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**FutureFood6**

**Healthy and Safe Food for the Future  
A Technology Foresight Project in Bulgaria, Croatia,  
Czech Republic, Hungary, Romania and Slovakia**

**Specific Support Action  
Food**

## **Publishable Final Activity Report**

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01.02.2007**

**Duration:  
24 months**

**Project Coordinator:  
United Nations Industrial  
Development Organization  
(UNIDO)**

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## 1. Project execution

How would the supply and demand sides of food markets look like around the year 2020 in Central and East European countries? The FutureFood6 project invited a large number of experts from six Central and East European countries (Bulgaria, Croatia, the Czech Republic, Hungary, Romania and Slovakia) to deal with this question. The response was intensive and manifold: A large number of experts participated, coming from the different disciplines that are of relevance in this context, and from different positions within this important segment of today's economies. Managers of food producing companies, representatives of chambers of commerce, and experts working in consumer organizations, ministries or certification agencies accepted the invitation to contribute to the topic either via questionnaires, oral interviews or as workshop participants. Teams of experts took care that sound techniques were applied to information gathering, processing and analysis. This very comprehensive undertaking was based on Technology Foresight, a new scientific methodology, which has proved to be a highly successful approach when it comes to addressing complex scenarios with a multitude of stakeholders involved. It is an adequate tool for dealing with potential long-term development paths of an entire industry including horizontal and vertical dimensions, supply and demand side aspects, or policy options and requirements.

### Project consortium

The consortium has consisted of the following partners (as presented in Table 1): UNIDO acting as the coordinating partner: two institutions acting as main advisers, OPTI working as methodology adviser and WIIW as socio-economic adviser; and six foresight and innovation experts institutions covering the target countries. Table 1 shows the composition of the consortium.

**Table 1: Partners in the consortium**

ID. No.	Short	Full name	Country
1	UNIDO	United Nations Industrial Development Organization	International Organization
2	OPTI	<i>Fundación Observatorio de Prospectiva Tecnológica Industrial</i>	Spain
3	WIIW	The Vienna Institute for International Economic Studies	Austria
4	IEHAS	Institute of Economics, Hungarian Academy of Sciences	Hungary
5	TC AS CR	Technology Centre of the Academy of Sciences CR	Czech Republic
6	BIC Group	BIC Group, s.r.o.	Slovakia
7	NWMC	National Wholesale Market Company Inc.	Croatia
8	UEFISCSU	Executive Agency for Higher Education and Research Funding	Romania
9	ARC Fund	Applied Research and Communications Fund	Bulgaria

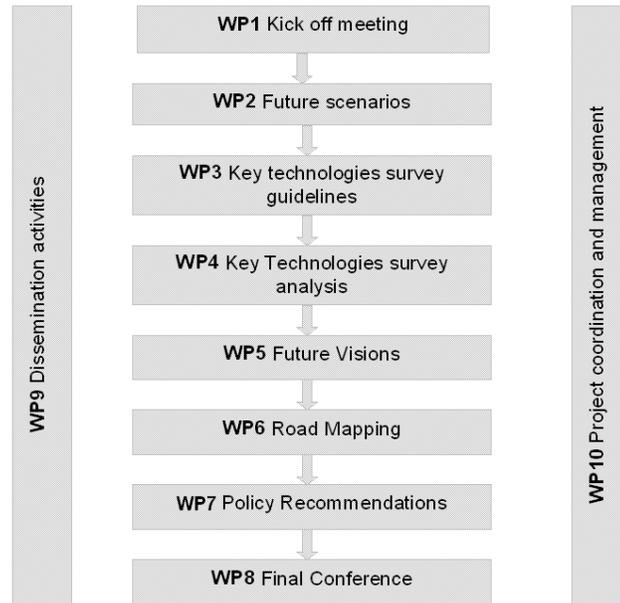
By getting all major stakeholders involved, Technology Foresight is able to identify which technological, economic and social developments are in sight under different potential frameworks. The result includes the experts' expectations regarding the market infrastructure to be established and maintained by governments. The approach offers ample opportunity to discuss food policy issues. The project's focus was on food safety and security from a long-term prospective.

The Technology Foresight methodology used in this project employed the following set of tools: socio-economic future scenarios, interviews, key-technology surveys, future visions and road mapping. Socio-economic future scenarios and future visions differ from each other substantially. In the case of the agro-food industries of the Central and East European countries, socio-economic future scenarios serve in identifying situations, which might result from inherited demand and supply side characteristics and their collision with ongoing geo-economic, geo-social and geo-political development tendencies. The individual countries' influence on such tendencies is marginal at best. By contrast, future visions are defined as something desirable, which through adequate efforts may well be achievable in the longer run. Generally speaking, in all kind of fields different stakeholders can meet to develop visions and discuss how to promote them.



In this project, different types of food experts as described above gathered in workshops to develop such visions and to reflect on road maps, which stakeholders may use as orientation for progress in the envisaged direction. Whereas some scenarios are supportive to the realization of visions, others are not.

