



Foresight thinking for Europe's forest-based sector

Within the Europe 2020 strategy the EU defines its target for a smart, sustainable and inclusive economy. The forest-based sector - along with other natural resource sectors - plays a key role in achieving a more resource efficient, competitive and greener bioeconomy. Similarly, it has a vital role in securing rural employment and providing numerous social benefits for both rural and urban populations.

There is a growing complexity of issues at stake for forests and the forest-based sector in Europe. The natural resources are under increasing pressure from for example, climate change, social and political developments. These global developments present foreseeable challenges; but also uncertainties of an entirely new scale of concern.

An increased level of flexibility and preparation are required at the decision making level, in both business and in research and development. Improved foresight is needed to enable the forest-based sector to use its potential to provide a response to grand challenges.

Forests themselves have the means to reach several of the targets set for a bio-based economy - and the forest sector, as we know it today, is in a key position to develop this. The whole concept of a sector based on forest resources is evolving: there are new materials appearing and new uses being defined for forests and the forest-based products and services.

Foresight builds up a common understanding of the challenges ahead and the capacities available to harness the future opportunities. This material explains the concept of foresight thinking and highlights a number of topics for foresight-oriented research both in and for the forest-based sector.



Key figures EU-27:

- 157 million hectares of forests i.e. 4% of global forest area (SoEF 2011)
- 25-30% contribution to global production and net-trade in forest industry products (Eurostat, 2007)
- 2.6 million jobs in forestry activities, wood processing and in pulp and paper industries (SoEF 2011)
- 15-16 million private forest owners (CEPF)

Ref.: Forest Europe, UNECE and FAO 2011. State of Europe's Forest 2011. Status and Trends in Sustainable Forest Management in Europe; Confederation of European Forest Owners (CEPF); Eurostat

Foresight: vision and concept

Our goal is to embed the foresight way of thinking in the everyday work routine within the forest-based sector; how we see the world around us, the way we read today's news and interpret the signs of developments; and most importantly, how we use today's decisions to prepare for tomorrow.

Foresight is a systematic and participatory process concerned with future intelligence gathering and medium-to-long-term vision building. It seeks to mobilise joint actions and to influence current decision-making.

Traditional "futures" orientation in the forest sector took forest growth trends, development projections and trade outlooks into account. Foresight's approach is to build the capacity to tackle futures beyond the extrapolation of present and foreseeable trends. The emphasis is on exploring several possible futures and to focus on the key

factors of change – some of them are already noticeable as emerging issues (weak signals), while some of them are unexpected, but have greatly impact on our lives (wild cards).

Looking beyond the conventional ways of thinking and the expected trends requires an open mind and a challenging of one's own thinking.

- **A benefit of foresight** is that we can prepare for better decision-making in the future: be better prepared in changing situations, in using resources more efficiently and in making a better commitment to a joint vision and to common goals.
- **A challenge of foresight** is that it does not provide ready-made answers to the possible futures nor does it resolve current conflicting interests.

