REVIEW PAPERS

Sustainable Forestry in Latvia: Building Bridges between Forest Science, Policy and Practice

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Abstract

In this paper we suggest and critically discuss new ways in which the gap between forest science, policy making and practice can be spanned – using the lessons from a just completed four-year Latvian–Danish project as a case for working towards better transfer of scientifically based knowledge into forestry. Forest covers nearly 50% of the Latvian total land area. Forests in Latvia contribute increasingly to the national economy, play an important amenity role and are internationally recognised as harbouring a wide array of European threatened plant and animal species, securing a high level of biodiversity. At the same time, forest legislation is in place and the forest science has been well-established in Latvia. Thus, the resource is in place, is more or less intact and, seemingly well protected in a legal sense, and has been the subject of scientific study. However, there is a severe lack of interaction between forest science and practice and policy making. In the paper, the current situation in the forestry sector and some of the underlying barriers to a successful interface between science, practitioners, decision makers and other forest professionals are characterised. A thematic analysis of the problems encountered during the project phase in relation to bridging the gap between science and policy is carried out. Finally, three main types of suggestion are given as how to improve the dialogue and knowledge link between science and practice and policy making in Latvia.

Key words: environment, forest management, Latvia, policy, science, stakeholders, sustainability

Introduction

The aim of this paper is to suggest and critically discuss ways in which the gap between forest science, policy making and practice can be spanned. Some of the underlying barriers to a successful interface are identified and the needs and interests of key forest stakeholders are examined.

Latvian forests cover nearly half of the total land area, and the forests generally possess a high structural variety – securing biodiversity. Moreover, the forests, of which most are semi-natural, are home to several species, which are endangered or threatened in Europe or in a global context (Ozols 1995). Although extensive forest legislation is in place there are no specific provisions concerning the involvement of the public in decision-making, and the current science financing system lacks initiatives to promote the extension of practical knowledge generated by research and use of this knowledge within policy making. Promoting sustainable forest management practices relies on the transfer of scientific knowledge to forestry practitioners, decision makers and other forest professionals

Moreover, in spite of a high level of the environmental and silvicultural sciences in countries in transition, such as Latvia (Baumanis 1995), it is also recognized that the implementation at more practical levels and into decision-making systems is insufficient (Lazdins 2002).

Latvia regained real independence in 1991 and a fundamental transformation of the political system implied a radical change in the institutional set-up in all sectors with changes still ongoing (Lazdinis *et al*. 2005). In January 2000, the State forest sector underwent crucial administrative reorganisation, when, instead of the former integrated State Forest Service, two new major units were established and subordinated to the Ministry of Agriculture: "*Latvijas Valsts Meži*" (LVM, the Stock Company) and the State Forest Service (SFS). As a result, regulatory, supervisory, and normative functions of state authority were separated from managing and ownership of state forests. LVM carries out the

ownership function, *i.e.* it governs and manages State forest property and ensures preservation and enhancement of its value. Eight regional units act independently and they are the major venue to disseminate research results to practice with regard to State forestry.

The primary mission of the SFS is to ensure implementation of the supervisory and support functions in accordance with the Latvian forest policy. One of the primary tasks is to ensure enforcement of legislation in all forests regardless of ownership type. Today one of important functions of the State Forest Service is also forestry extension.

The transition to market economy related environmental concerns and the emergence of numerous inexperienced forest owners (>155 000 forest holdings) after 1991 create acute need for improved knowledge at the level of practical forest management. Moreover, there is a need for understanding the types of private forest owner present, *cf*. Mizaraitė and Mizaras 2005). The institutional bodies in the private forestry are still in permanent readjustment. A rapid development of structures has been observed during the last year – before and after entering in EU. FOA (The Association of Latvian Forest Owners) presently unifies several structures in all the territory of Latvia. One of the primary tasks of FOA is to provide and develop forestry education and consulting for the members. The improvement of consulting services is one of the most urgent issues at present and FOA management recognises the high need for development of integrated services, where up-to-date scientific knowledge is used (Oslejs and Albertina 2003).

Environmental and silvicultural sciences are at a very high level in Latvia but the implementation at more practical levels is insufficient and weak. This observation applies to the Latvian forest sector, where the Latvian State Forestry Research Institute "Silava" (SILAVA) is the only institution, whose primary mission is to conduct forest research. The transition to market economy has brought about big challenges for the forest sector in general and has led to a changed role of forest research in particular. Scientific advice should play a significant role in promoting environmentally friendly practices in private forestry, implementing environmentally and socio-economic balanced forest management.

