WWW.EFMN.INFO The European Foresight Monitoring Network

Technology and Innovation in Romania 2015

Foresight Brief No. 062

Authors: Tonia Damvakeraki, damvakeraki@atlantisresearch.gr, Effie Amanatidou, amanatidou@atlantisresearch.gr
Sponsors: European Commission – STRATA Programme, Romanian Ministry of Education, Research and Youth, German Agency for Technical Cooperation
Type: Single issue exercise: Biotechnology
Organizer: ARC FUND, Zoya Damianova, arc@online.bg, CRIMM – Romanian Centre for Small and Medium Sized Enterprises, crimm@imm.ro
Duration: 2003-2004 **Budget:** n/a **Time Horizon:** 2015

Purpose

In Romania, the variety of actors involved in foresight activities has determined a mixture of objectives and rationales. The implementation of a foresight pilot exercise in Romania was itself an objective in order to have 'process' benefits such as building foresight capacities, networking, developing a culture of democratic, social dialogue, etc. In addition, although substantiating better RTDI policies in order to increase economic competitiveness in the light of the Lisbon objective is a primary concern, the foresight pilot exercise in Romania was designed for identifying and addressing weaknesses regarding the communication between the relevant stakeholders.

Introduction of Foresight to the Candidate Countries

The FORETECH project was supported by the STRATA Programme of DG Research of the European Commission and was implemented by a consortium of seven partners (Applied Research and Communications Fund, Bulgaria - Coordinator Foundation, "Romanian Centre for Small and Medium-sized Enterprises", Romania, Foundation of Research and Technology - Hellas, Greece, School of Slavonic and East European Studies, University College London, UK, Policy Research in Engineering, Science and Technology, Victoria University of Manchester, UK, Technology Centre AS CR, the Czech Republic, Hungarian Technology Foresight Programme, National Committee for Technological Development).

The mission of the FORETECH project was:

- To introduce foresight activities in two candidate countries (Bulgaria and Romania) building upon the experience and know-how gained by projects and initiatives already supported by the European Commission and the STRATA (Strategic Analysis of Specific Political Issues) programme, and running two pilot foresight initiatives for two similar sectors / areas in both countries,
- To build up capacity and competence on foresight through transfer of experience and know-how from the consortium partners from the UK, Greece, Hungary and the Czech Republic,
- To contribute the pool of knowledge on foresight in Europe through performing a review and evaluation of the foresight exercises in the countries participating in the project,
- To elaborate recommendations for the European Commission Policy-makers at other governance levels for specific measures to support S&T policies in candidate countries.

Two sectors were originally set for the foresight initiative:

- Information and communication technologies
- Agriculture, food and drinks industry and biotechnology

In the frame of the FORETECH exercise, there was one pilot exercise in Romania. According to the initial philosophy of the FORETECH project, the sector to be addressed was **biotechnologies and agriculture**. The efforts of the management team were concentrated on the implementation of the biotech

pilot, following the directions set by the members of the Steering Group. After several meetings of the experts' panel, the scope of the exercise was defined as **'biotechnology research on the food chain'**.

Linking R&D and Innovation Systems in the EU

The exercise was originally envisaged in the timeframe of the FORETECH project by the European Commission and the German Agency for Technical Cooperation and was intended to reach two sets of objectives. A first set of objectives deriving from the project refers to nation-wide processes; here the public administration was seen as the main beneficiary of the FORETECH project. A second set of objectives regarded contributions for improving the European RTDI and foresight policies and recommendations for support measures in the countries involved in the project - Romania, Bulgaria, Hungary and Czech Republic.

Another objective of the project was to create a network of countries collaborating in the field of foresight and to strengthen the links with other networks in the field of RTDI and foresight.

On behalf of the national sponsor - the Ministry of Education, Research and Youth - the exercise aimed at strengthening the links inside the innovation system and providing feedback for upgrading the national medium-term strategy for R&D in the field of biotech in the context of the integration in the European Research Area.

Strategic Challenges in Biotechnology

Biotechnology is widely recognised to be the next wave of knowledge based economy, creating new opportunities for the society and the economy.

