and the universities is more efficient and it is the strongest for the sector of Energy Industry – 33% collaborate constantly with the universities. In the sectors of ICT and Services 16% on the average collaborate with universities. The companies-consumers do not have well developed innovation policy and plans related to investments in knowledge and new technologies, the demand of knowledge by the companies is limited to consultation services of general business character and technological experts consultation, which do not require implementation of research activity and creation of new products. In long-term plan this trend will have a negative effect on the market positions of the companies as well as on their competitiveness taking into consideration the membership of Bulgaria in EU and the entering of the European companies on the Bulgarian market.

## 5.2. FINANCING OF THE INNOVATIONS

The available opportunities for financing of the innovations differ between each other in view of the accessibility, development and dissemination. Some of the instruments as bank credits, are well developed, although they do not reflect the specific needs in financing of the scientific, research and development activity and the creation of innovations, utilization of the pre-accession and framework programmes of the European Union, even if the funding used for research and development activity, creation of innovations and participation in business have low percentage of the total amount of used funding. On the average 50% (depending on the programme – in some cases till 80%) from the companies do not have information for the active programmes for grant funding of EU. The companies in Bulgaria utilize mainly own resources of funding for their innovation activity, if they possess sufficient financial resource and in this way they do not use the opportunity to increase the redeemability by using the debt capital and leverage effect. Another characteristic of the region is that some instruments for financing of the innovations are available in the region, others are not enough popular in the business and are applied in single cases, third ones are well-known from the world practice but are missing at all and are not developed in the country and the region, as for example venture capitals, business angels, guarantee funds. The specific opportunities for support and financing of innovations, determine the framework of the existing situation, in which the innovation projects search for implementation environment. The financial resource is an element of this environment and despite that it is an essential one, it does not determine the overall picture. Complex measures are necessary, which embrace the other elements from the surrounding environment in order to produce greater effect during development of suitable conditions for creation of innovations, which is a prerequisite for economical growth and increase of the living standard. Unlike some other market situations, for the innovations it is not enough that the state is corrective and supportive factor, it is not enough even to create suitable legal framework. An active support for the innovations must

be provided and conditions for economical growth must be made, and from that follows better quality of life.

The increase of the innovation capabilities of the enterprises in NEPR could be done by undertaking of certain steps, namely:

- Elaboration of regional financing program that is related to the creation and adoption of innovations in sectors and industries that have strategic significance for the region;
- Introduction of tax concessions for the companies that invest in new products, equipment, technologies, intellectual property, research, strategic for Bulgaria and/or for the region directions and other.
- At municipal level – exemption /or reduction by half/ of the “garbage” tax for enterprises, investing in new wasteless technologies;
- Creation of centres for entrepreneurship in the higher educational institutions in the region aiming at training of graduating students for establishment and management of own companies;
- Public financing of the innovations that is: firstly – increase in the expenses for education and qualification, incl. enhancement of the qualification of the managers, secondly – support of the SMEs during adoption of innovations and thirdly – funding of the research through grant schemes.
- Creation of conditions for stimulating the market for angel services, including suitable policies for increasing of the entrepreneurship culture, awareness for the potential of the benefits, which the market of angel services gives and formulation of measures to support that market.
- Start of a regional innovation fund that will support at a competitive basis the research and development projects and innovation offers for adoption in business.
- Establishment of a Regional guarantee fund for micro credits in support of the funding of the innovations in business in order to compensate the risk, which SMEs generate.
- Creation of Regional Fund for venture capital for funding of innovation projects with the assistance of participants in the regional innovation system, Operational programme „Development of the Competitiveness of the Bulgarian Economy 2007 – 2013” and the European Fund Jeremie.
- Financing the creation of the development of technological parks and incubators, which aim is to help creation of favorable environment for creation and development of micro and small enterprises, increasing of the competitiveness of the companies through adoption of new technologies, continuous contact between business and the scientific and research society, and last but not least the manifestation of synergy, resulting from the accumulation of business, science, financial institutions and qualified personnel.
- Establishment of Regional network of consultants on matters concerning the financing of starting companies and innovative products and trainings.
- Creation of Regional network of business angels with the assistance of the European Network of Business Angles (EBAN), European Fund Jeremie and the Operational programme „Development of the Competitiveness of the Bulgarian Economy 2007 – 2013”.
- Stimulation of the enterprises for employment of high qualified specialists or improvement of the qualification of the existing, engaged with the realization of research and development activity, through direct financial incentives, undertaking the social security payments by the state for the personnel occupied with scientific, research and development activity, tax concessions through decrease in the taxable income of the companies with the costs for salaries and social security of the personnel, occupied with scientific, research and development activity.
- Up to 50 000 BGN yearly invested by business angel and up to 5 000 BGN yearly

invested by private investor in venture fund to be income-tax exempted.

- Application of tax concessions for companies that are in a procedure of intellectual property protection and implementation/application of the results in the company activities.
- Reduction and/or absolution of import duties calculated at import of high technological equipment, apparatus designated for research activity and realization of innovation projects.
- Corporate tax exemption or decrease in the tax rate at reinvestment of the profit of the companies in research activity or supply of new equipment designated for research and development activity.
- Creation of instruments for export support of companies.

### **5.3. EDUCATION AND INNOVATION CULTURE**

In order to realize the regional priorities the following measures are suggested to be implemented:

#### **Increasing the quality at every degree of the education system and provision of access to education**

It includes wide range of activities that have to be implemented in cooperation between the state, regional and local authorities, the non-governmental organizations and the business. In this regard the main directions of activity include:

- Creation of Partnership Council for Education and Training in NEPR;
- Study the necessity of personnel in specific professional directions in the region and direct the education system in the region to cover this needs;
- Orientation of the training programs towards technological skills in the particular field;
- Improvement of the qualification of the pedagogical and management specialists in the system of elementary and secondary education;
- Improvement of the material basis and equipment of the educational system in view of transformation to information society: computerization of the schools with regards to the quantitative parameters and stages settled in the National Strategy for ICT;
- Partnership programs for exchange of lecturers, students, trainees, initiatives and others with European universities;
- Creation of networks between the universities, research centres and the enterprises for exchange of knowledge, skills and innovations for development of human potential.

#### **Development of networks for professional training and promotion of life-long learning. Recommendations:**

- Establishment of centres for professional training in the district cities, networking with the other ones in the region;
- Building up a new system for life-long learning and its entry in the education system in the region;
- Elaboration of open education systems that regulate the professional training according to the needs of the regional labor market, in conjunction with the socioeconomic partners and their inclusion in continuous professional education, as implementation of research for

the demands of the labor market, networking etc.;

- Stimulation of the collaboration between the business and the educational and research institutions for development of the professional skills and binding it with the needs of the regional and local labor markets. Engagement of the business representative for establishment of centres for professional training in the strategic field for professional education;

- Due to several historical, social and economic factors, the innovation culture of the population in NEPR does not correspond to the needs of the economic development in the region, as well as to the citizens' needs in reaching high quality of life. For dissemination of the innovation culture the participation of all the institutions and organizations is needed for the formation of suitable network and integration of the particular initiatives. It is necessary to establish connections between the really existing structural elements of the innovation system for virtual operation of Entrepreneurship and Innovation Culture Academy. The elements of the shared environment are the Centre for strategic decisions, Centre for organization of educational initiatives and services, Regional career centre, Consultation centre, Centre for popularization of innovation culture.