The Third Ministerial Conference on the Protection of Forest in Europe in Lisbon 1998 focused on the implementation of sustainable forest management in practice, which was confirmed by the adoption of the resolution on Pan-European Criteria, Indicators and Operational Level Guidelines for Sustainable Forest Management. The resolution provides, among other things, indicators for forest research and education and for public awareness. The outline of these concept areas unambiguously points towards the importance of forest research and appropriate extension of research based knowledge when contributing to sustainable forest management practices.

The need for readily understandable and accessible information based on reliable research results and development of an appropriate extension service challenge SILAVA for a number of reasons. During the Soviet period, little attention was given to the dissemination of research results. Consequently, there is little know-how and experience on how to communicate research to practice, and how to feed into the knowledge-based policy making. SILAVA currently faces stringent monetary constraints, which implies that priority is given for maintaining the previous extent and forms of research, while such an important issue as the "appropriate" links between research, practice, and policy making do not receive sufficient weight. A DANCEE (Danish Cooperation for Environment in Eastern Europe) supported project undertaken by the Centre for Forest, Landscape and Planning, DFLRI, based in Denmark, and the Latvian counterpart, the Latvian State Forestry Research Institute "Silava" to enhance the use of scientific results in practice and decision-making was carried out in the period 2001 to 2005 (Gamborg and Oslejs 2004).

In the paper the experiences and results from the Latvian-Danish project are used to try to identify the needs and interests of forest stakeholders using forest science based knowledge and look at how to improve communication skills, partly through participation in regional extension network. Key stakeholders include forest advisors in private organisations, state agencies, policy departments and trading and management bodies. A discussion of new ways in which to make a better interface between forest science on the one hand and forest practice and policy making on the other hand, in a country in transition, and a country that possesses valuable forest assets is presented. The accomplishments of a newly established extension unit are characterised and discussed.

Methods

A three step approach is used in this study to identify the science policy gap, the science capacity and the stakeholder expectations. First, the current situation of the Latvian forest situation is characterised and thematically analysed, including a break-down of the distribution of private forest holdings. Secondly, an analysis of the institutional capacity of the forest research sector is carried out, looking at one of the key scientific actors, SILAVA.

Finally, through a qualitative stakeholder analysis carried out within the Latvian-Danish project, main forest stakeholders are identified along with a characterisation of their needs, interests and expectations. Questions in the survey asked, included how they access information, the level of education, and the kind of knowledge they would need.

Gap survey: forest science, and forest practice and policy. Forests cover comprises 45 % of the total land area in Latvia, and forestry and the forest related sector is one of the most important sectors both economically and socially. In 2004, the forest sector provided about 14 % of the GNP and forest products form more than 30 % of the total export. Timber supply from state forests cannot meet the growing needs of the industry for raw materials and the private forest sector becomes increasingly important as a supplier in market.

At the same time, most Latvian forests are natural or semi-natural, *i.e*. they are regenerated naturally, and are dominated by spruce, pine or birch in single-species or mixed stands. An evidence for the environmentally high standard of forest management is the fact that many valuable forest types can be found in Latvia, while the variety of habitats is considerably less diverse in the forests at the Western shoreline of the Baltic Sea, where silvicultural practices have been more intensive.

As a result of the 45-year period of Soviet leadership, the traditions of forest management practices were partly lost. After the declaration of independence it was necessary not only to re-establish the proprietary rights but also the forest management traditions. Some of the inherent faults of the commercially oriented forest management practices can be observed in Latvian forestry. For example, heavy logging machinery has often had negative environmental impact on harvesting sites.

These negative side-effects are pronounced in connection with the transition and the ensuing extensive forest privatisation that has taken place since 1991 with private forests making up approximately one half of the total forest area. The private forest owners have become new actors in the forest sector; yet they lack the skills and experience in forest management, which is further aggravated by the small average size of forest holdings (about 7.5 ha) and lack of co-operative structures in the private forestry. The distribution of private forest holdings by size is shown in Figure 1.

There are 26 regions in Latvia where the proportion of private owned forests differs greatly. The number of private forest owners and also the size of

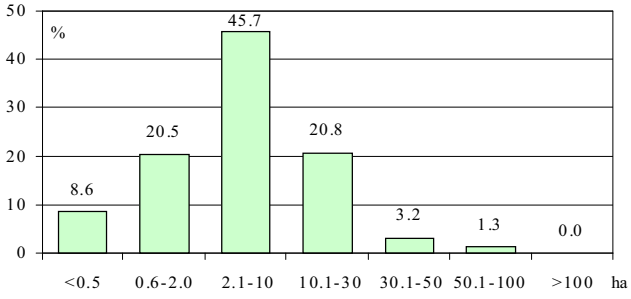

Figure 1. Distribution of forest holdings of private forest owners by size in Latvia

an average forest holding are variable (Oslejs 2002). Characteristics of forest holdings together with the overall socio-economic conditions in a particular region as well as the influence of the forest industry determine privatisation processes and forest management tendencies.

