

**RESEARCH WORKSHOP
FORESIGHT AND SCIENCE, TECHNOLOGY AND INNOVATION POLICIES:
BEST PRACTICES**

**CONCEPT AND EXPERIENCE ON
MULTI-COUNTRY FORESIGHT**

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Foresight as a tool for policy decision making

During the policy decision making process, benefits introduced by foresight:

- Bring together key agents of change and sources of knowledge
- These agents brought together develop strategic future visions (Anticipatory intelligence)
- Results of the process help policy-making and priority setting, relating these strategic future visions to present-day decisions.
- Informal outputs:
 - Establishment of networks
 - Collective Learning

Decision making integrated management

- Normative Goals, Structures, and Behavior
 - ❖ *Foresight* as a crucial tool

- Strategic Goals, Structures and Behavior
 - ❖ Policy Formulation and Implementation

- Operational Goals, Structures and Behavior
 - ❖ Application of the policies

Outputs of Foresight

	Formal Outputs	Informal Outputs
Formalization	Reports, books	Presentations
Dissemination	Workshops, newsletter, press articles, web sites	Results and evaluation circulating within networks
Networking	Institutionalization of formal networks	Development of new networks or new links
Strategic Process	Formal incorporation of results within strategic process	Informal incorporation of results within strategic processes

Global environment for decision making

- **Global interdependence** is a subject that has come to shape the very nature of international diplomacy.
 - Mark C. Donfried, 2010
- The process of economic globalization combined with the global nature of many modern issues, from terrorism to climate-change means that **states can no longer function in isolation.**
 - Vasile Pușcaș, 2010

Transnational organizations and political blocks

Global	Macro-regional	Subregional
APEC	ASIAN	BSC
G7	CIS	ECO
NATO	CPPS	ICPDR
PARIS CLUB	EU	MERCOSUR

Policy fundament for multi-country foresight approach

For developing countries and countries in transition the Regional or transnational dimension:

- To mobilize endogene reserves in economic, societal and political system
- Through endogene capacities to also help to overcome exogene restrictions by applying policy measures

(Source: Altvater)

Features of multi-country foresight approach

Provides guidelines for cooperative research programmes in the private and the public sector

Facilitates less developed countries and small countries to be aware of global and regional trends

Improves national and international collaboration and networking

Facilitates a process of joint reflection and commitment

Mobilizes regional initiatives for common awareness building and training

Key issues that may affect several countries and extract consequences for national exercises in strategic decision

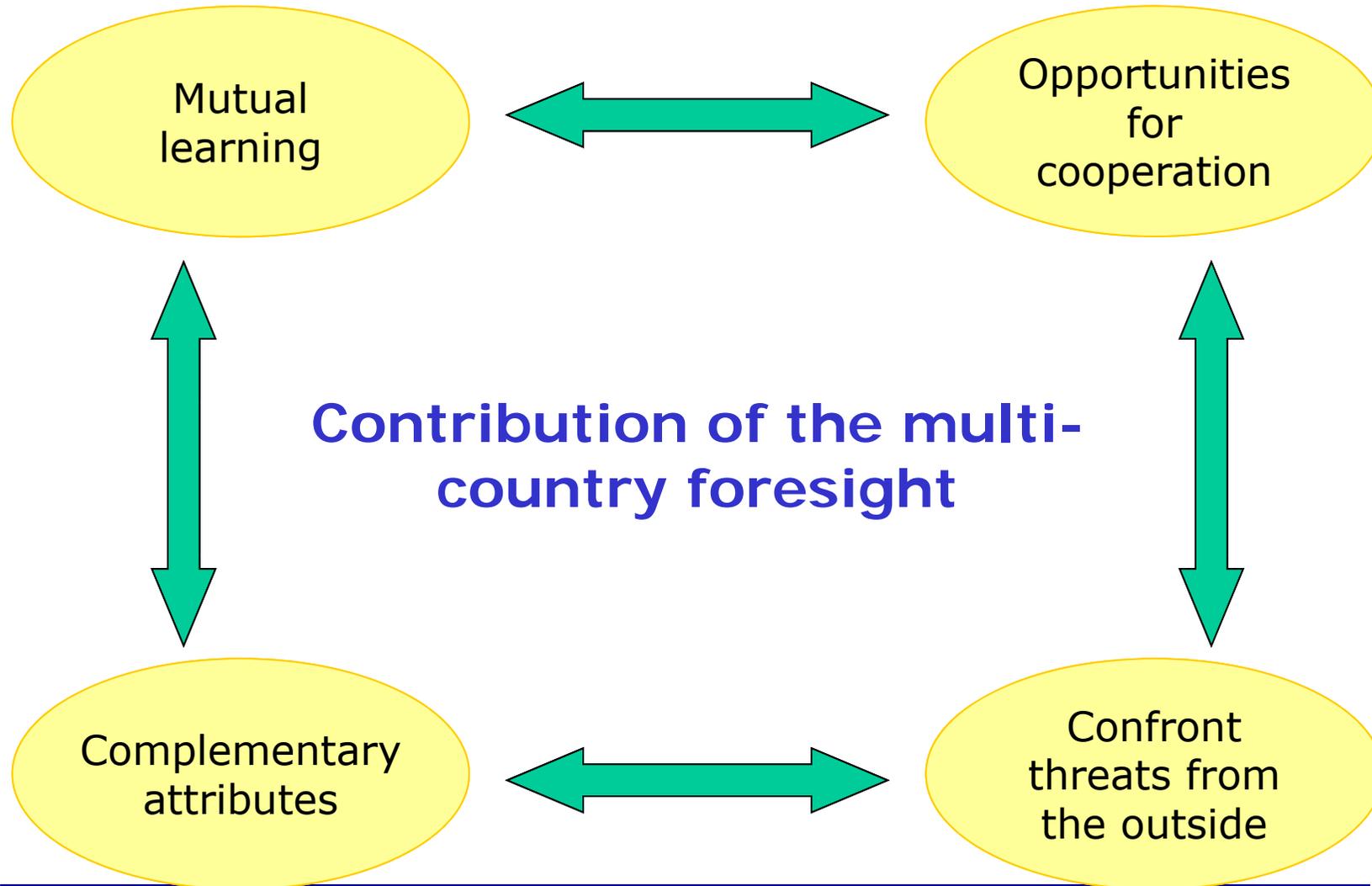
Helps to overcome potential difficulties and excessive costs