## 6. REGIONAL INNOVATION STRATEGY OF NORTH-EAST PLANNING REGION

The elaborated Regional Innovation Strategy of the North-East Planning Region is a result of an extensive study and analyses of:

- the innovativeness and the competitiveness of the companies from NEPR;
- the potential for creation and support of the innovations;
- the ten priority sectors of the regional economy – Energy Industry, Energy Efficiency, Environment; Information and Communication Technologies; Machinebuilding, Electrotechnical Industry and Electronics; Marine Industry; Processing Industry; Agriculture; Construction and Transport (Infrastructure); Tourism; Services (financial, logistic, etc.); Chemistry, Biotechnologies and Pharmaceuticals;
- the three horizontal directions - collaboration, cooperation, networks and clusters; financing of the innovations; education and innovation culture;
- SWOT analysis of the Innovation System of the region.
- An integral part of the Strategy is the Monitoring System. The consultants and the experts that directly participated in the process of the analysis and formulation of the suggestions for innovative development of the region are 104. The team of the Regional Agency for Entrepreneurship and Innovations – Varna performed the final generalization and systematization of the strategy.

The transition from industrial economy to knowledge based economy and the inclusion in the global information society can be accomplished only through implementation of consistent policy at national and regional level for acceleration of the structural reforms, aiming at improvement of the innovativeness and the competitiveness. The approved by the Steering Committee of the project Regional Innovation Strategy of the North–East Planning Region in this regard settles as **a strategic objective the building of the efficiently working Innovation System of the Region (ISR)**, which is based on the specific resources and possessions of the region, to assist the environmental protection and the improvement of the energy efficiency, and at the same time develops the information society. Simultaneously, despite the regional purpose of the strategy and the reflection of the specifics of the region it is fixed the implementation of the European policies on innovations and the provision of the state at local and national level, by application of public-private partnership. With the achievement of the strategic objective **the vision of the region will be reached, for transformation of NEPR in prosperous European region with high living standard through innovation and entrepreneurship.**

### 6.1. SWOT ANALYSIS OF THE REGIONAL INNOVATION SYSTEM

In order to evaluate the present state of the Regional Innovation System a SWOT analysis is carried out, which allows reporting the interaction and the influence of the different factors over the system behavior.

For the research purposes first the strong and week sides of the enterprises are analyzed, and after that the strong and week sides of the other participants in the innovation system. The influence of the elements of the external environment – the opportunities and the threats is considered in general for all participants in the system in order to avoid repetition.

#### **Strenghts of the Enterprises:**

- Presence of experience, traditions, image, connections on the local, national and the traditional external markets;

- The change of property (private, foreign) intensifies the production of quality products and services in the relevant sectors. Increasing of the productivity in certain sectors;
- Intensifying the activity for meeting the requirements and criteria of EC (ecological, safety requirements, introduction of quality management systems etc.);
- Presence of qualified personnel in the traditional sectors;
- Cooperation and development of related productions in one or several sectors, attempt for the establishment of clusters; establishment of branch organizations.

#### **Weaknesses of the Enterprises:**

- Reactive management, aimed at survival. Lack of strategic management skills;
- Energy consuming, material consuming and labour consuming production. Overaged equipment and technologies in most enterprises;
- Lack of or insufficient own research and development. The large companies develop R&D activities, the small companies do not;
- Insufficient investments in new products and technologies. Poor usage of the opportunities for the project financing of innovations;
- Non-usage of production capacity. Weak export orientation. Sales mainly on the local market;
- Low degree of partnership, cooperation, exchange (networking), especially with the research and intermediary organizations. Insufficiently developed public-private partnership;
- Poor knowledge of the requirements and opportunities of the European and other external markets;
- Insufficient motivation for making innovations. Outflow of qualified personnel. Insufficient attention to the training of personnel;
- Insufficient usage of the potential of the information technologies;
- Poor general innovation culture. Poor knowledge of the innovations' opportunities.

#### **Strengths of the Research Organizations and Intermediaries**

- Relatively well developed network of research organizations and intermediaries in the big cities in the region;
- Increasing cooperation and integration of the research organizations in the European Research Area, participation in international projects;
- Gradual transition to activity financing on project principle. Increase of the income from international projects;
- Increasing mobility of the researchers in foreign organisations;
- Experienced highly qualified personnel of the research organizations.

#### **Weaknesses of the Research Organizations and Intermediaries**

- Unequal distribution of the research organizations, the intermediaries and the infrastructure (concentration in Varna, Shumen and Dobrich);
- Over aged vertical structure of most research organizations. Lack of opportunities for the creation of horizontal relationships and interdisciplinary research and solving of complex problems;
- Insufficient management knowledge and entrepreneurship skills of the management of research organizations;
- Low degree of cooperation and poorly developed partnership networks between the research organizations and the intermediaries;
- Lacking or poorly developed innovation consultancy services, especially for tech-

nological transfer;

- General over aging of the research personnel. Lack of young researchers. Insufficient remuneration and motivation of the personnel;
- In the universities there is an accent on training and international cooperation, but not upon cooperation with the business. Slow reorientation of the research organizations towards the problems of the business;
- The training of the students is mainly theoretical. Practice is lacking or insufficient;
- Commercialisation of the research is not a priority of the organizations. The research organizations do not have or can not mobilize financial resources for the development of innovations, ready for commercialisation.

### **Strengths of the Infrastructure (Including Financing)**

- Improved conditions for receiving credits;
- Development of the normative base with direction support of innovations;
- Start of establishing sources of financing (funds), similar to those in the developed countries;
- Increasing scope of the electronic administrative services.

### **Weaknesses of the Infrastructure (Including Financing)**

- Undeveloped infrastructure. Lacking elements of the infrastructure;
- Difficult access to financing of start-up and small enterprises without history and liquid assets;
- Lacking or insufficient venture funds;
- Insufficiently developed financial market;
- Bureaucratic service.

### **Opportunities**

- Strategic location of NEPR, from communicational and transport point of view;
- Increased demand, related to the economic development and the growing purchasing capacity of Bulgarian population;
- New export opportunities, new partners, connected with the EU membership;
- Technological development, decreasing the barriers for innovative invasion in definite sectors;
- Priority support to sectors and groups of companies by EU funds;
- Invasion of foreign investors, increased search of local partners, using of foreign experience (know-how).

### **Risks and Threats**

- Aging of population. Emigration of young and qualified people. Increasing of the shortage of people with definite high qualification and skills;
- Poor innovation culture and lack of entrepreneurship attitude in a great part of the community;
- The legal framework does not stimulate sufficiently the development of the innovations;
- Missing or poorly developed environment (incl. infrastructure), supporting business, entrepreneurship and innovations in the region;
- The regulatory and normative base does not stimulate enough the development of innovations;

- Slow improvement of the administrative services, implementation of the results from the e-government;
- Lagging behind in the field of rehabilitation and general infrastructure development;
- Fast and successful development of neighboring countries and regions – our competitors;
- Aggravation of ecological norms and other production requirements;
- Settling down and decrease of the investor's interest and lack of serious stimuli for financing innovations. Lacking or insufficient financial mechanisms for supporting innovations and co-financing;
- Insufficient financing by the state, districts and municipalities;
- Slow or stopped privatization or slow restructuring of key enterprises and objects (railway transport, ports, Water Supply and Sewage, etc.).

## Conclusions

- The innovation opportunities of the region, express in the ability of enterprisers, research organizations and intermediaries to make or support innovations, are not sufficiently developed or used.
- Missing or poorly developed environment (incl. infrastructure), supporting business, entrepreneurship and innovations in the region. The legal framework does not stimulate sufficiently the development of the innovations.
- Lagging behind of the human potential development and building-up the innovation culture of the region.

## Recommendations

- Additional efforts and special measures are necessary for the development of the innovation potential of the region for increasing the competitiveness of the economy.
- It is necessary that special attention is given to the establishment and development of pro-innovation environment (incl. infrastructure) in support to entrepreneurship and innovations in the region and improving the normative base for stimulating innovations.
- It is necessary to mobilize support for the development of human potential and contemporary innovation culture in the region through directed training of the management and personnel of companies and intermediaries.