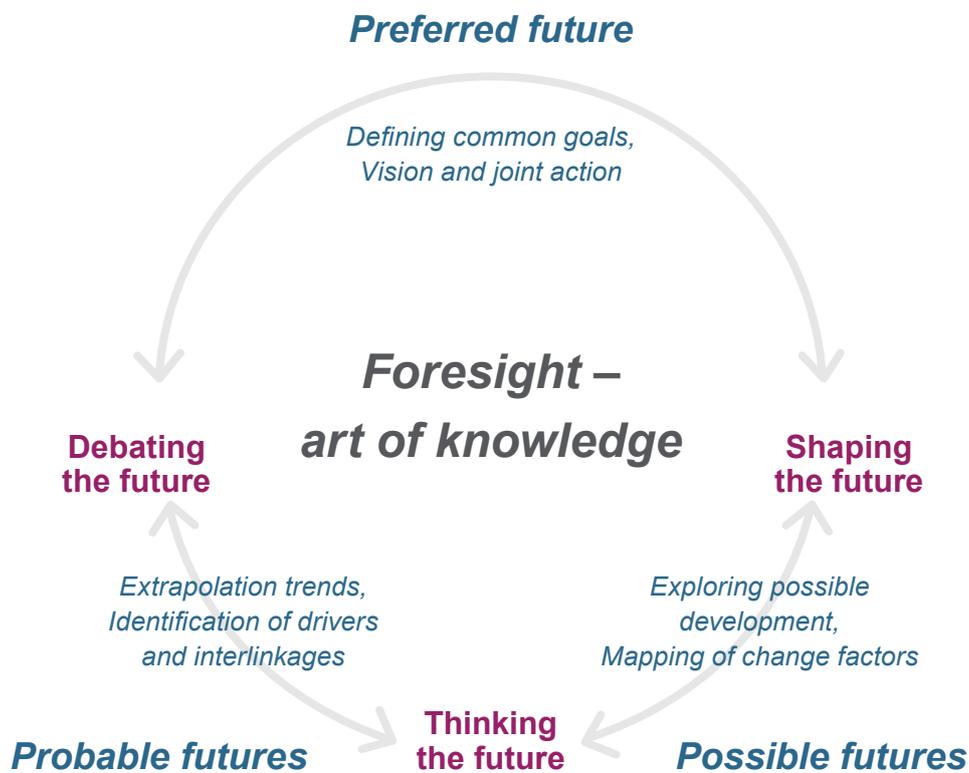


Figure 1: Foresight thinking - the art of knowledge.