processes

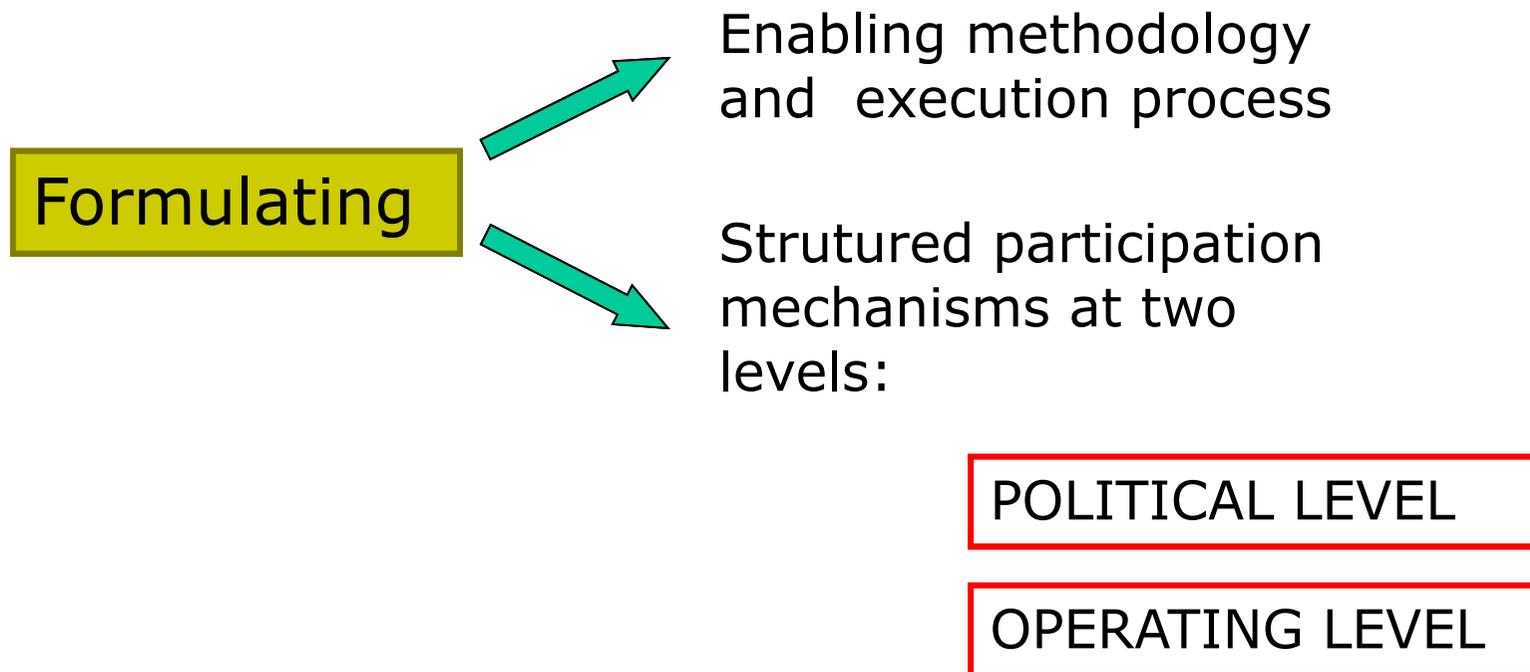
National and supra-national levels of the foresight exercise constitutes an effective mechanism of international collaboration

What are the opportunities offered by foresight at multi-country level?

- Shared vision of the future to be created
- Strengthen the position of a country group in facilitating the implementation of projects and joint infrastructures
- Compare different states of development in relation to a sector and facilitate benchmarking
- Identify synergies
- Strengthen the competitive position of a region or country group
- Expand repository of expertise



Pilars for the multi-country foresight exercise



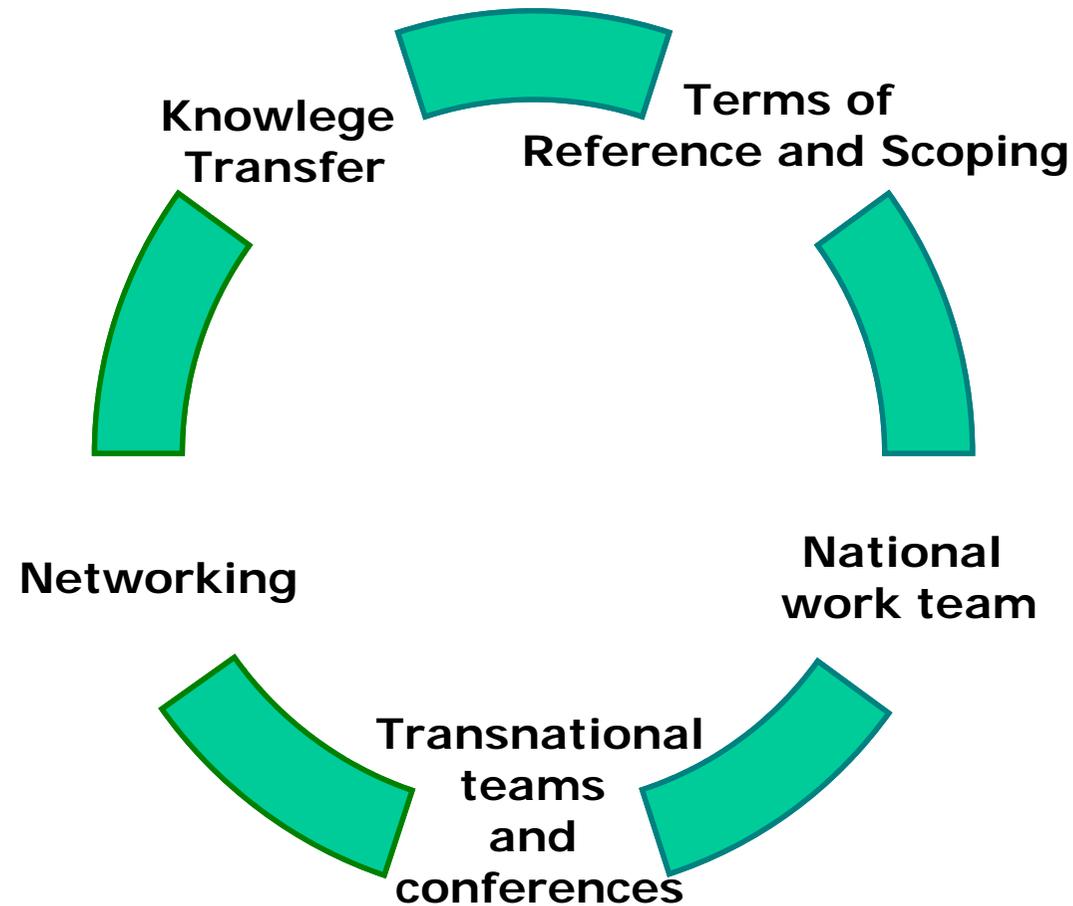
Motivation for political level multi-country participation

- 
1. Existence of common structural deficiencies
 2. Need for overreaching decision power
 3. Foresight acting in consensus building

KEY ASPECTS:

- Previous analysis of the regional situation
- Identification of decision making processes
- Mobilization of multilateral bodies

Basic considerations formulating the operation level



UNIDO experience with multi-country foresight projects

- UNIDO-OPTI cooperation

UNIDO Technology Foresight Programme

- **Starting date:** 2000
- **Aim:** Disseminate and apply foresight as a tool for industrial and technology policies and strategies in large regions.
- **Concept:** Regional/Multi-country/Transnational Dimension.