According to the goals defined by the Latvian Forest Policy the development of the private forest sector is an essential condition for the overall development of the national economy and the preservation and maintenance of natural resources. The development tendencies in the private forest sector indicate that management of private forests has not been done in compliance with the objectives of the Forest Policy – the principles of sustainable management have not been maintained.

Nevertheless, comprehensive legislation on forestry is in place. The Forest Law entered into force in March 2000 and replaced the previous main statute, the Law on Forests Use and Management (1994). The new law lays down stricter conditions for felling than previously existing legislation and also envisages activities for forestry development. The Inventory system was revised (de-monopolised and privatised). A concept for the reorganisation of the State institutional structures for the forest sector was also elaborated in 2000. There are several important subordinated statutes elaborated to specify the Forest Law.

Apparently, forest legislation takes an important position in the environmental legal system. It is connected with the land and planning legislation, but also with nature conservancy legislation, which sometimes imposes more strict requirements, especially in protected areas. However, there are no specific provisions concerning the involvement of the public in the decision-making, *e.g.* to safeguard nature conservation interests. Similarly, the current science financing system lacks initiatives to promote extension of practical knowledge generated by research.

Considering that successful implementation of the Forest Policy will be influenced by the high number

of private forest owners and their attitude to various policy instruments, the Latvian state has paid greater attention to education and extension services for private forest owners. The extension and education services offered to private forest owners have become crucial in Latvia after changes in the Forest Law (in force since 2000), as well as due to the adoption of the requirements of European Union. Until the year 2001 several recommendations of forest management had compulsory status and a legal liability for disobeying was in force. Today, the Forest Law determines only the main goals of forestry, but forest management is up to the private forest owners themselves. Changes in the Forest Law coincide with Forest Policy principles and objectives to reduce the state regulation of management activities.

Thus there is a gap between forest science and forest practice and policy making because of a lack of tradition of making the forest science based knowledge available to forest practice, and because there is a new situation in Latvia, with new forest laws, many private forest owners, a state forest service which has been altered. The question is how this situation can be brought forward to gain a better interface between forest science and forest practice and policy making.

Results

Stakeholder expectations to science-based forest management and policy making. A deliberate stakeholder analysis has been carried out in the frame of the Latvian-Danish project since outreach to the appropriate target groups and establishment of proper institutional/informative networks is considered to be crucial for retrieving a better interface between forest science and practice as well as policy making. A joint working group of Latvian and Danish experts began by listing the most relevant stakeholders and analysed their strengths, weaknesses, and interests in a real extension service at SILAVA. This allowed addressing the following crucial questions: How will the stakeholders influence the making of a genuine extension unit? How can such a unit take advantage of the stakeholders? What can the unit do for the stakeholders? Finally, the relative importance of each stakeholder was evaluated. A comprehensive survey was carried out to reveal the needs and interests of these key forestry stakeholders. Below, some of the main stakeholders are presented and some of the overall results of the survey are presented.

The SFS has 26 regional offices. In each of these offices an extension officer is responsible for different aspects associated with an extension service e.g. advice and seminars for private forest owners. Most advisors had a higher education in forestry. All of them had computers and access to the Internet. A high proportion of the advisors spent about 5 hours a month updating their knowledge by reading, by Internet or other sources. Seminars and professional magazines were by far the most important sources of information. Almost all of the advisors had knowledge of SILAVA.

LVM organizes the management of the forest owned by the state and consists of 10 regional units and 116 local units. LVM had no particular consulting unit. Although LVM did not provide advice, the company employed highly educated specialists in different fields of forestry. These specialists were responsible for compiling internal instructions that are used by the forestry officers. The staff also participated in seminars, and often specialists from SILAVA were invited to provide knowledge and experience. The specialists seated at LVM had access to both computers and the Internet.