**Figure 1: Work plan flowchart**



The experts distinguished between four scenarios, which differ in the degree of development with regard to conditions on the demand and supply side. At some point, in some of the Central and East European countries, the actual situation could resemble a ‘consumer paradise scenario’ in which a large proportion of the population can afford to act as quality-oriented food consumers, whereby preferences for quality food is high and knowledge about food and food producers is very developed. In this scenario, a core of consumers is satisfied with the response of the supply side, which is characterized by strong competition and high technological standards. Diversity on the supply side fits to multilayer demand. In a second scenario, quality-oriented and sophisticated demand of consumers is not met by adequate supply (‘frustrated consumers scenario’).

Neither domestically produced nor imported food fully meets expectations of the demand side. This is attributable to structural deficiencies and trade barriers. In a third scenario, the supply side would be quite capable, but faces poor challenge from the demand side, as the core of consumers have to content themselves with simple low-price food; gathering of information and more profound knowledge about food is hardly on their agenda. A few large trans-national producers and distribution chains have an easy game (‘multinational golden pond scenario’). Finally, in a ‘black obelisk scenario’ consumers have to be content with low-price food, whereby at the same time the supply side is also poorly developed. Main reasons for the latter could be inflexibility due to lack of competition, and technological backwardness because of poorly developed human resources and physical capital.

It depends on a large number of factors how developed the agro-food sector is currently in Central and East European countries, and in which direction the sector will move in the long-term. The countries will have influence only on some of these factors, as for example on the European integration processes. Mainly via the European Union (EU), they can also exert some

influence on the international community with regard to states' ability to agree on market regulations, especially in a World Trade Organization (WTO) context. The latter could establish, among many important things, free trade of food, and could be supportive to food quality (diversity, taste, healthiness, safety).

About thirty oral interviews per country plus over 400 questionnaires (key technology survey) placed with different types of food experts and stakeholders in the six countries offered them an opportunity to express their views. Interviews addressed the present situation with regard to certain aspects of food safety and healthiness, whereas the key technology survey collected expert views regarding the development and application level of a catalogue of technologies. The analysis of results allowed for a classification of technologies. As "key technologies" figure those from which the respondents expect strong positive impact on food quality, consumers' health, employment, economic growth and food safety. 'Strategic' is an emerging technology whereby the country seems to be well positioned. Finally, a technology is labelled as 'consolidated, if it has reached a level, which is regarded as sufficiently high. Four technologies were identified as 'key technologies' in all six countries: one referred to control systems, two belonged to the group of package technologies and the fourth one was nanotechnology applicable as an instrument of dosage control. None of these four technologies, however, reached 'strategic' status, whereas three of them qualified as at least 'consolidated'. This means that in many aspects the Central and East European food industry is still characterized by technological backwardness and will have a long way to go to fully catch up with Western European standards.

In workshops, experts from the six countries concluded that they regarded four special states as highly desirable long-term targets (so-called 'future visions'):

- Increased availability of high-quality region-specific and traditional food products ('Vision 1')
- A lead position of their countries in Europe with regard to the production of healthy and safe food ('Vision 2')
- National development plans acknowledging high priority to food-related research in combination with intensive cooperation alongside food chains paying special attention to functional food ('Vision 3')
- High knowledge intensity in the agri-food sector ('Vision 4')



In Vision 1, through their purchases, consumers reveal their preference for a significant portion of regional products in their total food portfolio, and especially local producers are able to make best use of this opportunity thanks to favourable preconditions prevailing in the entire food chain and its infrastructure. Local production helps to protect the environment thanks to short transportation journeys, supports cultural diversity and strengthens local economies. Local producers benefit from EU promotion of Protected Designation of Origin (PDO), Protected Geographical Indication (PGI), and Traditional Speciality Guaranteed (TSG). To become reality, this vision will have to overcome a number of barriers such as high costs of production, distribution and brand development, or an inadequate regulatory framework in its own country as well as in potential export destinations.

In Vision 2, the food industry of the Central and East European countries manages to reach within Europe a strong position as a producer of healthy and safe food of premium quality. The countries' food industry enjoys EU consumers' confidence thanks to knowledge-intensive production, high quality thanks to strong competition and the application of strict quality rules and controls alongside the whole food chain, which guarantees traceability from farm to fork. Cooperation between the individual elements of the food chain is strong, and the industry operates at the forefront of technological development. The participants of the expert forum, which developed this vision, have identified a number of factors, which might hinder the vision's realisation, such as predominance of small and medium-sized local producers, whereby they have difficulty to gain shares in international food markets. Main reasons for that could be complex and costly certification requirements or difficulties to make it to the shelves of large retail chains in an oligopolistic market.

The third future setting, which the experts qualified as highly desirable, is national development strategies, which put emphasis on support of food-related research and development as well as on cooperation within the food chain, paying special attention to functional food (Vision 3). Such strategies would be the adequate response to socio-economic developments characterized by shifts of consumer preferences towards functional food in societies, which are increasingly becoming knowledge-based.