Special characteristics of the UNIDO exercises

Participation of different countries



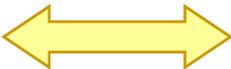
Plurinational

Multisectorial



Complex production chains

UNIDO multi-country foresight approach

Regional dimension  Geographical and political space formed by:

1. More than one country belonging a common macro-region
2. Areas extending over more than one national border
3. Complex production chains

Multi-country foresight projects

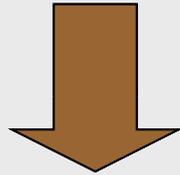
- **Future of the Fishery Industry in South American Pacific cost (2005-6)** - Chile, Colombia, Ecuador, Peru
- **Future of the Andean Products: Medicinal Plants (2006-7)** - Bolivia, Ecuador, Peru
- **Future of the Andean Products: Camelids textiles (2009-10)** – Argentina, Bolivia, Peru
- **Future of the Food Industry in 6 CEE countries (funded by EC, 2008-9)** - Bulgaria, Croatia, Czech Republic, Hungary, Romania and Slovakia



THE FUTURE OF THE FISHERY INDUSTRY South American Pacific Coast

Future of the Fishery Industry in the Pacific coast of South America

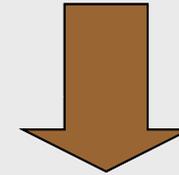
Project Objectives



Foresighting the complete production chain of the fishery industry:

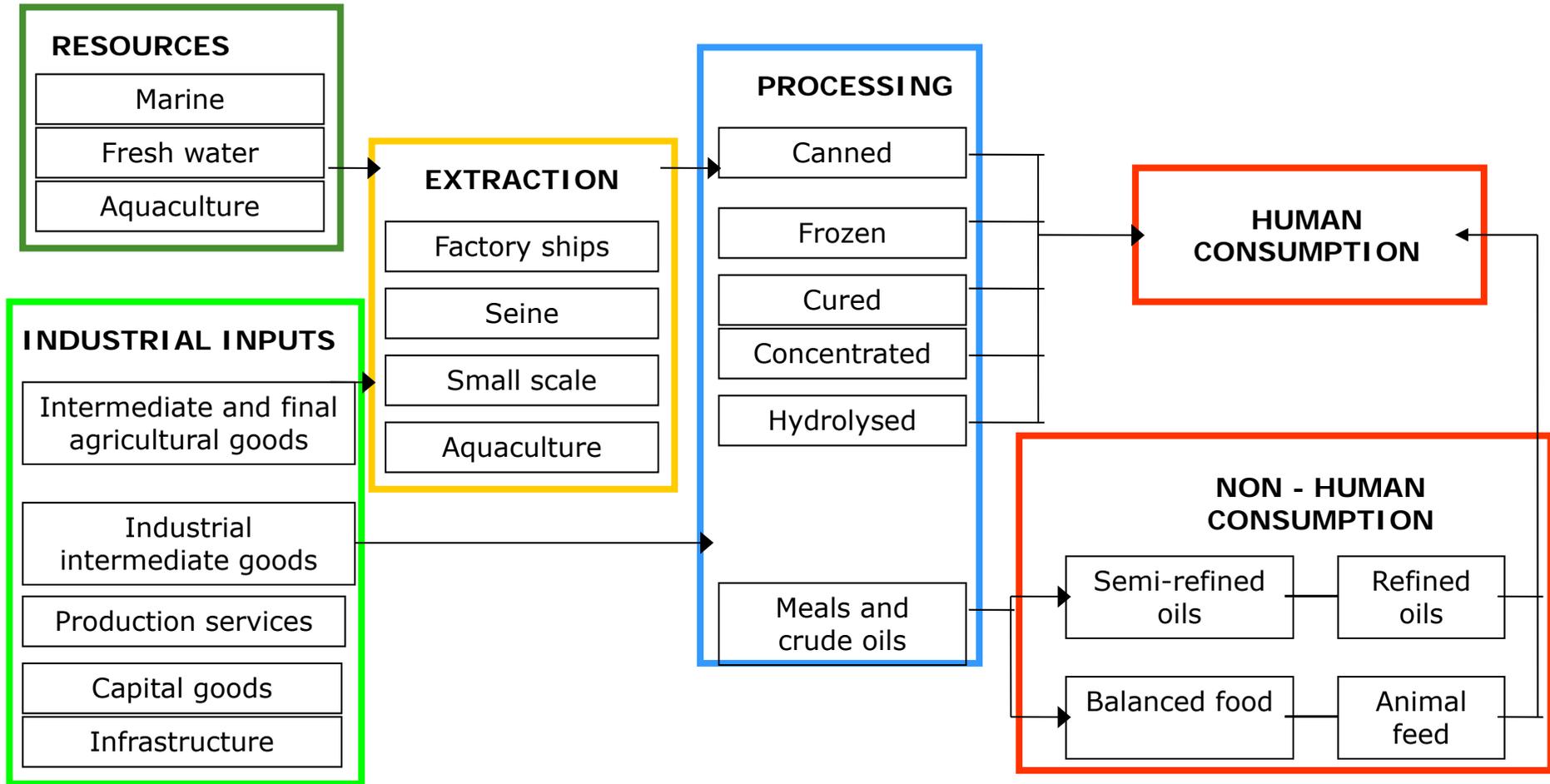
- The inputs for fishing and aquaculture activities
- Fishing
- Aquaculture
- The processing of the products of fishing and aquaculture
- Marketing
- Consumption