Biotechnology in Romania is under the responsibility of a broad range of policies and actors. There is lack of a shared vision and common objectives while there is total absence of effective coordination of these policies. For this reason, Romania is addressing the challenges and opportunities for developing biotechnology with slow pace.

The tenor of the foresight exercise was that the democratic society of Romania should offer the necessary safeguards and channels of dialogue to ensure that the development and application of biotechnology takes place respecting the fundamental values recognised by the EU and the Charter of Human Rights.

Romania, as a part of Europe is confronted with a major policy decision: either to accept a passive and re-active role in terms of the development of biotechnology in the rest of Europe, **or** to develop pro-active policies to exploit them responsibly and in consistency with the European values, ethics and standards.

Involvement of Relevant Stakeholders

The main tools and methods utilised for the implementation of the FORETECH exercise in Romania were:

- **Brainstorming** sessions for stakeholder mapping,
- **Nominations and co-nominations** for selecting members for the National Expert Panel and the Steering Group,
- **STEEPV** (Social, Technological, Economic, Environmental, Political and Value-Based factors) framework for establishing priorities,
- **SWOT** analysis,
- **Scenario** building,
- **Open** discussions.

The process of involving relevant stakeholders in the foresight pilot exercise in Romania was initiated even before the exercise had started. One key actor was the public administration whose support letters have followed the request of the management team to collaborate in the implantation of the exercise in Romania. A strong point was that the efforts of the management team in Romania contributed to the launching of a full-scale national foresight programme, in several scientific and technological areas.

In order to address relevant stakeholders, the management team organised several brainstorming sessions, desk research and meetings in order to create an overall picture of the interested parties. This 'stakeholder mapping' facilitated the organisation of numerous meetings, identification of a pool of experts to be involved in the foresight pilot-exercises.

Regarding the involvement of public administration in the foresight exercise the management team has tried to suggest the role of 'flag-carrier' for the state administration. There were a number of serious reasons for making this effort:

- Employing the foresight toolbox contributes to the democratisation of governance.
- Government is more aware of the fact that the knowledge and information is spread across the country and is more willing to take immediate action in the light of a large consensus stamp for a set of agreed practical measures.
- In Romania, similarly to other countries, it is difficult to raise money for organising a full-scale national foresight programme funded by industry. The state-financed research has more tradition in grounding sectoral strategies / policies. In the case of state support, the initiator is obviously the main beneficiary of the results and outcomes of such a programme.

Regarding the involvement of stakeholders, the awareness raising and consensus building events organised by the management team was fruitful, but one must note the feeble involvement of industry, consumer groups and citizens in the foresight activities compared to the scientific community and the public administration; this resulted in a more top-down exercise, using a pool of experts coming mainly from the field

of R&D. However, a strong characteristic of the exercise is the multitude face–to–face meetings with stakeholders.

Additionally, CRIMM Foundation's initiative to organise two regional foresight pilots was accompanied by several meetings and telephone conversations with stakeholders, an awareness seminar in collaboration with the respective municipality and another consortium that was at the time implementing a project also financed by the National Plan for RTDI. Unfortunately, despite the visible interest in running these pilots locally, no sufficient funding was found for implementing this initiative.

However, a more bottom-up approach would have been desirable, especially in the regions, where the geographical distance between the actors is smaller and the distribution of relevant knowledge might be more concentrated, thus facilitating a more democratic exercise; anyway, the participation of citizens and smaller groups of interest is one of the most challenging tasks for a foresight exercise. The old disease of the national innovation system of former socialist countries is still at large in Romania: the weak links between research and business.

Biotechnology Applications: Solution to Major Problems

Biotechnology is regarded as one of the most promising frontier technologies of the future. It enables other technologies – e.g. information technologies – to be applied for a wide range of purposes. On the basis of scientific breakthroughs that have taken place in the recent years, the 'knowledge revolution' on new systems is set to deliver a continuous stream of new applications.

In the agro-food area, biotechnology has the potential to deliver improved food quality and environmental benefits through agronomical improved crops. In Romania, the cultivated area with genetically modified crops (GMs) recorded a significant increase during the last few years. Food and feed quality may be linked to disease prevention and reduced health risks. Plant genome analysis has already led to the genetic improvement of traditional European cereal crops with an increase in the protein yield, which may be used as an alternative source of protein for animal feed. Considerable reduction in pesticide use has also been recorded in crops with modified resistance which can lead to reduced use of chemical pesticides, fertilisers and drugs, and increase use of conservation tillage – hence promoting more sustainable agricultural practices, reducing soil erosion and improving environmental protection.

