

Forest Futures 2100. Experiences with Foresight in Forestry

What is the long-term future of forests in Central Europe? Will the forestry sector and related industries prosper or suffer decline? What are possible impacts of climate change? Will global warming, droughts and storm damages, outbreaks of pests and other disasters produce large-scale devastation? And what about the growing need to use forests as carbon sink or to utilize wood as energy resource? Will the country be covered by large energy wood plantations in 2100? Will gigantic harvesters roam the landscape? Or will we leave most forests to fate? Will we perhaps see “old German Fairytale Forests” for Asian tourists? Adventure resorts for paying sportsmen? “No go areas” in private ownership? Or will most forests be owned by global agro-forest conglomerates? And, last not least, what are the implications for today’s forest policy making?

Although forestry itself is the field where the concept of sustainability has been invented more than 200 years ago, the future of forests is insufficiently discussed. Clear-cut images are lacking, debates on the national and the regional levels rarely overcome the mental frontlines of the past, and most actors seem to assume that present strategies can be extended into the future with minor adjustments.

The Project

In this situation, the German Ministry for Education and Science commissioned in 2006 a project consortium to identify the main challenges for the forest sector, to develop scenarios with time horizons 2020 – 2050 – 2100, and to draw policy implications. The name of the project reflected its broad scope: “Futures and Visions Forest 2100: Long-term perspectives of forest and land use – development dynamics, normative approaches and governance”, and the composition of the consortium was designed to cover all necessary aspects:

INFIS – Institut für internationale Sozialforschung e.V., Berlin and Freiburg
IFP – Institut für Forst- und Umweltpolitik, Freiburg
IÖW – Institut für ökologische Wirtschaftsforschung gGmbH, Berlin
IZT – Institut für Zukunftsstudien und Technologiebewertung gGmbH, Berlin
Karl Moser Consulting, Aichach
Lehrstuhl für Umweltethik, Philosophische Fakultät der Universität Greifswald
Z_punkt GmbH The Foresight Company, Köln, Berlin, Karlsruhe

The project was aimed to support the societal and political debate about the future use of forests with a focus on the national and regional dimensions. Its goals were

- to foster awareness for the necessity of long-term thinking and for the opportunities of actively shaping the future of forests,
- to increase understanding of the key factors impacting the future of forest and land use and of their interactions,

- to identify lines of actions and to provide orientation for political, societal and economic actors.

Scenario Construction

Addressing the issue of long-term development of forests implies thinking in alternatives, implies constructing scenarios. A plethora of factors across all STEEP sectors has to be taken into account: societal factors and possible technological developments, economic and environmental factors and political ones. After several workshops and a cross-impact analysis, the project consortium identified 30 key factors: 16 from the forest sector itself and 14 from its external environment. The external factors included demographic ageing and shrinking, climate change, innovations in materials, economic growth, development of several industries (incl. tourism), policy making in the fields of energy, environment, regional development etc., the sectoral factors included e. g. forest ownership, exploitation of forest biomass (“timber-fuel rivalry”), cultivation strategies, composition of forests, new technologies applied in the forest sector, the structure of the wood-processing industry etc. Each of these factors is uncertain in the long run, each has several possible future projections.

As usual in scenario construction, the number of possible combinations of future projections was tremendous, therefore the scenario software SCENLAB was used. To sharpen the focus on the forest sector and its actors, extreme projections for external factors (discontinuities like a sudden rise of the global temperature or a breakdown of the thermohaline circulation in the North Atlantic) were temporarily excluded. These “wild card projections” were later used to test the robustness of the scenarios and of the policy implications.

The Scenarios

Software-based consistency analysis and discussions with experts from the sector resulted in three clear-cut developmental pathways till 2100, which are distinguished by different assumptions about the strategies of main actors:

- Pathway 1 – Carry on: The State as Facilitator
Political actors follow a reactive, piecemeal strategy. Their main line of action is to balance the interests of all stakeholders within the forest sector.
- Pathway 2 – In the Sign of Sustainability: The State as Regulator
Political actors take a proactive strategy, aimed at the implementation of sustainability with strong regulatory means.
- Pathway 3 – Confidence in the Market Forces: The Liberal State
Political actors are trusting in the efficiency of private enterprise and its beneficial impact on society.