FOA is an association of private forest owners. The organization promotes forest management and trade timber and forest products and offers advice and extension services. FOA had contracts with 42 advisors. 40 000 private forest owners were passive members of the association and 960 private forest owners were active members who seek advice and are paying for services. Two thirds of the advisors at FOA had a higher education in forestry and 77% of the advisors had access to a computer. Only 46% had access to the Internet. Most of the advisors spent about 5 hours a month updating their knowledge mainly by reading professional magazines and attending seminars. 15% of the advisors had no knowledge of SILAVA and half of the advisors very seldom used information prepared by SILAVA.

LAAC is a training and advisory organization for farmers and rural entrepreneurs. More than 20 000 farmers used their services. Their main activities were focused on agriculture but also offered advice on afforestation of agricultural lands. 87% of the advisors at LAAC had a higher education, but none of them had a special education in forestry. All advisors had access to computers and the Internet. The time that the advisors used for updating their knowledge varied greatly and the same applied to the sources of their updating. Part of this may be due to the fact that only few persons answered the questionnaire. The LAAC advisors showed very limited knowledge about SILAVA and consequently seldom used information produced by SILAVA.

Decision-makers are, in this context, politicians and officials who hold a position in the Latvian society where they for instance grant money for research (for example the Forest Development Fund), write forest policies based on their knowledge of forestry or

constitute an administrative, legislative unit. Most government officials and politicians had access to the Internet and were accustomed to using the Internet as a source of information. Furthermore they were likely to use newspapers and the media as a source of information. They may also read professional magazines. Most of them expressed limited time and interest in reading scientific articles or reports.

The analysis showed that Latvian Ministry of Environment, a number of other organisations showed a positive (although highly varying) interest in the establishment of a proper extension unit at SILAVA (with a potential significant contribution from the Forestry Faculty at the Latvian University of Agriculture). The main target organisations of the dissemination were shown to be the State Forest Service (SFS), the State Joint Stock Company (LVM), Latvian Forest Owners Association (FOA), The Latvian Agricultural and Training Centre (LAAC) as well as decision-makers from within relevant ministries and public agencies. Other target groups could also be considered, for example the wood processing industry and nurseries. The most straightforward evidence for success of the project – considered by the stakeholders - was an efficiently working extension service at SILAVA. Indicators of success would include the level of awareness of the existence of the service among the appropriate target groups and the stakeholders' judgement on the quality of the service. The common view was that SILAVA could play an important role providing in research based information on sustainable forest management practices that is necessary for the different stakeholders' decisions. In this role it is vital that constant updating happens, and contacts within forest extension in other countries are established.

In the course of the project, a proper extension service has been started at SILAVA in terms of staff, office space, training, computer and other equipment – and in terms of products (fact sheets, posters, book), services (seminars, exhibitions and conference) and networking (IUFRO extension network, Nordic extension network). In Figure 2 some of the main tangible

Information unit setup
- Creation of the information unit at *SILAVA*
- Engaging full time information specialists
- Information unit office

Information strategy
- Elaboration of the information strategy in *SILAVA*
- Investigation: Latvian Forest Owners Association – the needs and use of information by private forest owners

Training and capacity building
- Training in extension services of *SILAVA* scientists
- Elaboration of guidelines for writing fact sheets, holding seminar about how to write fact sheets with participation of a professional journalist
- Creation of the *SILAVA* team of experts and obtaining experience by meeting Danish colleagues in DFLRI (travel of exchange of experience in Denmark)

Equipment
- Purchasing of equipment: a) new server to improve Internet service in *SILAVA;* b) software to produce informational materials; c) technical utilities to print information materials

Design and website
- New design and content of *SILAVA* Web site (structure and layout)
- Elaboration of new *SILAVA* firm style – graphical standard for *SILAVA* (visit cards, fact sheets, posters, stamp etc.)
- New *SILAVA* Information folder

Factsheets, posters, articles and book
- Preparation and distribution of fact sheets towards different target groups
- Preparation and use of posters for exhibitions and seminars
- Newspaper and magazine articles
- Preparation of guidelines for good forest management practices book

Seminars, exhibitions and networking
- Preparation and organization of *SILAVA* stands on international exhibitions "Wood and Forest 2003" and "Wood and Forest 2004" in Riga, Latvia
- (Five) target group oriented seminars on actual professional topics
- The Nordic forum 2003, International seminar and workshop in Sigulda
- Three reports of Latvian speakers on the International seminar in Sigulda
- Involvement of new partners from Baltic States into Nordic Forest Extension network
- Preparation of Nordic Forum 2004 with participation of coordinator from Baltic States

Figure 2. Past performance of SILAVA information unit 2001-2004 – selected outputs and activities

outputs which have been produced in the course of the project are listed.