## 6.2. REGIONAL INNOVATION STRATEGY OF NEPR

The Regional Innovation Strategy of North-East Planning Region **is approved** at a meeting of the Steering Committee of the project, held on **21 January 2008**. Its implementation is planned to be realized within the period of **2008 – 2020**. The principle of horizontality is set in the suggested measures, activities and projects, in view of the overall direction of the strategy for elaboration and development of efficient innovation system in the region.

The Regional Innovation System of North-East Planning Region embraces the following elements:

- Vision
- Strategic Objective
- Strategic Priorities for Innovative Development
- Pro-Innovative Measures
- Pro-Innovative Activities

- Projects
- Action Plan.

The Regional Innovation Strategy is directed to improvement of the interaction between the main participants and elements of the Innovation System in the region (Fig.2):

- Economic subjects in the form of large companies, matured small and medium-sized enterprises, innovative companies
- Educational and scientific organization, including higher educational institutions, scientific and research institutes and organizations, qualification centres
- Supporting organizations, represented by business incubators, technology transfer centres, innovation centres, technological parks, business unions etc.
- Political system, in the form of government, local authority, existing policy for support of the innovations
- Infrastructure, including available capital and funds for financing of the innovation activity and projects, available information, offered services for support of the business and the innovations, applied standards.

Considering the conclusions and the recommendations in Chapter 2, 3, 4 and 5, complex measures are undertaken, which cover all elements of the ambient environment, including the particular opportunities for support and development of the innovations in order to gain greater effect during the building up of suitable conditions for innovative development of the region, as a prerequisite for economic progress and improvement of the living standard. The presentation of each one of the participants in the Innovation System and in the system as a whole is realized under the condition of available general framework, formed by the existing financial environment, national legal framework and the local regulations, the innovation culture and the entrepreneurship. The general scheme of the Regional Innovation Strategy of NEPR is presented in fig.29. The accepted priorities in the strategy, measures, activities and projects are directed to improvement of the innovation environment, the culture and the relations between the participants in ISR, aiming at achieving synergy between the planned activities.

The strategic priorities for innovative development of the region, through which particular aspects of the innovative process will be emphasized, are three.

The first priority is directed to the development of the innovation potential of the region, which will lead to improvement of the competitiveness of the regional economy. Apparently it is proven that where and when the level of innovativeness is high and the scientific and research potential is engaged to the maximum to support the business then the living standard is higher. The economic progress in the region depends on the innovativeness of the enterprises in NEPR and the level of the technological development, therefore the main objective of the strategy is to enlarge the possibilities for adoption of new technical, technological and organization solutions, and to foster the creation of new products, technologies and services as well.

The great intellectual and scientific potential of NEPR has to become the power of the economic development of the region. In order to reach the targets it is exceptionally important to strengthen the collaboration between the academic and the scientific society on the one side and the enterprises – on the other, and undoubtedly the support by the local and the national authority and the intermediaries has to play its part.

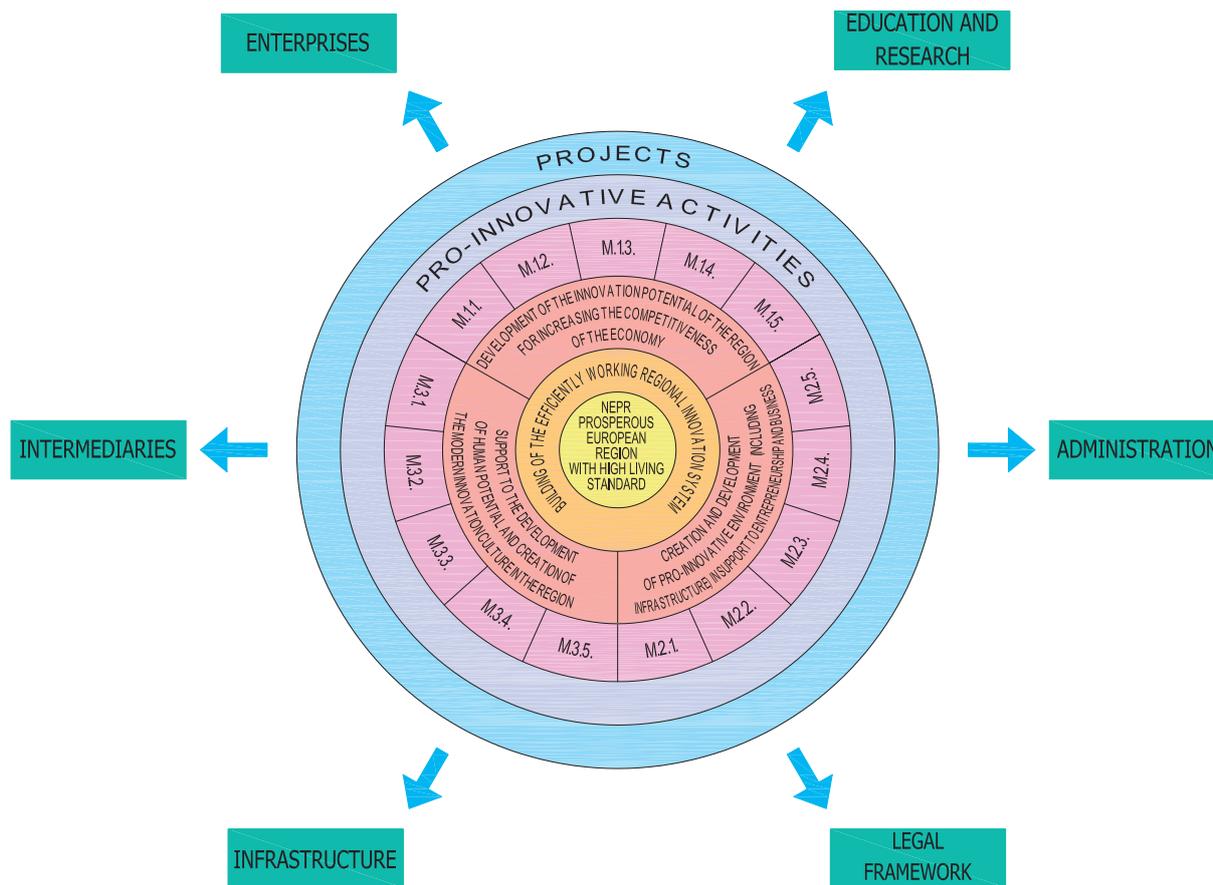


Fig.29. General Scheme of the Regional Innovation Strategy of NEPR

The second priority is directed to development of the existing and building of new pro-innovative environment, which has to support the entrepreneurship and innovations. In the world and European practice the intermediary innovative organizations and the auxiliary infrastructure provide the necessary conditions for development of vital and competitive enterprises. These organizations participate on an equal level as element of the innovation system in the region. Unfortunately, they are not well developed or they are completely missing in NEPR. In this priority the creation of high technologies incubators is fixed, which supports the starting of innovative enterprises, technology transfer centres, centres for innovation and entrepreneurship, high technology parks, as well as financial instruments for direct funding of innovative projects, as funds for micro credits, start capital, venture financing, guarantee funds etc. The development of similar pro-innovative environment will facilitate the economic growth in the region, and the improvement of the quality of the offered innovative services for development of innovations in the enterprises, such as technological audits, observations, research, prognosis etc.