Developing from the present to the three main time horizons 2020, 2050, 2100, these scenarios show quite different interplays of actors and external factors. In each scenario conflicts between the main stakeholders (within the forest sector and from society at large) spring up and are reinforced by challenges like globalized timber markets or climate-induced disasters. Sustainability as a concept has a place in each of the scenarios, but the concept is interpreted and focussed in quite different ways.

The first scenario “Carry On” is characterized by rather scarce governmental forestry budgets and a slow decline of forest administration. Local and national economic actors in the forest sectors are forced to cooperate, in particular due to the increasing influence of

international investors. Regulation is weak and inconsistent in this scenario. Each German federal state has its specific forestry laws, which results in a “regulatory patchwork”. This corresponds to a patchwork or different types of forests (functional segregation). Some private owners grow “energy wood” in short rotation plantations, others are specialized providers of timber. Some of the state-owned forests are cultivated to sustain biodiversity in face of climate change. Part of the woodlands has been devastated by storms, pests, fires. Although the public in this scenario generally loses touch with nature, outcries about the “state of German forests” are not uncommon. Political actors are frequently forced to manoeuvre between the interests of the diverse groups of stakeholders.

The second scenario “In the Sign of Sustainability” is characterized by strong and consistent governmental strategies within the framework of a “National Sustainability Plan”. Forest owners are forced to cultivate their forests in a sustainable way, taking into account climate change – even if this implies income losses over many years. Some compensation is given, in particular the ecological functions of the forests are partly paid for. The forest sector as a whole is integrated into CO₂ trading schemes. Wood is seen as one of the most important renewable resources. Nevertheless restructuring is a painful process with many conflicts. Regional economic networking is supported in this scenario – with beneficial impacts on employment and regional identities. On the whole, forests in 2100 are in a better state than in scenario 1.

The third scenario “Confidence in the Market Forces” describes a pathway driven by economic forces. But even in this scenario, deregulation does not imply “anything goes”. Sustainability is still a guiding principle, but adapted as “dynamic sustainability”, which allows temporary high wood harvests if some kind of compensation is given. Most functions of forests are monetarized in this scenario. Legal restrictions in land use (in particular the legal distinction of agricultural space and woodland) are suspended. Most state forests are privatized. Large agro-forest conglomerates, sometimes in the form of regional oligopolies, dominate. They regard forests as economic asset, which has to be used in the most efficient and profitable way. Segregation goes to extremes in this scenario: plantations and short rotation forests at the one hand, “entertainment forests” and “ecological service woods” at the other. Forest space may be largest in this scenario – at the expense of agricultural space.

Since these three scenarios are based on continuity assumptions with respect to the external factors, possible impacts of discontinuities had to be analysed. The “wild cards” or “disruptions” regarded included a long lasting economic depression, a sharp rich-poor divide, extreme climate events, new materials that replace timber, a loss of public interest in forests etc. Generally, scenario 1 proved rather instable, whereas scenarios 2 and 3 displayed more intrinsic robustness.

A closer analysis of the scenarios shows that there is no “one and best” policy approach in the forestry sector. Strategies and instruments have to be adapted to regional and local conditions and the interests of regional and local stakeholders. Therefore, the scenarios were discussed during three conferences with regional stakeholders, national experts and young people.

The Regional Dimension

Woodlands differ. They differ on a regional, even on a local scale, depending on the natural conditions at the place: geography, composition of the soil, weather conditions, ground water and much more. Due to global warming, precipitation patterns, temperature regimes, frequency of storms etc. will change. Since these factors differ on a local scale too, there is only limited use in working with broad average predictions. Unfortunately, there is still a lack of local climate change predictions.