Participants

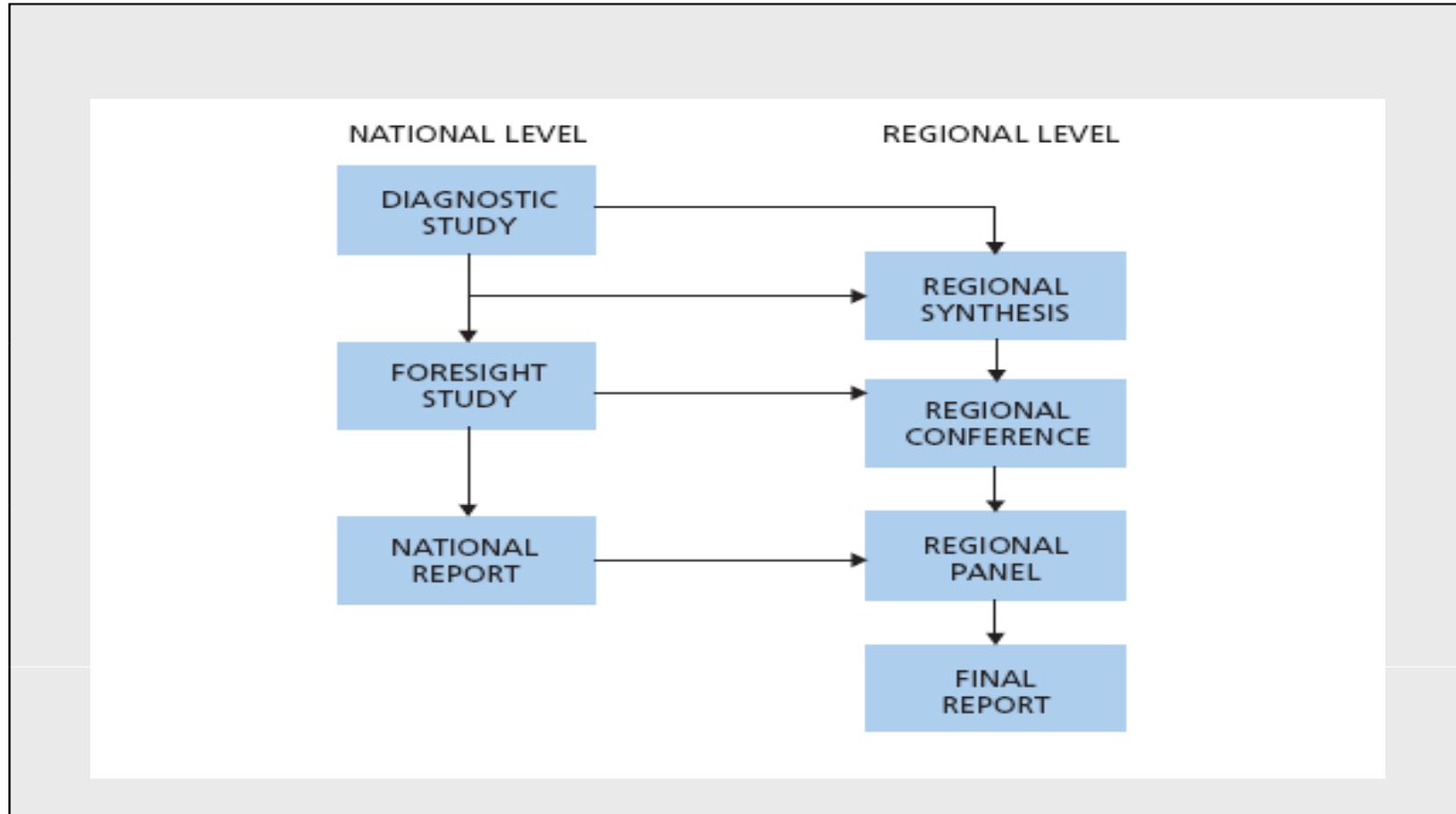


- UNIDO, as general coordinator
- A high-level political counterpart in each country
- A national coordinator in each country
- OPTI as foresight expertise
- Technical advisers

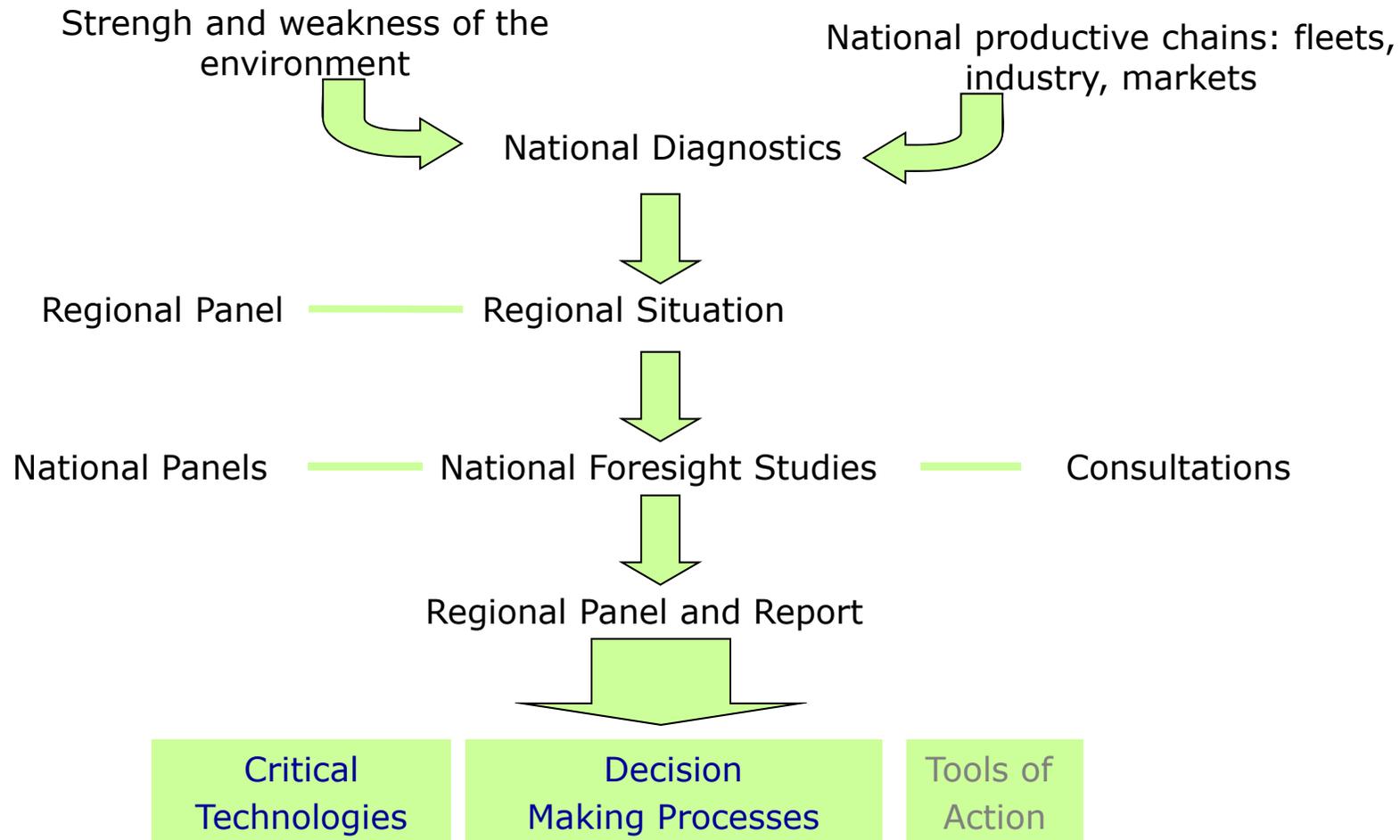
Fishery Productive Chain



Structure of the project



Work flow



The results: technology related trends – common future visions

FISHING

- Diversification of operations to include new species found in the exclusive economic zone
- Better detection of and prospecting for resources to permit a reduction in discards
- Fleet modernization which will allow improvements in techniques for handling, storage and processing on board

The results: technology related trends – common future visions

AQUACULTURE

- To improve feeding patterns for replacing totally carnivorous diets by diets including vegetable foods
 - The eradication of viral diseases
 - The production of new species
 - The availability of seeds in adequate quantity and quality
-
- The utilization of genetic research and development

The results: technology related trends – common future visions

PROCESSING INDUSTRY

- The incorporation of advanced conservation technologies
- The development and introduction on international markets of new products
- The modernization of production processes through the incorporation of new equipment and new methods

The results: technology related trends – common future visions

- Definition of a *regional policy* for strengthening the competitiveness and sustainability of the fishery production chain
- Technology up-grading and investment promotion for *re-conversion and modernization* of the industrial fishing and fish-processing vessels
- Creation of new *regional centre for capability building* on fishery industrial technologies and technology watch
- Implementation of policy and infrastructure for establishing a *quality mark of origin* for the fish products of the region, taking into account tradability and traceability



- **FUTURE OF THE ANDEAN PRODUCTS**
 - Medicinal Plants (Bolivia, Ecuador y Perú)
 - Textiles based on camelids fibers (Argentina, Bolivia y Perú)
 - Agrofood/Grains (*pipeline*)