The third priority is directed to development of human potential in the region and the building of innovation culture. The participation of all participants in the innovation process is compulsory, particularly the enterprises, the academic and research organizations, the local and the national administration and the intermediary organizations supporting the innovations and the entrepreneurship. The main efforts are directed to overcoming the lack of qualified specialists and enhancement of the innovation culture of all participants in the innovation process. For that purpose the activities that are envisaged for provision of the work under the priority and the achievement of the objectives embrace promotion and exchange of experience in the field of innovations, support of the technological entrepreneurship among young specialists, adaptation

of the educational system to the needs of the regional economy and enlargement of the opportunities for education, creation of conditions for life long learning, improvement of the qualification and the management and the innovative skills, specialized trainings on entrepreneurship and innovations, specification of measures for overcoming the deficit of qualified specialists in the region and attraction of the enterprises. The implementation of the activities under priority 3 and the achievement of good results are of particular importance, because of growing tendency for shortage of qualified specialists in the region.

<b>Table 3: REGIONAL INNOVATION STRATEGY OF THE NORTH EAST PLANNING REGION</b>	
<b>VISION</b>	Transformation of NEPR into a prosperous European region with high living standard through innovations and entrepreneurship
<b>STRATEGIC OBJECTIVE</b>	<p><b>Creation of efficiently working regional innovation system, including:</b></p> <ul style="list-style-type: none"> <li>- Innovative exploitation of the specific resources, the unique possessions and opportunities of the region;</li> <li>- Implementation of the innovation policies of the European Union;</li> <li>- Application of public-private partnership;</li> <li>- Protection of the environment and improvement of the energy efficiency.</li> <li>- Development of the information society.</li> </ul>
<b>STRATEGIC PRIORITIES FOR INNOVATIVE DEVELOPMENT</b>	<b>PRO-INNOVATIVE MEASURES</b>
<b>PRIORITY 1: DEVELOPMENT OF THE INNOVATION POTENTIAL OF THE REGION FOR INCREASING THE COMPETITIVENESS OF THE ECONOMY</b>	<b>PRO-INNOVATIVE ACTIVITIES</b>
	A.1.1.1. Stimulation of the technological renovation of the companies from the region.
	A.1.1.2. Training and transfer of technologies, fostering innovations and competitiveness.
	A.1.1.3. Encouraging the implementation of Management systems and meeting international standards.
	A.1.1.4. Protection of the intellectual and industrial property.
	<p>M.1.1. Increasing the competitiveness of SMEs through fostering innovations and technological renovation.</p>
	A.1.1.5. Business consulting and introducing services for innovation management (technological audits, technological observer, technological foresight researches on sector level, etc.)

<p>M.1.2.Fostering and support of the cooperation between companies, the scientific and research centres, the administration and the intermediary organizations for the development of innovative products, services and technologies.</p>	<p>A.1.2.1. Support to the formation of sector clusters and development of the existing ones.</p> <p>A.1.2.2. Development of partnership between the branch organizations and the academic institutions.</p>
<p>M.1.3.Support to the development of applied research in the companies and the scientific organizations for market realization.</p>	<p>A.1.3.1. Providing information for markets.</p> <p>A.1.3.2. Support to the provision of technological equipment.</p> <p>A.1.3.3. Fostering and support to the creation of innovative subsidiary companies /spin-off/ to the academic, research and business organizations.</p>
<p>M.1.4.Fostering and widening the international cooperation and popularization of the experience of European innovation companies, regions and successful intraregional and regional cooperation.</p>	<p>A.1.3.4. Support to the specialized research institutes on the territory of NEPR.</p> <p>A.1.4.1. Organization of forums, business meetings, seminars, conferences, etc.</p> <p>A.1.4.2. Attracting multinational companies.</p> <p>A.1.4.3. Inclusion in European innovative networks.</p>
<p>M.1.5.Promotion of the opportunities of NEPR for partnership with EU and support to the participation in European projects.</p>	<p>A.1.5.1. Creation of institutional lobby in EU for popularization of the advantages for investment in NEPR and support to the enterprises in the region to export.</p>
<p><b>PRIORITY 1:</b> DEVELOPMENT OF THE INNOVATION POTENTIAL OF THE REGION FOR INCREASING THE COMPETITIVENESS OF THE ECONOMY</p>	

		<p>A.1.5.2. Cooperation with foreign regions for participation in different European initiatives.</p> <p>A.1.5.3. Fostering the participation in European programmes and funds.</p>
<p><b>PRIORITY 2:</b>  <b>CREATION AND DEVELOPMENT OF PRO-INNOVATIVE ENVIRONMENT (INCLUDING INFRASTRUCTURE) IN SUPPORT TO ENTREPRENEURSHIP AND BUSINESS</b></p>	<p>M.2.1. Strengthening the interaction between the participants in the innovation system and coordination of their activity.</p>	<p>A.2.1.1. Establishment of a Regional Innovation Council as an authority for coordination of the strategy and the innovation policy in NEPR.</p> <p>A.2.1.2. Development of a regional communication programme for popularization of the region and development of the regional relations.</p>
	<p>M.2.2. Establishment and development of research and intermediary organizations, creating and supporting innovations.</p>	<p>A.2.2.1. Creation and development of:</p> <ul style="list-style-type: none"> <li>- Incubators, supporting the start-up of innovative SMEs;</li> <li>- Technology transfer centres;</li> <li>- Centres for entrepreneurship and innovations;</li> <li>- Technology parks;</li> <li>- Support to the industrial zones for innovative development.</li> </ul> <p>A.2.2.2. Setting up a network of intermediary organizations.</p> <p>A.2.2.3. Establishment of research organizations, creating innovations.</p>
	<p>M.2.3. Widening the interaction with the local and national administration for solving the problems of innovations in the region.</p>	<p>A.2.3.1. Creation of favourable legislative environment for the development of innovations and introducing of (tax and other) concessions.</p> <p>A.2.3.2. Support by the local and central administration to the construction of effective regional innovation system.</p> <p>A.2.3.3. Establishment of a regional guarantee fund.</p>

<p><b>PRIORITY 2:</b> CREATION AND DEVELOPMENT OF PRO-INNOVATIVE ENVIRONMENT (INCLUDING INFRASTRUCTURE) IN SUPPORT TO ENTREPRENEURSHIP AND BUSINESS</p>	<p>M.2.4. Creation and development of regional instruments for financing innovations.</p> <p>M.2.5. Improvement of the quality and structure of services in the field of innovations and facilitating the access to them.</p>	<p>A.2.3.4. Support to the innovative development of the undeveloped parts of NEPR.</p> <p>A.2.4.1. Creation and development of regional tools with opportunities for direct financing of innovative projects, as micro credit and start-up fund, venture capital fund, business angels network.</p> <p>A.2.5.1. Improvement of the public services through introduction of innovative technologies, services and products.</p> <p>A.2.5.2. Introduction of good European practices in support to the entrepreneurship and business.</p> <p>A.2.5.3. Setting up a monitoring system for follow up of the implementation of RIS for NEPR, the regional innovation system and the achievements in the field of innovations and the innovation culture in the region.</p> <p>A.2.5.4. Creation of services for the development of innovations in the enterprises (technological audits, technological observer, technological foresight research on sector level, etc.).</p>
<p><b>PRIORITY 3:</b> SUPPORT TO THE DEVELOPMENT OF HUMAN POTENTIAL AND CREATION OF THE MODERN INNOVATION CULTURE IN THE REGION</p>	<p>M.3.1. Development of the innovation culture in the society.</p> <p>M.3.2. Adaptation of education to the needs of the regional economy and widening the training opportunities.</p>	<p>A.3.1.1. Promotion of successes and exchange of experience in the field of innovations, through the creation of regional forums, trade fairs, competitions, exhibitions.</p> <p>A.3.1.2. Setting up and annual holding of a competition „Innovation leader of NEPR“.</p> <p>A.3.1.3. Support to the technological entrepreneurship among the young people.</p> <p>A.3.2.1. Modernization of the system of specialties in the secondary schools and inclusion of specialties with new content with a view to the needs of the regional business.</p>