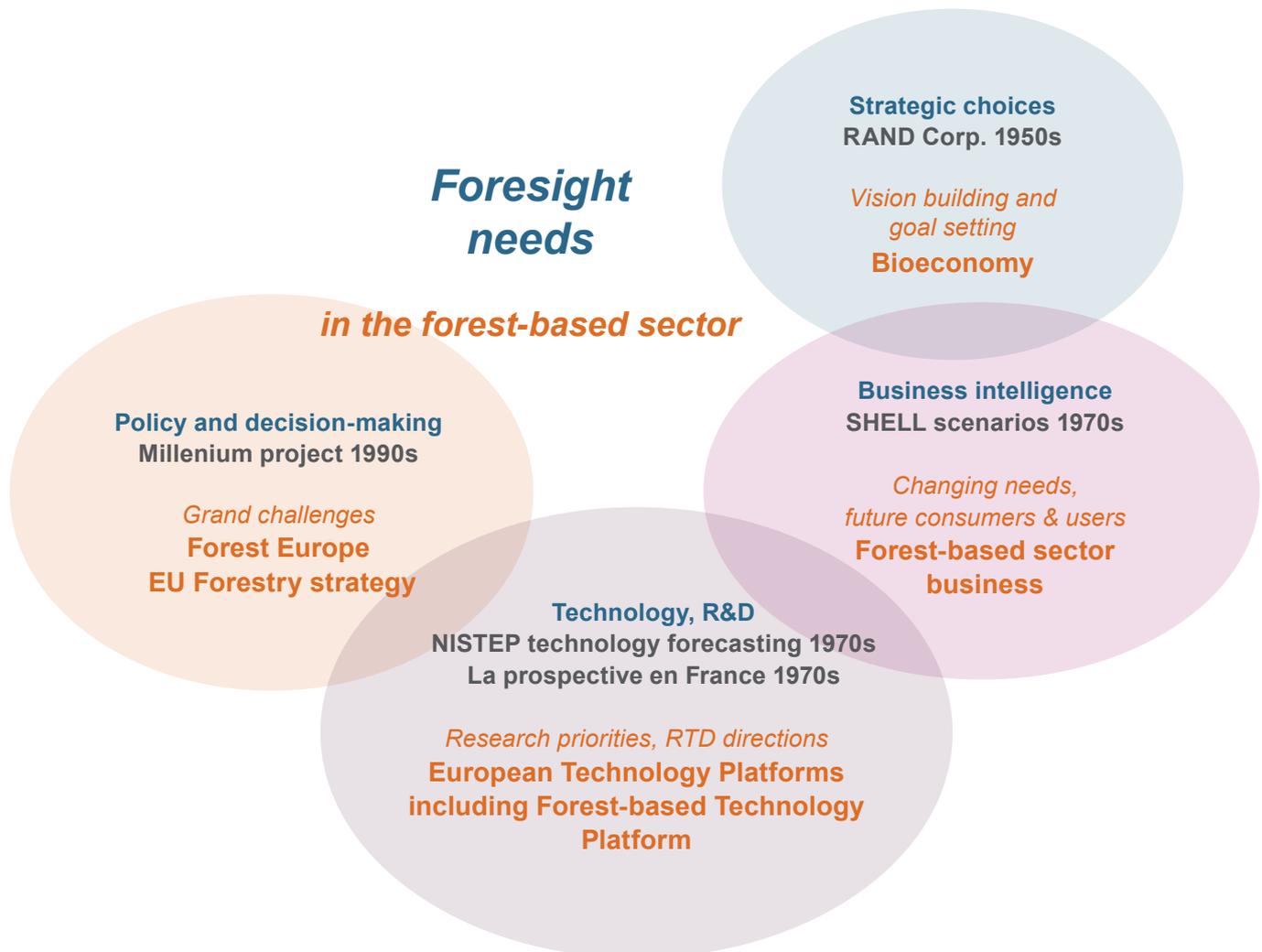


Figure 2: Use of foresight thinking in policy and decision making, in research and development and in business.

The history of “Foresight” dates back to the 1950’s and developing new tools for military needs (e.g. RAND Corporation’s scenario techniques in the USA). Soon companies began to use the methods (e.g. Shell scenarios have been made since the 1970’s) and the approach was applied to technology forecasting with Japan (NISTEP) and France (la prospective) as the forerunners since 1970’s. The work started with forecasting, but together with the emergence of futures research and the new tools and methods developed, the exercises have targeted more and more complex societal questions (e.g. the UN millennium goals by the Millennium project since 1990’s). Little by little the futures research, as well as foresight and its tools and methods, have been recognised among the research community. The forest sector can benefit from all these aspects of the foresight needs: making strategic choices to guide resources and development in the long term; improving business intelligence and responsiveness to societal changes; scanning technology development and directing R&D; using policy deliberations to improve the forest sector response to the grand challenges.

Foresight-oriented research

Consumer needs and sustainable consumption

The targets of a bio-based economy require new thinking in directing global consumption to low-carbon and low-energy solutions. For the forest-based sector this means a strengthening of the connection between the industry and consumer needs. The sector needs to understand user's changing demands and preferences and also to find suitable alliances with which to develop sustainable solutions (including totally new products and services). This approach must be twofold: cooperation throughout the forest and end-use chain (vertically); and together with companies, R&D units and financiers (horizontally).

COST Strategic Workshop Series (SWS) exercise:

“ Although demand, trends and drivers for development of markets and consumer preferences are not prioritised among information needs in the forestry research, uncertainties and complexity are expected to increase ”

Foresight investigations are needed:

- to improve the understanding of the **future demand and needs of forests and the forest-based products and services**, including the impact of forests and e.g. forest-based materials on human health and wellbeing.
- to strengthen a **solutions-based approach** within the sector; for example, intersectoral studies which combine the supply of forest-based products and services with a holistic approach to the end-user solutions required in the future, such as in building and living, in transport and mobility, in food and nutrition, as well as in information and communication.
- to improve the **analysis of alternative strategies and policy targets** – for example the impact of decisions directing demand in Europe and their effect on land-use changes at a global level; or the impact of global price changes in energy, food and other biomass on the demand for forest-based products and services and the preconditions for forestry in Europe.

Enhancing sustainable production

The forest-based industry invests in both resource and energy efficient production methods. The development of advanced technologies is supported for example, in the biorefineries sector and investigations are underway on new materials and substances. These investigations along with risk assessments and a commitment to raising awareness, ensure the adoption of safe and sustainable technologies. Innovation requires new thinking and challenging existing knowledge in order to widen the scope of futures horizon.

COST SWS exercise:

“ Strong belief in technology solutions ”

Foresight investigations are needed:

- to improve the understanding of technology development and **horizon scanning of emerging technologies**, including identification of “fringe areas” which may create potential spin off innovations for the forest-based sector.
- to strengthen new thinking beyond forest sector borderlines and existing structures by creating **experimental environments for networking and new “business ecosystems”** where companies, service providers, research and development as well as e.g. distribution and end-users can cooperate.