Argentina



Bolivia



Ministerio de Producción. Perú

- **Project:** Future of textiles based on camelids fibers - A Technology Foresight Project in Argentina, Bolivia and Peru
- **Funded by:** Spanish AECID
- **Duration:** 18 months
- **Budget:** € 300,000
- **Horizon:** 10-15 years



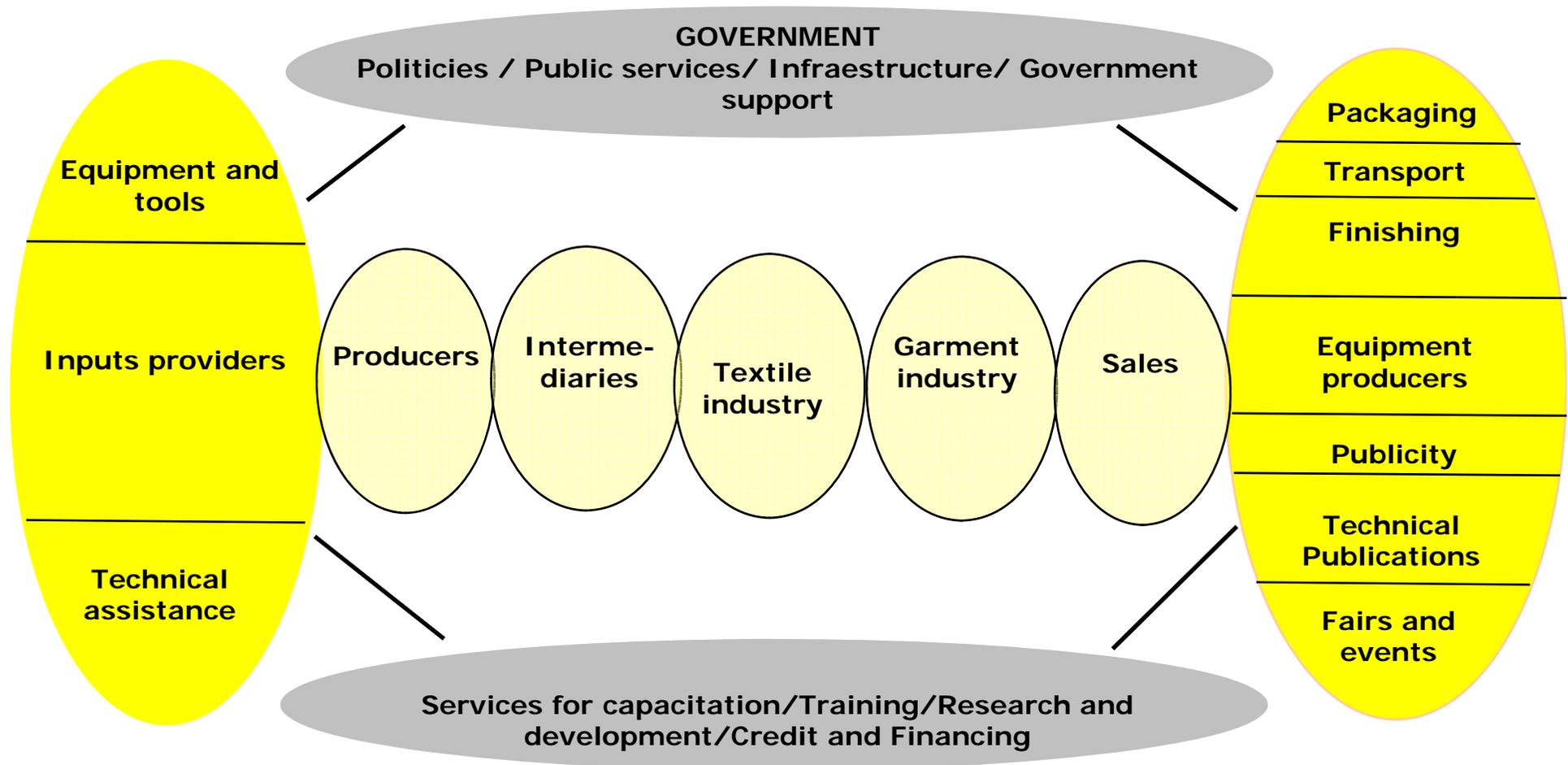
Objective of the project

Establish a vision of the future and roadmap for innovation, production and commercialization of the products elaborated from camelids fibers, which contribute to the economic and social development of the high lands in the Andean region.

Direct participants in the project



Production and value chains



Poverty reduction

**Work areas – Main
vectors**

**Contribution of the
large companies for
the development
of the sector**

**Technological
upgrading of the
handcraft sector**

Metodology

- Identification of the present situation: **National diagnostics and SWOT analysis**
- Research for determining the **critical aspects** for the development of the sector and prospective **impacts**
- Elaboration of **future visions**
- Establishing the **road maps**



- **Project:** Healthy and Safe Food for the Future - A Technology Foresight Project in Bulgaria, Croatia, the Czech Republic, Hungary, Romania and Slovakia
- **Contract no.:** 43005 FutureFood6
European Commission – 6th Framework
- **Duration:** Two years
- **Budget:** € 724.929
- **Personnel:** 111 person/month

Project goal and scope

- To assist the **total food chain** in Central and Eastern European countries to reach international standards
- To enhance **European competitiveness** as a whole by developing an industry, which is synonymous with **safety, diversity, sophistication** and products of **high quality**

Future of the Food industry in six countries of CEE – towards higher food quality and safety

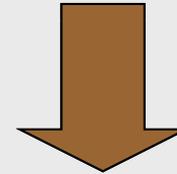
COUNTRIES: Bulgaria, Croatia, Czech Republic, Hungary, Romania and Slovakia