<p>A.3.3.1. Development of networks for training and fostering life-long learning.</p> <p>A.3.3.2. Popularization of the participation in national and European training programmes.</p> <p>A.3.4.1. Specialized sector trainings on the best innovation practices and technological transfer, attracting experts from the country and abroad.</p> <p>A.3.4.2. Training of the company management on entrepreneurship, innovations and innovation management.</p> <p>A.3.4.3. Specialized training of the management of the intermediary organizations and the clusters for improving the quality of services.</p> <p>A.3.5.1. Overcoming the shortage of qualified specialists in the region.</p> <p>A.3.5.2. Support for attracting qualified specialists in the enterprises.</p>	<p>M.3.3. Creation of conditions for life-long learning, through good European practices.</p> <p>M.3.4. Increasing the qualification and improvement of the management and innovation skills of the personnel through training of the management and the personnel.</p> <p>M.3.5. Overwhelming the shortage of qualified specialists for the regional economy.</p>	<p><b>PRIORITY 3:</b> SUPPORT TO THE DEVELOPMENT OF HUMAN POTENTIAL AND CREATION OF THE MODERN INNOVATION CULTURE IN THE REGION</p>
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It is planned that 43 projects will be implemented, divided by Priorities: 15 projects under Priority 1, 18 projects under Priority 2 and 10 projects under Priority 3.

<b>PROJECTS</b>		
<b>PRIORITY 1:</b>	<b>PRIORITY 2:</b>	<b>PRIORITY 3:</b>
<p>P.1.1. Technological renovation of the enterprises.</p> <p>P.1.2. International standards for implementation of management systems and compliance of products.</p> <p>P.1.3. Protection of the intellectual and industrial property of enterprises.</p> <p>P.1.4. Support to the enterprises for management of innovations.</p> <p>P.1.5. Formation of clusters.</p> <p>P.1.6. Widening of the application of ICT in SMEs.</p> <p>P.1.7. Improvement of the energy efficiency in enterprises.</p> <p>P.1.8. Utilization of NEPR specific resources for the production of biofuels.</p> <p>P.1.9. Stimulation of the universities, institutes and leading enterprises for the creation of spin-off innovative</p>	<p>P.2.1. Creation of a Regional Innovation Council.</p> <p>P.2.2. Programmes for training in innovations and entrepreneurship.</p> <p>P.2.3. Development of a regional web portal for innovations.</p> <p>P.2.4. Establishment of high-technology incubators in the NEPR districts.</p> <p>P.2.5. Establishment of technology transfer centres.</p> <p>P.2.6. Establishment of centres for entrepreneurship and innovations in the NEPR districts.</p> <p>P.2.7. Design of a High technology park in NEPR.</p> <p>P.2.8. Establishment of High technology park in NEPR.</p> <p>P.2.9. Setting up of a regional innovation network.</p> <p>P.2.10. Establishment of research institutes and faculties for the needs of the</p>	<p>P.3.1. Establishment and organization of a regional innovation fair.</p> <p>P.3.2. Organisation and holding of a competition for young entrepreneurs.</p> <p>P.3.3. Establishment of a fund for encouraging young qualified specialists.</p> <p>P.3.4. Development of a network for life-long learning. Creation of a coordination centre.</p> <p>P.3.5. Mapping of the business needs for human resources in the region and training of specialists.</p> <p>P.3.6. Development of a regional plan for training and raising the qualification of specialists in the region.</p>

<p>companies.</p> <p>P.1.10. Technological renovation of research institutes.</p> <p>P.1.11. Technological renovation of universities.</p> <p>P.1.12. Creation of regional innovation forum. Competition with award fund for innovative proposals, research projects, etc. „Innovation Leader of NEPR”.</p> <p>P.1.13. Popularisation of the experience of the European networks and encouraging the participation in European programmes and funds.</p> <p>P.1.14. Support from the local and national administration for the creation of regional agency for support of export.</p> <p>P.1.15. Development of cross-border cooperation.</p>	<p>regional economy.</p> <p>P.2.11. Creation of a regional guarantee fund.</p> <p>P.2.12. Creation of access to broadband Internet in the undeveloped regions.</p> <p>P.2.13. Improvement of the quality of public services.</p> <p>P.2.14. Development of a regional „foresight” (forecasting) for technological development, aiming to achieve coordinated regional policy in the field of innovations.</p> <p>P.2.15. Creation of a monitoring system for follow-up of the innovative state of the region and the implementation of the strategy.</p> <p>P.2.16. Establishment of a regional fund for financing of innovations and applied research.</p> <p>P.2.17. Establishment of a Regional fund for start-up and venture capital.</p> <p>P.2.18. Creation of a regional network of „business-angels”.</p>	<p>P.3.7. Organisation of sector trainings on innovations and technological transfer for specialists from the region.</p> <p>P.3.8. Carrying out training of the company management on entrepreneurship and innovations.</p> <p>P.3.9. Training of the management of intermediary organizations for improvement of the quality of services for innovations.</p> <p>P.3.10. Formation of measures for attracting qualified specialists in the enterprises.</p>
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### 6.3. ACTION PLAN

The implementation of RIS of NEPR is envisaged in the period of **2008 – 2020**, which is divided on three parts. During the first period from 2008 to 2010, 29 projects are foreseen, directed to promotion of active participation of the enterprises in the innovation process, increasing of their competitiveness and the competence regarding the innovations and the entrepreneurship, intensifying of the process for overall development and improvement of the innovation culture in the region. In that period it is planned to start the building of the missing units of the innovation structure. For that purpose 7 pilot projects are envisaged, which are going to settle the fundamentals of an effective innovation system and are going to be a success guarantee of the strategy.

During the second period, from 2011 to 2013, 31 projects are envisaged, as main emphasis is put on the overall development of the pro-innovation infrastructure and culture, and stimulation of the innovation processes in the companies. The third period from 2014 to 2020 is indicative in view of its long-term character. The envisaged for implementation 16 projects during that term are continuation of the part of the projects planned during the first two periods. The same is true also for part of the projects during the second period, as it is considered that some projects are part of permanent processes, which flow in the region and which have to be permanent task for implementation in order to achieve durable effects and completeness of the undertaken measures.

**Table 5: Action plan**

<b>REGIONAL INNOVATION STRATEGY OF THE NORTH EAST PLANNING REGION</b>	
<b>ACTION PLAN</b>	
<b>2008– 2010</b>	
P.1.1.	Technological renovation of the enterprises.
P.1.2.	International standards for introducing of management systems and product compliance.
P.1.3.	Protection of the intellectual and industrial property of the enterprises.
P.1.4.	Support to the enterprises in the management of innovations.
P.1.5.	Formation of clusters.
P.1.6.	Widening of the application of ICT in SMEs.
P.1.7.	Improvement of the energy efficiency in enterprises.
P.1.8.	Utilization of NEPR specific resources for the production of biofuels.
P.1.10.	Technological renovation of research institutes.
P.1.11.	Technological renovation of universities.
<b>P.1.12.* Creation of regional innovation forum. Competition with award fund for innovative proposals, research projects, etc. „Innovation Leader of NEPR”.</b>	
P.1.15.	Development of cross-border cooperation.
<b>P.2.1.* Creation of a Regional Innovation Council.</b>	
P.2.2.	Programmes for training in innovations and entrepreneurship.
P.2.3.	Development of a regional web portal for innovations.
<b>P.2.4.* Establishment of high-technology incubators in the NEPR districts.</b>	
P.2.5.	Establishment of technology transfer centres.
P.2.6.	Establishment of centres for entrepreneurship and innovations in the NEPR districts.
<b>P.2.7.* Design of a High technology park in NEPR.</b>	
P.2.14.	Development of a regional „foresight” (forecasting) for technological development, aiming to achieve coordinated regional policy in the field of innovations.
<b>P.2.15.* Creation of a monitoring system for follow-up of the innovative state of the region and the implementation of the strategy.</b>	