Management of natural resources

The forest sector has a long tradition in wood supply investigations, including forest modeling and growth trends. Furthermore, work continues at the European level on defining future information needs and for example, ensuring long-term monitoring and data on forests and the changes they are facing. A definition of European-level long-term goals requires building up trust and developing a common understanding of a European added value in forests and forestry.

COST SWS exercise:

“ There are several development pathways to natural resources governance... ”

Foresight investigations are needed:

- to support **innovation in forest management and planning** with an evidence base and a vision building process. For example, on how multiple interests are accommodated in **defining sustainable use** of natural resources; how the **trade-offs** between different demands for forests, their products and services are addressed; and how the **commitment** to sustainable forest management, to the mitigation of and adaptation to climate change, as well as to natural and man-made hazards is built up.
- to improve **readiness** through early alarm systems, information tools and decision-support mechanisms, including quantitative and qualitative data on, among others, emerging issues; profitability of forestry in Europe; forest owners' preferences; and public perceptions.

The sector in a societal perspective

Foresight is a means of increasing both the awareness and understanding of the forest sector's role in regard to grand challenges. Moreover, foresight is also a means of opening the sector's radar to detecting signals of change and to collecting viewpoints on its development, as well as fostering deliberations about forests and use of forest resources.

COST SWS exercise:

“ The role of forests is expected to become increasingly important: Forests' contribution to public health and human wellbeing is valued as a part of national wealth ”



Foresight investigations are needed:

- to develop **foresight tools and methods** which would strengthen socio-economic aspects of the forest sector investigations; and improve approaches to uncertainties and possible changes in the existing forest-sector scenarios and impact assessment tools.
- to improve the understanding and commitment to the challenges ahead, by placing the **investigation of Europe in a global context** and introducing a more far-reaching view towards global developments and the possible forest-based solutions available with regard to, for example, energy, water, food security, biodiversity and land use.
- to improve coordination of forest research and the forest-based sector response to societal challenges; to define **research priorities** and focus on pan-European level priorities for investigations, including a better utilisation of expertise in different disciplines.



COST Strategic Workshop Series on “Foresight on Future Demand for Forest-based Products and Services”

This material is based on the COST Strategic Workshop Series on “Foresight on Future Demand for Forest-based Products and Services” which took place in 2010 and 2011. The exercise had two aims: (1) produce futures information garnered from expert workshops and internet surveys; and (2) connect foresight experts and practitioners in the forest sector and other relevant fields to share foresight methods and tools.

The exercise is a starting point for introducing foresight thinking, collecting and synthesising of futures information. The actual process of collaborative learning is important; although we cannot predict the future, we can investigate alternative development pathways in a structured manner and improve our ability to respond to the different futures which may evolve.



Next steps and follow-up

Foresight needs and priorities were also discussed within the framework of the workshop series. There is not only a need for a European-wide foresight exercise for the whole forest-based sector, but also for several foresight activities from the various stakeholders – in governance of natural resources, in research and development as well as in the business sector.

The COST exercise determines three lines of action to strengthen and develop the foresight know-how:

- 1) **COST Action** to share expertise and know-how of foresight exercises for the forest sector and other relevant sectors to be carried out in several countries.
- 2) **Research project(s)** to deepen understanding of the role of forests in bioeconomy; to develop foresight tools and methods in response to current challenges facing the forest-based sector in Europe; and to create connections between forest sector investigations, the foresight community and futures research sector.
- 3) **Policy related foresight exercise(s)** to provide tools for vision building and a definition of common goals.

These foresight activities are developed together with the network of experts created during the COST exercise. Furthermore, topic-specific foresight studies and activities will be promoted within the foresight framework.