Project Objectives



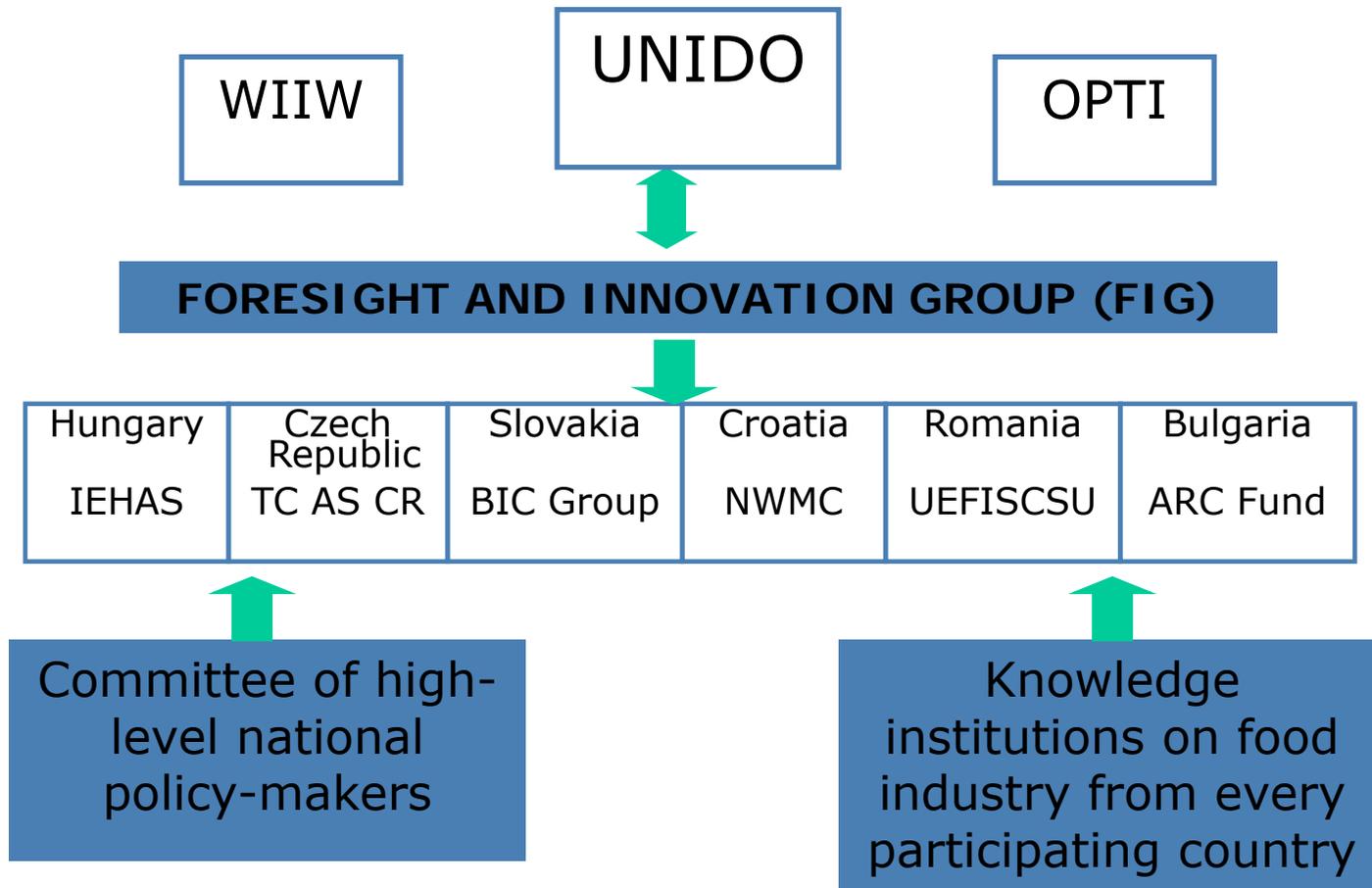
1. To promote a new decision-making culture among managers and policy-makers in order to put quality and safety issues into the centre of the total food chain management.
2. To identify future key technologies and new business models

Methodology



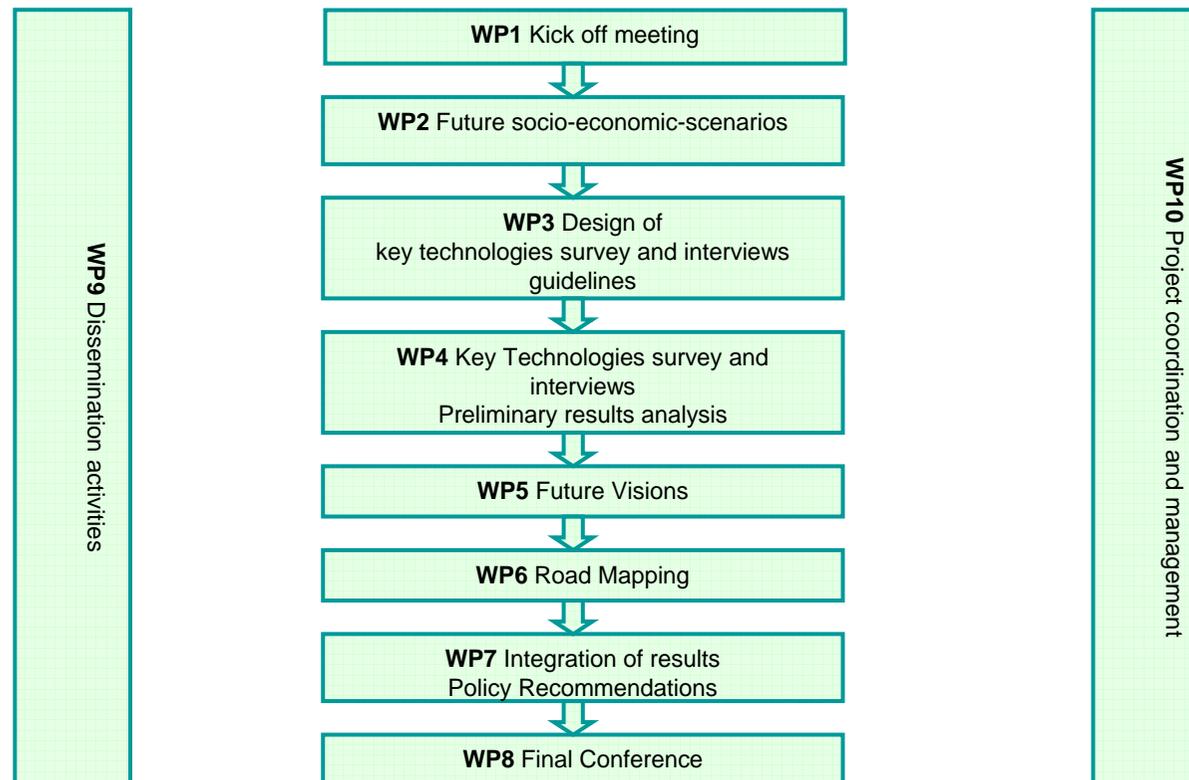
1. Mobilization of a variety of stakeholder groups
2. Socio-economic scenario building exercise
3. Interviews
4. Survey on key technologies
5. Future visions exercise
6. Technology road mapping