<b>P.2.16.* Establishment of a regional fund for financing of innovations and applied research.</b>
P.3.1. Establishment and organization of a regional innovation fair.
P.3.2. Organisation and holding of a competition for young entrepreneurs.
<b>P.3.5.* Mapping of the business needs for human resources in the region and training of specialists.</b>
P.3.6. Development of a regional plan for training and raising the qualification of specialists in the region.
P.3.7. Organization of sector trainings on innovations and technological transfer of specialists from the region.
P.3.8. Carrying out of trainings of the company management on entrepreneurship and innovations.
P.3.9. Training of the management of intermediary organizations for improvement of the quality of services for innovations.
<b>2011 – 2013</b>
P.1.1. Technological renovation of the enterprises.
P.1.2. International standards for implementation of management systems and compliance of products.
P.1.3. Protection of the intellectual and industrial property of enterprises.
P.1.4. Support to the enterprises for management of innovations.
P.1.5. Formation of clusters.
P.1.6. Widening of the application of ICT in SMEs.
P.1.7. Improvement of the energy efficiency in enterprises.
P.1.8. Utilization of NEPR specific resources for the production of biofuels.
P.1.9. Stimulation of universities, institutes and leading enterprises for the creation of spin-off innovative companies.
P.1.12. Creation of regional innovation forum with Competition with award fund for innovative proposals, research projects, etc. „Innovation Leader of NEPR”.
P.1.13. Popularisation of the experience of the European networks and encouraging the participation in European programmes and funds.
P.1.14. Support from the local and national administration for the creation of regional agency for support of export.
P.1.15. Development of cross-border cooperation.
P.2.2. Programmes for training in innovations and entrepreneurship.
P.2.4. Establishment of high-technology incubators in the NEPR districts.
P.2.5. Establishment of technology transfer centres.
P.2.6. Establishment of centres for entrepreneurship and innovations in the NEPR districts.
P.2.8. Design of a High technology park in NEPR.
P.2.9. Setting up of a regional innovation network.
P.2.10. Establishment of research institutes and faculties for the needs of the regional economy.
P.2.11. Creation of a regional guarantee fund.
P.2.12. Creation of access to broadband Internet in the undeveloped regions.
P.2.13. Improvement of the quality of public services.
P.2.17. Establishment of a Regional fund for start-up and risk capital.
P.3.2. Organisation and holding of a competition for young entrepreneurs.
P.3.3. Establishment of a fund for encouraging young qualified specialists.
P.3.4. Development of a network for life-long learning. Creation of a coordination centre.
P.3.7. Organisation of sector trainings on innovations and technological transfer for specialists from the region.
P.3.8. Carrying out of trainings of the company management on entrepreneurship and innovations.
P.3.9. Training of the management of intermediary organizations for improvement of the quality of services for innovations.
P.3.10. Formation of measures for attracting qualified specialists in the enterprises.
<b>2014 – 2020</b>
P.1.3. Protection of the intellectual and industrial property of enterprises.
P.1.4. Support to the enterprises for management of innovations.

P.1.5.	Formation of clusters.
P.1.6.	Widening of the application of ICT in SMEs.
P.1.9.	Stimulation of the universities, institutes and leading enterprises for the creation of spin-off innovative companies.
P.1.12.	Creation of regional innovation forum with Competition with award fund for innovative proposals, research projects, etc. „Innovation Leader of NEPR”.
P.1.15.	Development of cross-border cooperation.
P.2.10.	Establishment of research institutes and faculties for the needs of the regional economy.
P.2.12.	Creation of access to broadband Internet in the undeveloped regions.
P.2.13.	Improvement of the quality of public services.
P.2.18.	Creation of a regional network of „business-angels”.
P.3.2.	Organization and holding of a competition for young entrepreneurs.
P.3.7.	Organization of sector trainings on innovations and technological transfer for specialists from the region.
P.3.8.	Carrying out trainings of the company management on entrepreneurship and innovations.
P.3.9.	Training of the management of intermediary organizations for improvement of the quality of services for innovations.
P.3.10.	Attracting qualified specialists in the enterprises.

\* Pilot project

The action plan will be periodically updated. The first update is to be made in 2 years.

## 6.4. PILOT PROJECTS

As a result of the conducted 7 discussions in the different towns of NEPR the Steering Committee reached consensus for the choice of the pilot projects. They reflect the condition of ISR, aiming at founding of an effective Innovation system through their realization. Their implementation is prerequisite for the success of the strategy.

Pilot projects:

1. P.2.1. Creation of a Regional Innovation Council.
2. P.2.15. Creation of a monitoring system for follow- up of the innovative state of the region and the implementation of the strategy.
3. P.3.5. Mapping of the business needs for human resources in the region and training of specialists.
4. P.2.16. Establishment of a regional fund for financing of innovations and applied research.
5. P.2.4. Establishment of high-technology incubators in the NEPR districts.
6. P.1.12. Creation of regional innovation forum. Competition with award fund for innovative proposals, research projects, etc. „Innovation Leader of NEPR”.
7. P.2.7. Design of a High technology park in NEPR.

Through creation of the Regional Innovation Council the purpose is improvement of the coordination at regional level regarding the implementation of the innovation policy and the attraction of the main actors in the innovation process for development of the region and the regional policy. As a result of RIS start of monitoring system is envisaged that follows in qualitative and quantitative parameters the implementation of the accepted action plan, the progress of the region with regards to the innovation performance, and the comparison to the leading innovative regions.

Exceptionally important pilot project is „Mapping of the business needs for human resources in the region and training of specialists”, in view of the growing needs of the enterprises of qualified specialists, lagging of the educational system from the rate of development of business and meeting its needs and on that basis elaboration of a plan for overcoming of the shortage and increasing of the qualification of the specialists in the region.

The creation of regional fund for funding of the innovations and the applied research aims at building of one of the envisaged instruments for funding of the innovations, known in the world practice and the others are venture capital fund and seed capital, guarantee funds and networks of business angels. Every one of them is dedicated to meet the needs of financing at a certain stage of the companies' development. The foreseen pilot fund is basic and together with the planned for implementation high technological business incubators will contribute to improvement of the access of the enterprises and the creators of innovations to qualified innovative services adequate to their needs corresponding to the existing global models and on every rate of their life cycle of development – from the emerging of the idea through start up of a company to growth and maturity.

By means of starting of regional innovation forum and competition with award fund for innovative proposals, research projects, etc. - „Innovation Leader of NEPR” it is planned to achieve improvement of the efficiency of the process of the reaching of the innovations to the market, increasing of the collaboration between the entrepreneurs, research centres and the intermediaries, as well as the promotion of creation of innovation developments.

Even though it is presented at the last place, the design of high technological park in NEPR is of first-rate importance. This pilot project is also founding one in view of creation of contemporary complying with the existing trends for pro-innovative infrastructure, which is of direct help and importance for the development of the region. This type of organizations will radically change the face of the region towards enlargement of the basis for creation of innovations and improvement of the general potential, economic growth, competitiveness and the living standard.

The description of the projects (Table 6) is implemented by notification of: title of the project; pro-innovative activity from the strategy, which they are directed to; supposed source of financing; executors; expected results; beneficiaries and indicators for implementation. ERO - Educational and Research Organizations. NGO - Non-governmental organizations.