Comparison of different foresight exercises relevant to the forest-based sector

	Probable futures	Preferred future	Preferred (possible) future(s)	
	Outlooks	Research directions, Roadmaps, Strategic Research Agendas	Structures for a continuous/ regular foresight	Foresight exercises to support strategy formation, policy and decision making
	E.g. FAO Forest Sector Outlooks, OECD-FAO Agricultural Outlook (annual updates), UNEP World Environment Outlook GEO1-4, IEA World Energy Outlook (annual)	E.g. European Technology Platform research agendas, roadmaps of industry federations, research directions of R&D units	E.g. NISTEP technology Delphi rounds in Japan (since 1970's), Shell Scenarios (since 1970's)	E.g. SCENAR 1 and 2 (support of CAP); Waldzukünfte2100 in Germany (2008); Future Forests programme in Sweden (ongoing)
	Sectoral investigations on developments and trends, based on work of expert groups. Focus on development trends, scenarios and policy recommendations	Sectoral, involving smaller or wider groups of key stakeholders, usually incl. business, R&D, administration/ funding agencies. Focus on vision for development of the sector, more efficient use of resources and prioritization of research needs	Structure for a continuous (regular) foresight, synthesizing of existing data, evidence base for better decisions. Focus on measures needed to ensure a certain goal, better resource allocation, coordination of action	Several means e.g. targeted expert studies on development prospects, workshops, Delphi surveys involving experts and practitioners. Focus on decision support and recommendations, but also e.g. impact analysis of alternative decisions and feeding in alternative viewpoints
Example relevant to the forest-based sector	European Forest Sector Outlook Study EFSOS	Forest-based sector Technology Platform FTP Vision 2030 and SRA	Standing Committee on Agricultural Research SCAR Foresight Initiative	Future Forum of Forests foresight initiative in Finland
(yr.)	EFSOS I in 2005, EFSOS II forthcoming in 2011 (Timber trade outlooks since 1953)	2005 to 2006 (revision of the Vision and SRA forthcoming in 2011)	2006...SCAR Foresight 3 report in 2011	2003 to 2008 (and a follow-up project Forest Foresight Unit at UEF 2008-2011)
Scope	Trends of the forest products and services and projections for the sector in Europe to 2020 and 2030 in EFSOS II	Roadmap for forest based sector in Europe towards 2030	Scenarios for agricultural sector and related research needs in Europe to 2015, 2020 and 2030	Stimuli for foreseeing scenarios in the forest-based livelihoods in Finland towards 2020
Process that foresight is foremost expected to contribute	Forest policy forums	Corporate, national and European innovation systems	EU agricultural research directions	National Forest Programme 2015 update in Finland (and innovation, entrepreneurship policies)
Initiator / coordination	UNECE/FAO	Industry federations CEI-Bois, CEPF, CEPI	SCAR (EC DG research and national governments)	Finnish Ministry of Agriculture and Forestry / Forest Council (and regional council and agencies)
Participants	UNECE Timber Committee/FAO European Forestry Commission; team of experts, permanent group for outlook studies, national correspondents (research and administration)	Industries, forest sector organizations, research and science, administration; (in 2005 to 2006 app. 1000 forest-based sector representatives in some 20 European countries)	SCAR + EC DG Research Expert group of agricultural research and foresight experts, followed with wider audience workshops	University of Joensuu, Ministry of Agriculture and Forestry, Ministry of Trade and Industry, and wide stakeholder participation of several sectors in and related to forest cluster
Activities	Statistical analyses, trend extrapolation, scenario modelling and simulation	Collection and synthesis of research themes, networks (incl. national support groups), seminars, national research agendas	Expert group reports on driving forces and possible scenarios, synthesis report, workshops	Variety of foresight tools incl. scenario techniques, Delphi survey, analysis of weak signals, trend extrapolation, expert opinions, systems analysis
Results (outcomes)	EFSOS I 1960-2005-2020 and EFSOS II reports: trends of forest products, scenarios, recommendations	European Strategic Research Agenda for forest based sector and communication for launching it (+NRAs); financing for research	Expert reports and synthesis report, workshop, conference contributing to the EU policy forum	Several reports, studies, workshops, seminars and conferences

Contact details

The COST strategic workshop series was coordinated in cooperation between the European Forest Institute EFI and the COST Domain Committee for Forests, their Products and Services (FPS).

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