Romania could use biotechnology in order to improve the non-food uses of the crops. Biomass could contribute to alternative energy resources with both liquid and solid bio-fuels such as bio-diesel and bio-ethanol as well as processes such as bio-desulphurisation. Plant genomics also contribute to conventional improvements through the use of marker-assisted breeding, while biomass could also be used as a renewable resource for chemical industry.

Building Foresight Capacities in Romania

The most important outcomes of the exercise are the building of foresight capacities in Romania (Learning-by-doing) and the immense contribution to the launching of full-time scale foresight programme by the Romanian government. The Ministry of Education, Research and Youth through the National Plan for RTDI financed this programme.

The decentralised plan allows for autonomy and separate budget shares at the level of sectoral programmes that deal with specific scientific and technological areas.

Five out of nine projects are being implemented in fields related to biotechnology:

- Biotechnologies - BIOTECH Programme
- Agriculture and Food - AGRAL Programme
- Life and Health - VIASAN Programme
- Environment, energy, resources - MENER Programme
- Basic and socio-economic research - CERES Programme

Besides these nine sectoral exercises, there is also another project for updating the strategy for technological restructuring in 10 industrial sectors, managed by the RELANSIN Programme from the National Plan for RTDI. This project also includes the use of foresight methods for its implementation. The average duration of these projects lies between 8 to 12 months, with an average budget of around € 30,000 per project. Furthermore, CRIMM Foundation in agreement with MERY and the Ministry of Public Administration and Internal Affairs will take actions for the organisation of training courses in foresight or – will at least – facilitate the participation of government officials to foresight- related events organised abroad.

Key Issues Raised with Particular Relevance for Policy-making

The public debate on biotechnologies and the fundamental values affect the need for responsible and coherent policies to govern these fast moving technologies. All key stakeholders have stressed the importance of governance, i.e. attention to the way public authorities prepare, decide, implement and justify policies and actions taken.

Romania should apply the highest standards possible for governance of biotechnologies among the following 5 action lines:

- Societal dialogue and scrutiny should accompany and guide the development of biotechnologies.
- Biotechnology should be developed in a responsible way and always in harmony with ethical values and societal goals.
- Well informed decisions should facilitate demand driven applications.
- Science-based regulatory oversight should enhance public confidence.
- Basic regulatory principles and legal obligations should be respected to safeguard the integration of these technologies in the Romanian market in the frame of the Community single market and international obligations.

Public Participation in Biotech Matters

Taking into consideration the EU strategy for the development of biotechnology, the Romanian government has set the following priorities:

- In order to meet societal needs and increase its economic competitiveness, Romania should address many of the global challenges relating to health, food, environment, sustainable development by involving human, industrial and financial resources. It is necessary to develop policies accordingly.
- Public support is essential in order to address ethical and societal implications and concerns. Romania has to develop effective, credible and responsible policies that will be trusted and supported by its own people.
- It is crucial that Romania will identify the best possible means to respond to the challenges concerning scientific and technological revolution taking into consideration the international perspective.

Biotechnology has raised significant public attention and debate. Dialogue in this case should be inclusive, comprehensive, well informed and structured. Constructive dialogue requires mutual respect between the participants, innovative approaches and time availability. It should be structured in agreement with the stakeholders to allow progress, for example in the provision of better information and mutual understanding. Experience has also proven how important it is that dialogue takes place at the local and national levels, as well as internationally.

Dialogue should be open and inclusive for all stakeholders. Public authorities should facilitate and ensure the participation of stakeholder with limited resources. Economic operators, industry and users, who have economic interest in these technologies, as well as the scientific community, bear a particular responsibility for active participation.

Sources and References

http://foretech.online.bg/romania.php

Slavo Radosevic, foresight as S+T and Innovation policy tool: policy lessons from Bulgarian, Romanian, Czech and Hungarian foresight exercises, 2004.