<b>DESCRIPTION OF PROJECTS</b>							
<b>№</b>	<b>Project</b>	<b>Actions</b>	<b>Financing</b>	<b>Executors</b>	<b>Expected results</b>	<b>Beneficiaries</b>	<b>Indicators for implementation</b>
1.	P.2.1. Creation of a Regional Innovation Council.	A.2.1.1.	OP „Regional Development “ OP „Competitiveness“	Administration, ERO, NGO	Formation of a Regional Innovation council as a body, coordinating the implementation of the Strategy and the innovation policy in NEPR with the following structure: - commission on innovations with sections on the three priorities; - bureau for monitoring and analysis. Improved coordination with regard to the innovation policy in the region.	Enterprises, ERO, Administration, NGO	Involved representatives of the main participants in the innovation system. Number of meetings held. Issues discussed, decisions taken. Number of prepared documents for the development of innovations in the region. Types of activities, carried out for the coordination and implementation of RIS.
2.	P.2.15. Creation of a monitoring system for follow-up of the innovative state of the region and the implementation of the strategy.	A.2.5.3. A.2.1.1.	OP „Competitiveness“ OP „Regional Development “	Administration, ERO, NGO.	Approval of a monitoring methodology. Formulation of the main levels for monitoring of the innovative state of the region and the innovation activity of the users and creators of innovations. Defining the main information sources and the methods for its provision. Providing the necessary information for the Regional Innovation Council. Available statistics and analysis.	Enterprises, Administration, ERO, NGO.	Developed monitoring system. Established structural division for carrying out of monitoring activities. Transmitting information to the main participants in ISR. Number of attracted specialists to carry out the monitoring. Number of conducted research.
3.	P.3.5. Mapping of the business needs for human resources in the region and training of specialists.	A.3.2.1. A.3.5.1.	OP „Human resources development “	Enterprises, administration, ERO, NGO.	Conducted survey for defining problems and needs, related to the human resources in the region. Identified opportunities and methods for their solving. Planned measures for liquidation of the imbalance between needs and availabilities. Support to the provision of qualified personnel for the enterprises in the region. Opened new specialties in the secondary and higher education.	Enterprises, ERO, NGO	Number of investigated sectors and sub-sectors. Number of professions covered according to the National classification. Degree of coverage of the regional economy by specialties and on territorial principle. Number of interviewed enterprises. Number of attracted/involved education centres/intermediaries. Number of enterprises, covered by the project.

4. P.2.16. Establishment of a regional fund for financing innovations and applied research.	A.2.4.1.	OP „Competitiveness“	Administration, Financial institutions, NGO.	Registration of juridical person. Formation of the fund management team and development of its structure and strategy. Attraction of capitals for the formation of a fund, financing enterprises, universities, institutes, scientific workers in the process of creation and implementation of innovations. Established and operating administrative structure of the fund.	Enterprises, ERO, NGO.	Established and operating fund. Number of specialists attracted for setting up the fund. Attracted capital in the fund. Invested capital. Implemented innovations, raised growth in production and sales, new employment opportunities. Share of the successful investments.
5. P.2.4. Establishment of high-technology incubators in the NEPR districts.	A.2.2.1.	OP „Competitiveness“	Enterprises, ERO, Administration, NGO.	Support to the local and national administration for the establishment of incubators, as a part of the innovation system of the region (ISR). Mobilisation of the main participants in the innovation process for the development of local incubators, supporting the start and development of SMEs. Rendering of methodological and consultancy assistance for entrepreneurial skills and starting new business. Reducing the barriers for market entries and increasing the successfulness of entrepreneurs.	Enterprises, young specialists and entrepreneurs.	Number of created incubators. Number of specialists involved in the establishment of incubators. Number of incubated enterprises. Number and types of services. Number of opened working places. Growth in the turnover of the incubated enterprises. Number of realized projects between ERO and incubated companies. Number and type of new products and services by incubated companies. Share of the successfully functioning companies after incubation.
6. P.1.12. Creation of regional innovation forum. Competition with award fund for innovative proposals, research projects, etc. „Innovation Leader NEPR“.	A.1.4.1. A.1.4.2. A.3.1.2.	OP „Regional Development“ OP „Competitiveness“	Administration, NGO.	Improved cooperation between inventors and enterprises. Popularisation of the processes of commercialization of research projects. Raising the interest in entrepreneurs for cooperation with the innovation centres. Established competition for innovative proposals and implemented developments. Popularisation of the nominated and awarded in the competition innovative developments and applications.	Enterprises, ERO	Organisation and holding of a competition “Innovation leader of NEPR”. Number of requests for participation from inventors and enterprises. Number of awarded developments. Number of realized cooperative projects between the participants in the forum.

7. P.2.7. Design of a High technology park in NEPR.	A.2.2.1.	OP „Competitive ness“	Enterprises, ERO, Administration, NGO.	Support by the local and national authorities for the establishment of a high-technology park (HTP), as a main unit of ISR. Mobilising the efforts of the local society, administration and ERO from NEPR for the establishment of HTP. Formation of consortium. Administrative definition of the HTP territory and design. Attraction of multinational companies and investors for inclusion in the establishment of HTP. Development of a business plan for the park activities.	Enterprises, ERO, Administration, NGO.	Administratively defined terrains for the establishment of HTP. Consortia built for carrying out the main construction. Available project for HTP. Management team formed. Ensured financing. Attracted multinational companies.
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## 6.5. MONITORING OF THE REGIONAL INNOVATION STRATEGY OF NEPR

Along with the elaboration of the Regional Innovation Strategy of the North-East Planning Region it is necessary to provide mechanisms and tools for observation and evaluation of the implementation of the Strategy – i.e. monitoring. Since the elaboration of RIS is part of the process, directed to improvement of the characteristics of the innovation system in NEPR, and utilizing the experience of the leading innovative regions in that direction, the theory of benchmarking is used in the present project in order to construct the parts of that monitoring system of indicators. The system itself includes methods for measuring of definite indicators, suitable organization, collection, processing and analysis.

The following methodological difficulty exists: impossibility in principle at the beginning of the monitoring to separate the influence only of the results of the implementation of RIS as planned impact from the other factors (e.g. spontaneous or accidental action of other participants in the innovation process) on the development of the Innovation System in the Region (ISR) as a complex multi-parameter system. Subsequently, after years of detailed observation of ISR this separate influence can be evaluated.

Therefore, in this first moment of the monitoring, a parallel observation and evaluation of the two groups of indicators is necessary to be implemented – provisionally called „input” and „output” (resultative) for RIS:

(1) Input indicators: indicators for the evaluation of the implementation of the action plan on RIS as: number of realized projects (under the 3 priorities both separately and generally), amount of the financed projects, number of companies/institutes/NGO, engaged in their implementation, number of specialists (experts) participants in the implementation, number of newly created innovation centres (like incubators etc.), daughter (spin-off) companies.

(2) As an output (resultative) indicators the following are accepted: indicators for evaluation of the development of the condition of the Regional Innovation Strategy of NEPR.

In view of the necessity of comparison of these results from the output indicators for NEPR with the results for innovative development of other European regions it is expedient to construct such a system of indicators, which is commonly accepted (or which includes general indicators) for all of the regions. As of this moment there are two systems like this that are functioning:

- the system of indicators EIS-2006 Regional Innovation Scoreboard, which includes 7 thematic indicators and one complex indicator, which aggregates the thematic indicators in a general indicator;

- the system of indicators for the project STRINNOP (47 primary ones, aggregated in 10 thematic indicators, which provide the possibility for clear comparison between the regions through a radar chart).

- Based on the preliminary evaluation of the condition of the innovation process in NEPR and the elaborated RIS, the following system of indicators is suggested at the beginning for evaluation of the implementation of the action plan of RIS:

- absolute number and relative part of the realized projects (by priorities and periods, included in the action plan);

- amount of the financed projects (by priorities and periods)

- number of companies/institutes/NGO participating in the implementation of the projects (by priorities and periods);

- number of specialists (experts) participants in the implementation (by priorities and periods);

- number of newly created innovation centres (like incubators etc.), daughter (spin-off) companies.