Natural conditions form only part of regional peculiarities. One has to consider socio-economic and cultural factors alike: availability of workforce, industry structure, traditions in forest use, differences in ownership etc. For these reasons, two prototype regions were selected for the project:

- The region of the federal state of Brandenburg, a plain country, characterized by low population density, predominance of state ownership of large forests with pine tree monocultures for timber production
- The region of the Black Forest (part of the federal state of Baden-Württemberg), a mountain area with much small-scale private forests of quite diverse composition and much recreational value

The aim was not to “re-write” the scenarios for the two regions, but to identify points in which they have to be adapted – and last not least to disseminate the scenarios and to increase regional actors’ awareness for long-term challenges.

In September 2008, a regional scenario conference was conducted at Eberswalde near Berlin. Besides 15 members of the project team, 40 experts from various forest administrations, research institutes, environmental agencies, from the wood-processing industry, from several NGOs, from the Association of Forest Peasants, and from the local and regional administration participated. The participants were invited to give their comments on the scenarios and to discuss regional peculiarities. The debate was structured around specific regional questions for each scenario.

Scenario 1 “Carry on”: The scenario assumes a rather strong segregation of forests with primarily economic use (most large forests in Brandenburg), with primarily ecological functions (nature reserves), and with mainly recreational use (e. g. near Berlin). Do regional stakeholders see this as an opportunity or either as a problem? And what about private forest owners: Can they be encouraged to exploit more than the present 40% of their wood resources? Would this be in line with ecological targets? – The participants regarded the scenario as “business as usual”, but commented that in the long run it would not be possible to successfully manoeuvre between all the differing interests.

Scenario 2 “In the Sign of Sustainability”: The scenario assumes rather strong amendments to existing laws in the forest sector aimed at long-term sustainability. Pine forests (which have a share of about 75% in Brandenburg) are not really sustainable and will heavily suffer from climate change. What is a realistic way to achieve “climate-plastic” forests in Brandenburg? And what tree species composition should be targeted? Furthermore, the scenario presupposes strong regional economies. But Brandenburg is subject to rapid population shrinking – with the exception of the “growth belt” around Berlin. How does this combine with strong regional economies? – The participants emphasized that in this scenario forest administrations have to fulfil more tasks than ever, whereas in reality budgets and staff are shrinking.

Scenario 3 “Confidence in the Market Forces”: The scenario builds on increased global interdependencies in the forest sector. Is the wood-processing industry in Brandenburg “armed” for increased global competition? Could it perhaps benefit from its close relation to Eastern Europe? What alliances are necessary? What kind of deregulation could be helpful for Brandenburg’s forest sector? Is the industry prepared to use the technological innovations depicted in the scenario? Could high-tech foster sustainability? Which new business models make sense in a highly competitive forestry sector?

Conclusion

Scenarios are a way to stimulate debate and to support the identification of aims and goals, means and ends. For most participants, but also for the project team, thinking in a 100 year time horizon was challenging, even for a system with rather long intrinsic time scales.

Visualisation helped much: Each scenario was represented by a pseudo-geographical map, displaying woodland areas with different tree species, different ownerships and different forms of cultivation. Cards with key events on the way to 2100 supplemented the maps. This kind of visualisation stimulated discussion much, it is however to a certain degree suggestive, and there is a risk that the scenario is reduced to the factors which are “on the map”.

With the regional conference, the project team succeeded to “translate” national scenarios to the regional level. Guided by questions with regional content, the stakeholders from the region contributed their perspectives, their interests, and their issues. Partially they draw conclusions for their work. But more importantly, networking beyond everyday tasks was stimulated.

Key factor for the regional dissemination conference was not so much a good preparation by the project team, but support by regional actors from research, administration and the forest sector. A second regional conference, planned for the Black Forest Region could not take place due to differences among the regional stakeholders about the ownership of the process. This negative experience emphasises the relevance of “diplomacy” in foresight processes.

The results of the Brandenburg conference were used to amend the scenarios, and they were integrated into a policy paper. This paper with conclusions and recommendations addresses not only political, but also economic and societal actors. Naturally, the foresight process did not provide any ready-made solutions, but it encourages the stakeholders to take the long view and it stimulates strategic debate about the future of forests.