Vision 4, finally, sees the Central and East European agro-food sector as characterized by a properly trained workforce capable to operate new knowledge-based farming systems that are profitable at farm level; the agro-food industry is based on knowledge and intellectual assets and capable to produce competitive market-required food products that are environmentally sustainable, that cope with emerging climate changes and that are, with increasing importance, energy efficient. To develop in such a direction, the region will have to remove barriers such as deficiencies in the educational system, in training-on-the-job schemes, in access to information; barriers such as continued underdevelopment of rural areas and of the SME sector; and barriers between research and its practical application.

Expert forums dealt extensively with road mapping, i.e. the identification of driving forces, key actors and major action to be taken to promote the realisation of the four visions. Such driving forces could be (to degrees differing from vision to vision): forces on the demand and supply

side of food markets; policy; technology, science & education; and public awareness e.g. thanks to information via the media. Within each of these driving forces, key actors can promote certain actions or measures. For instance, on the demand and supply side of food markets, NGOs dedicated to consumer protection, producer associations or individual companies can be key actors. With regard to policies, governmental and non-governmental policies on EU, national or regional levels - as for example competition policy, promotion of rural development or SME support - can play a key role. Within the driving force 'technology, science & education', the expert forum regarded research institutes (universities and others) and food safety institutions as the main actors. The experts point to a pattern, which is common to all countries under consideration: Research and development activities are under-performing because of several reasons.

The companies' investment into such activities is relatively low, as foreign-owned companies tend to concentrate these activities at their headquarters, whereas domestically owned companies often are short of funds, both from own sources and borrowing, and are mainly concentrated on solving problems of a short-term nature. The latter tends to be true both for larger companies, which have been more or less successfully restructured, and for SMEs. Research institutes are in a similar situation: Due to inadequate resources of all kind, most of them have not been able to fully catch up to western standards so far. Not surprisingly, cooperation between companies within the food chain and research institutions is still underdeveloped. Especially SMEs could profit enormously from improvement in this respect, as they tend to be dynamic and have potential to be successful in market niches, but are constrained by high fixed costs of own research activities. When dealing with road mapping for each of the mentioned four visions, the expert forums came to conclusions, which are similar in terms of suggested instruments, but differ considerably with regard to their relative importance.

The experts tend to attribute an important role to improvements in the regulatory framework at different levels; to governments' more active support for SMEs, to research institutions and cooperation between them; or to better food-related knowledge of all stakeholders thanks to easier access to information, improved supply of educational services to both infant and adult citizens; and to stronger civil society organizations.



The project has opened the floor to thinking about long-term development trends with regard to food taste, safety and healthiness in Central and East European countries. At the same time it has also initiated reflection about desirable long-term goals and ways of realisation. And, it has managed to mobilize cooperation among a large number of stakeholders from different angles and countries.

**Table 2: Work packages and deliverables**

<b>Work package No</b>	<b>Work package title</b>	<b>Lead contractor</b>	<b>Deliverables</b>
WP1	Kick Off meeting	UNIDO	D1 Description of the scope and issues D2 Criteria for expert selection
WP2	Future socio-economic scenarios	OPTI	D4 Scenarios report
WP3	Design of key technology survey and interviews guidelines	IEHAS	D5 Draft of statements on key technologies and interview guidelines D6 Documentation of national expert panels (6) D7 Final version interview guidelines D8 Final version of statements for the key technologies questionnaire D9 Electronic questionnaire and reply-database ready D10 Database of experts to be interviewed
WP4	Key technology survey and interview Preliminary analysis	IEHAS	D11 Database with answers from questionnaires D12 Six national reports compiling information from the interview and questionnaire D13 Documentation of internal review D14 Report on interpretation of results from the interviews/questionnaires
WP5	Future Visions	OPTI	D15 Report on future visions
WP6	Road Mapping	TC AS CR	D16 Documentation from the road mapping workshop
WP7	Integration of results and policy recommendations	WIIW	D17 Integrated final report and policy recommendations
WP8	Final Conference	UNIDO	D20 Final conference
WP9	Dissemination activities	BIC Group	D3 Project website D18 Newsletters publication D19 Short Manual to assist companies, especially SMEs on how to use the results D23 Publication of the final report
WP10	Project coordination and management	UNIDO	D21 Final work plan D22 Set of progress and final reports

## 2. Dissemination and use

The project results have been disseminated through different means:

- Project website: [www.futurefood6.com](http://www.futurefood6.com)
- Partner's websites
- Project newsletters
- Press releases
- Radio interview
- Articles
- Draft Manual for SMEs
- Publication of the Final Report
- Conferences
- Congresses
- Meetings
- Workshops
- Seminars

The results will be used by all stakeholders of the food chain, especially by the stakeholders of the participating countries: Bulgaria, Croatia, Czech Republic, Hungary, Romania and Slovakia.

For more information, please visit the project's website: [www.futurefood6.com](http://www.futurefood6.com)