For the evaluation of the development of the RIS of NEPR a combined system of indicators for results (conditional output) is suggested, which include 7 indicators of EIS-2006 RIS (the data for this indicators are available in Eurostat), as well as 5 other indicators (the data for them are provided from NSI or from survey), which are part of the system of the indicators of the European Innovation Scoreboard (EIS 2006) for comparison between the countries.

The following system of indicators is used for evaluation of the innovative development of NEPR:

- I1 Relative number of people that graduated university from 100 people between 25-64 years old;
- I2 Relative participation in life long learning (% from the people between 25-64 years old.);
- I3 Personnel, employed in the middle and high technological production (% from the total number of employed);
- I4 Personal, employed in the middle and high technological services (% from the total number of employed);
- I5 Public expenditure for research and development activity (R&D), in % from GDP;
- I6 Companies (business) expenditure for R&D, in % from GDP;
- I7 Relative number of received European patents of 1000000 citizens from the population;
- I8 Relative part of the enterprises that create innovations (% of total);
- I9 Expenditure for innovations in % from the turnover;
- I10 Amount of the sales of new for the companies or new for the market products in % from the turnover;
- I11 Relative number of the enterprises cooperating with other for mutual activity;
- I12 Relative number of enterprises that received public funding for innovations.

The choice of that set of indicators is not an accidental one, since it serves for evaluation of the development of ISR in the direction of accepted 3 priorities of RIS of NEPR.

**Priority 1: DEVELOPMENT OF THE INNOVATION POTENTIAL OF THE REGION FOR INCREASING THE COMPETITIVENESS OF THE ECONOMY**

Indicators:

I3, I4, I6, I7, I8, I9, I10

**Priority 2: CREATION AND DEVELOPMENT OF PRO-INNOVATIVE ENVIRONMENT (INCLUDING INFRASTRUCTURE) IN SUPPORT TO ENTREPRENEURSHIP AND BUSINESS**

Indicators:

I5, I11, I12

**Priority 3: SUPPORT TO THE DEVELOPMENT OF HUMAN POTENTIAL AND CREATION OF THE MODERN INNOVATION CULTURE IN THE REGION**

Indicators:

I1, I2

At the time of the calculation of the level of the innovation development of NEPR on annual basis, the methods offered in EIS-2006 Regional Innovation Scoreboard are used, evaluating one complex indicator. The obtaining of the data for evaluation of the indicators I8-I12 is implemented by periodical survey of small sample of companies of NEPR.

In conformity with the criteria of the statistics for determination of the minimum required number of companies (volume of the sample) for survey with answers from the type ratio evaluation (relative part) it is seen that in order to have 90% reliability reduced to 40000 companies in NEPR it is necessary to build a sample of 67-68 companies, while for 95% reliability a sample of 381 companies is necessary.

## CONCLUSION

With the implementation of project 014664 „Regional Innovation Strategy of North-East Planning Region” under VI Framework Programme of the European Commission, a Regional Innovation Strategy is elaborated for NEPR which contributed to the improvement of the innovation culture and to the achievement of significant results for the Innovative system in the region. The beginning of the process on creation of sustainable innovative environment started and the foundations of the implementation of regional innovation policy are laid, through achievement of wide regional consensus and support from the key actors, taking strategic decisions regarding the development of the region. During the elaboration of the strategy a balanced participation of all the parties in the innovation process is achieved – of local and regional administration, universities and research institutes, intermediary organizations that support the innovations and the entrepreneurship, micro, small, medium-sized and large enterprises. The process of elaboration of RIS is a good example of the European methodology for taking adequate management decisions, in general coordination of the activities and the formulation of clear objectives and strategy, based on large-scaled and extensive research and analysis.

The main results achieved during the implementation of the project are the elaborated RIS of NEPR, the gained regional consensus regarding the main directions and actions for innovation development of the region, the implemented research on a large scale and extensive analysis of the innovativeness and the competitiveness of the companies from the region, as well as the potential for creation and support of the innovations in NEPR. An Action Plan related to the Strategy is elaborated and mechanism for coordination and constant monitoring of RIS as well as of the Innovation system is initiated. There are conditions created for long-term regional and interregional European partnership.

RIS of NEPR is an open document, which will be expanded and updated in accordance to the changes in the development of the region during the performance of monitoring of the implementation. The objectives of the Strategy is planned to be realized through the means of the Operative Programmes and the Structural Funds and mostly by the OP „Development of the competitiveness of the Bulgarian economy 2007 – 2013”. In this regard it is important to start duly the pilot projects and to have active participation of the organizations presented in the Innovation system of the region. This will lead to constant and sustainable innovation process and to enlargement of the innovation capacity of the region and will provide beneficial cooperation of NEPR within the network of the European Innovative Regions.

The most important achievement of the project RIS of NEPR is the integration of the human capital of the region around the common economic priorities for development of NEPR and the balanced interests of the key regional actors in the Innovation Process. That is the most important guarantee for successful integration and implementation of RIS of NEPR.

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## APPENDIX

### STEERING COMMITTEE

No		Participant Name	Organisation	Position
1.	Mr.	Yani Yanev, Chairman of the SC	Parliament Of Bulgaria	Member Of The Parliament Of Bulgaria In The 40th National Assembly
2.	Prof.	Mihail Serafimov, Deputy Chairman Of The SC	Scientific And Technical Unions, Varna	Chairman
3.	Mrs.	Milena Paunova	Ministry Of Regional Development And Public Works	Deputy Minister
4.	Mr.	Petar Kandilarov	District Administration Centre Dobrich	District Governor
5.	Mr.	Dincher Hadjiev	District Administration Centre Dobrich	District Governor
6.	Mr.	Nasko Anastasov	District Administration Centre Razgrad	District Governor
7.	Mrs.	Svetlana Velikova	District Administration Centre Silistra	District Governor
8.	Mr.	Petar Karageorgiev	District Administration Centre Targovishte	District Governor
9.	Mr.	Krasimir Kostov	District Administration Centre Shoumen	District Governor
10.	Prof.	Anna Nedyalkova	Varna Free University	Rector
11.	Capt.(Navy) Capt.(Navy)	Stanko Stankov / Dimitar Angelov	Naval Academy Varna "N.Y. Vapcarov"	Commandant
12.	Prof.	Kaliu Donev	University Of Economics -Varna	Rector
13.	Prof.	Anelia Klisarova	Varna University Of Medicine	Rector
14.	Assoc. Prof. Assoc. Prof.	Stefan Barudov/ Ovid Farhi	Technical University - Varna	Rector
15.	Prof. Prof.	Dobrin Dobrev/ Margarita Georgieva	University Of Shumen, "Episkop Konstantin Preslavski"	Rector
16.	Dr Dr	Hristo Slabakov Atanas Palazov	Institute Of Oceanology, Varna	Director
17.	Dr	Dimitar Radev, Project Coordinator	Regional Agency For Entrepreneurship And Innovations - Varna	Executive Director
18.	Mr.	Ognian Spasov	Industrial Association	Executive Director
19.	Mrs. Mrs.	Petya Markova/ Ela Deneva	Territorial Statistic Office, Varna	Director
20.	Mrs. Mr.	Mila Kazanlieva / Nikolay Stoyanov	Commercial Bank "Allianz Bulgaria" Varna	Managing Director
21.	Mrs.	Ivanka Sergeeva	Director "Information Services" AD, Varna	Director
22.	Mr.	Petyo Milkov	"Tcherno More" AD	Executive Director
23.	Assoc. Prof.	Anatolii Antonov	"Eurorisk Systems" OOD	Executive Director
24.	Assoc. Prof.	Neiko Stoyanov	Technological College - Razgrad	Director

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