Project team



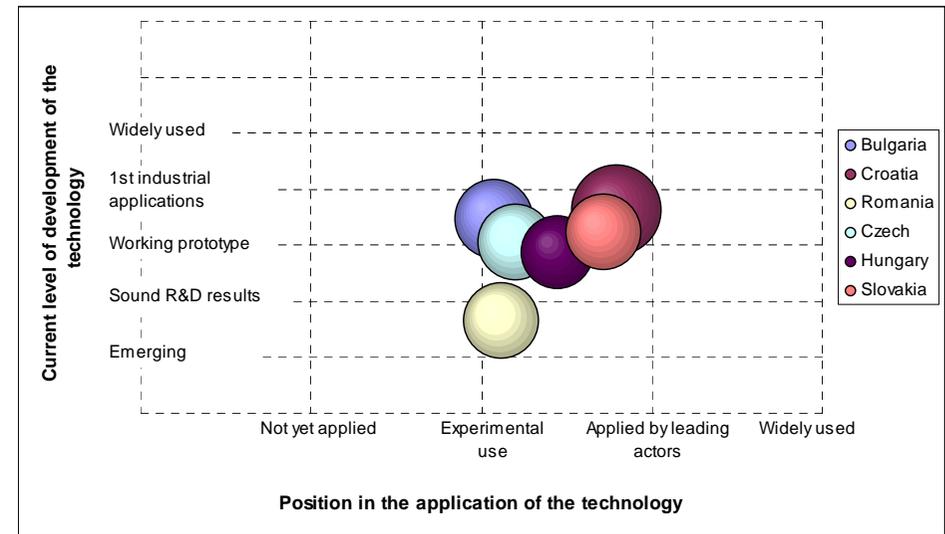
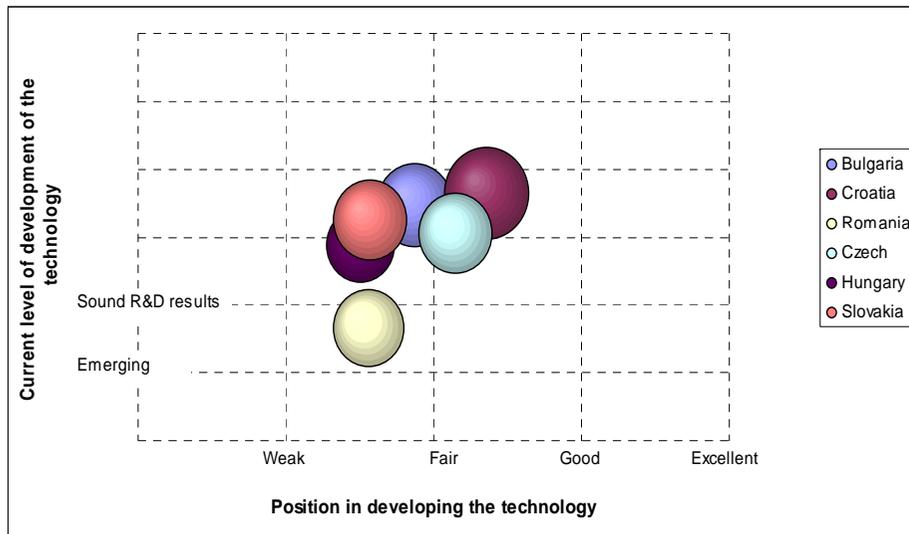
Future of the Food industry in six countries of CEE – towards higher food quality and safety

Work plan flowchart

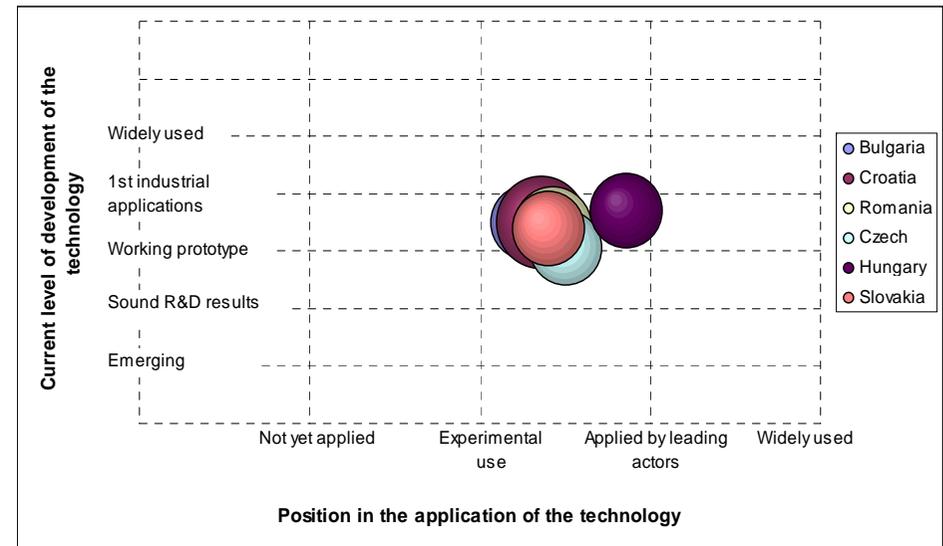
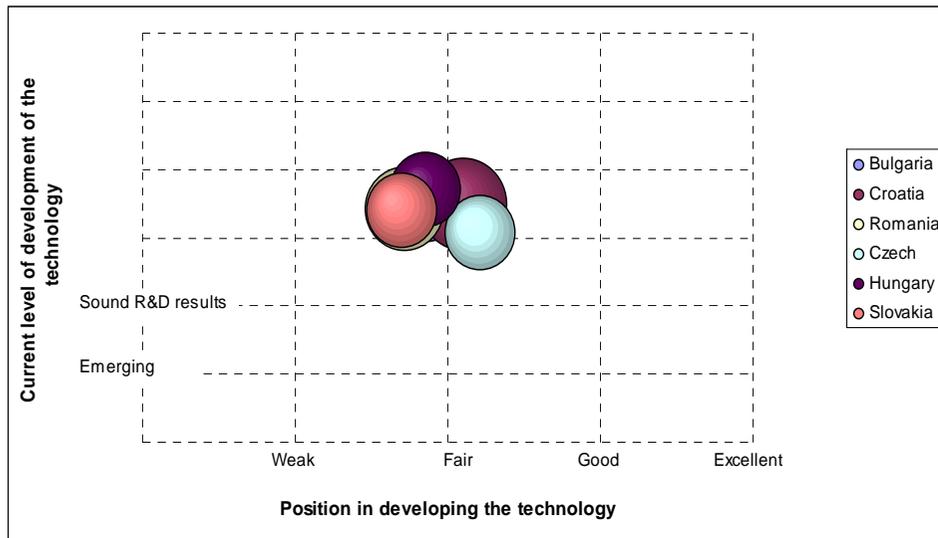


Key technologies selection

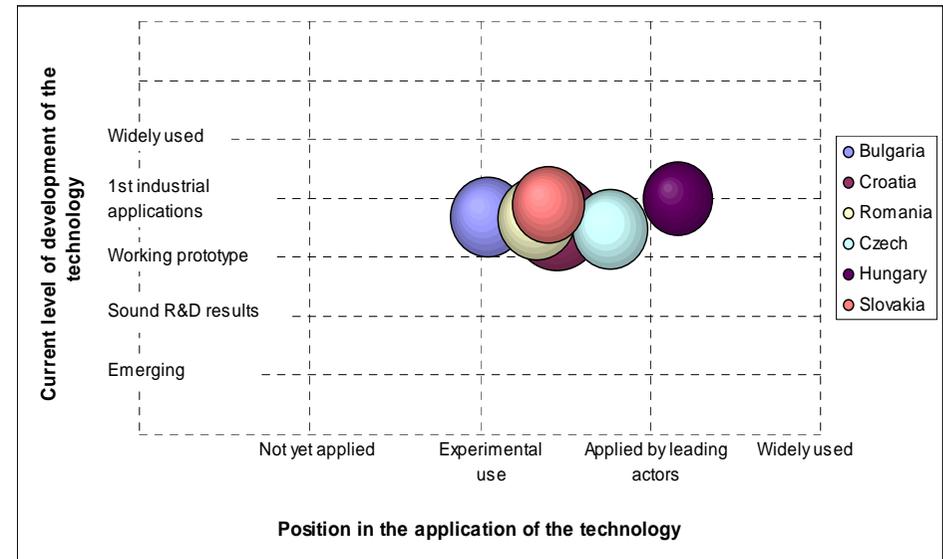
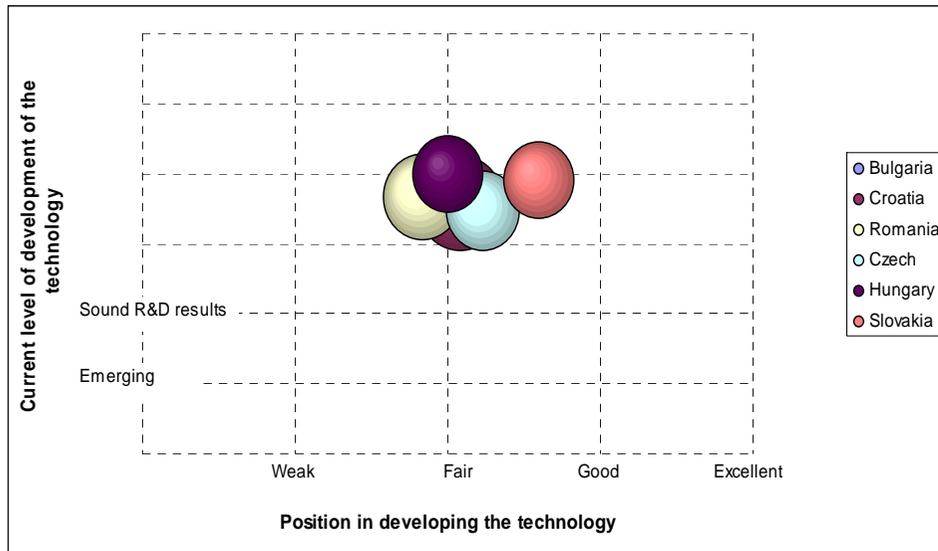
KT 2: *New in line non-destructive methods and control systems, integrated and pervasive sensor networks throughout factories for assessing the quality and safety and recording their fluctuations during processing*



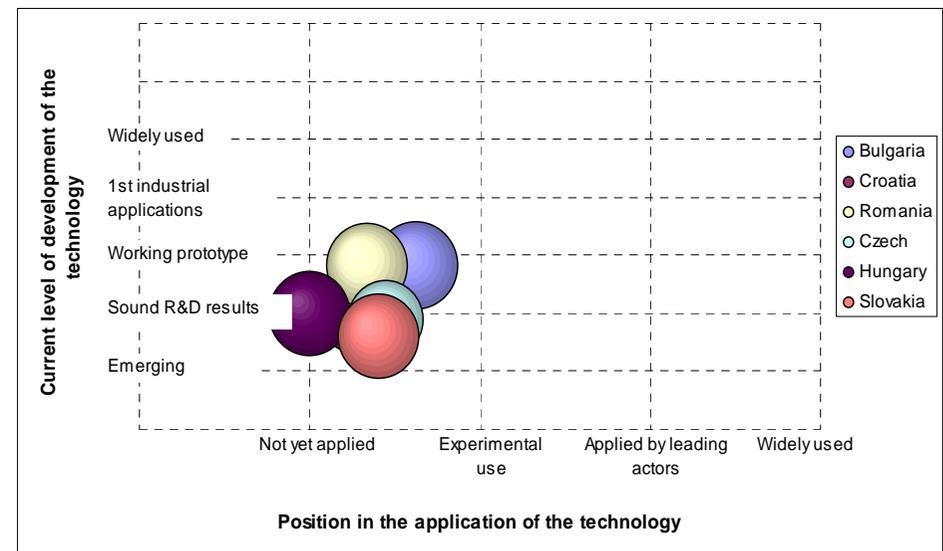
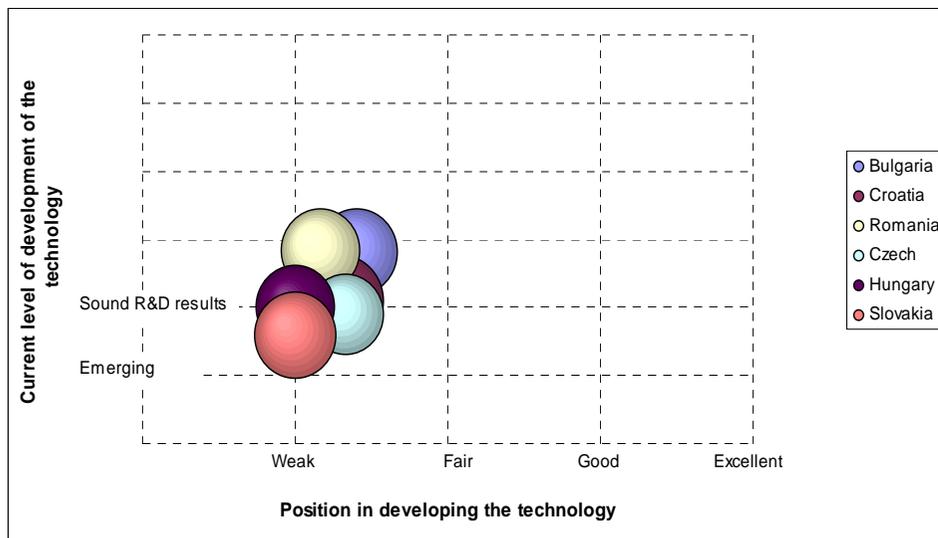
KT 6: *Active packaging* capable of changing either package permeation properties or the concentration of various volatiles and gases in the package headspace during storage, or adding small amounts of microbial, anti-oxidative or other quality improving agents via packaging material



KT 8: *Development and application of new packaging systems*
 allowing to fully utilise benefits of new food packaging technologies
 and better food packaging materials used in modern food processing



Kt 23: *Nanomaterials* to control the dosage of growth hormones in livestock in livestock



Results of FF6 roadmapping

Vision 1:

Increased availability of high-quality region-specific food products in the region

- Main measures:
 - setting the definition of specific requirements on traditional food
 - protection of traditional food by law
 - implement specific policy measures on SMEs producing traditional food
 - promote local and international labels
 - funding of research of new technologies to produce traditional food at larger scale

Results of FF6 roadmapping

Vision 2:

The region will be one of the leaders in the healthy and safe food market in Europe

- Main measures:
 - public awareness training programmes
 - incentives for quality certification
 - development of infrastructure
 - risk assessment and communication
 - set up of tax incentive system for research

Results of FF6 roadmapping

Vision 3:

Research support will be a priority in national development strategies and higher cooperation levels within the food chain will be achieved

- Main measures:
 - national support to research institutions and universities
 - education and motivation of young researchers
 - short and long term national strategies
 - promotion of networking within food chain
 - financial support to agrifood

Results of FF6 roadmapping

Vision 4:

Towards a knowledge-intensive agrifood sector

- Main measures:
 - special funding and guarantee schemes for agrifood industry (venture capital schemes)
 - special innovation services - market and technology watch (with governmental support)
 - joint technology plan and action plan on development of knowledge infrastructure for the region
 - tax incentives for businesses + R&D organizations
 - development of a common methodology for a survey of knowledge and financial needs in the region

Experience evaluation

- Needs a robust preparation and stakeholders assessment
- Precise identification of common and opposite interests
- Policy dialoge all along the foresight project is a must!
- Conducting foresight exercises in the countries' languages
- Permanent dissemination in the countries' languages
- Need of an immediate follow up exercise: the post-foresight project



Thanks

Dr.-Ing. Ricardo Seidl da Fonseca
Senior Adviser