Figure 2 also shows the likely types of products and services to be produced in the future by the information unit at SILAVA. The project has been successful in producing outputs and in establishing a well functioning, quality-orientated, efficient and at the same time acclaimed and well-known information unit at SILAVA to the benefit of appropriate forest sector stakeholders.

Efforts to bridge the gap – by institutional building. Since the declaration of independence in 1990, the international assistance to the country's environmental sector gradually gained impetus and the part of it has been related to the forest sector. The so-called H3 database was established to implement the H3 resolution of the second Ministerial Conference on the Protection of Forest in Europe. The database concerns forestry assistance to countries in transition (Csoka 1997) and includes about 40 forestry related projects with the beneficiary being Latvia, even though the database is far from being complete (Brukas *et al.* 2000). The projects highly vary according to their scope and contents; however, prevailing subjects have been the development of nature conservation and protection systems, education and training of staff at selected institutions, development of education and information networks.

The beginning of the forest science in Latvia goes back to the 19th century (Baumanis 1995). It was being formed under the influence of the German and Russian school traditions. As far as not all references were good for the local climatic and geographic conditions, the need in a relevant national research institution arose. During the First period of Latvian independence (1920 -1940), scientific research was carried out in the Forest Management Department of the Faculty of Agriculture of the Latvian University as well as in the Forest Research Station (after 1928). Emphasis in research was on the settlement of the then most important practical problems - afforestation of infertile and sandy lands, felling area reclamation, contribution to the natural restoration, rational preparation of timber, and so on.

In 1946, the Institute of Forestry Problems was established, engaging 38 research officers and 15 technologists who conducted studies in the forest biology and forest management, forest working, forestry and forest taxation, wood chemistry and woodworking. During its 59-year history, the Institute came through a number of reorganizations, operating at special blast in the status of the Research and Production Association "Silava" (ZRA SILAVA) in the period 1976-1991, when the Scientific Research Institute of Forestry Problems, Design and Engineering Research Organization, Specialized Design Office, Experimental Forestry Engineering Works, Forest Research Station "Kalsnava" and Computation Centre were pooled into a united complex. Hundreds of researchers were engaged in the research operations at that time.

However, along with the restoration of the Latvian state independence in 1991, drastic changes in the policy and economy crushed down the structures created by the socialism, also ZRA SILAVA. Drastic reductions in staff and funding took place.

Yet today, although at a reduced level compared to the period 20 years ago, SILAVA is the main centre of forest science in Latvia, conducting research on forest ecosystems and their components; as well as working out recommendations for sustainable forest management and a rational and effective utilization of forest resources and forest products. The extension service in SILAVA is at the beginning stage. Just like in other Latvian research and education institutions SILAVA does not enjoy any stable financial support from the state budget or forestry companies and organizations.

However, there is a common agreement that forest research should play a significant role in the forestry extension. Research at SILAVA covers a broad range of subjects from preservation of forest gene resources over models for sustainable silvicultural practices to forest valuation and general issues of forest policy. Improved dissemination of research results is a necessary condition for enhancing positive impacts of forest science on forest management practices, especially in terms of environmental and conservation-related issues. Thanks to the Latvian–Danish project, an extension service unit has been created in SILAVA and the extension work has been started.

Discussion

Scientific advice could play a far more significant role in promoting sustainable forest management practices that are environmentally friendly and socio-economic well-balanced. This aspect is also addressed by other studies concerning *e.g.* Estonia and Lithuania (*e.g.* Karoles *et al*. 2004, Brukas *et al*. 2000b). In the case of Latvia, there is a clear need for considering new ways to improve this link to ensure the viability and – currently – high quality of the Latvian forests and the use of these forests, judged beneficial by a wide range of Latvian forest stakeholders represented in the project as a steering group.

The reason why scientific advice is not playing the role key stakeholders in the Latvian forest sector

would like to see, can be attributed to factors outside and inside the scientific sphere. First, it is partly a result of the current state of affairs with regard to sustaining a forest science base in Latvia, following drastic changes in policy and economy after the Latvian state's second independence in 1990 where the forest research environment was heavily reduced, and partly a result of the structure and composition of the forest sector, including an extensive forest privatisation. Major risks – which were considered outside the reach of the Latvian-Danish project –were connected to the development of the Latvian forest sector and a change in priorities within the sector. Some of the main risks included that (i) the forest authorities would not acknowledge the importance of forestry research in developing environmentally and socio- economically sound management practices; (ii) there would not be a continued focus on strengthening the normative and consultancy roles for the private forestry; and (iii) there wouldn't be acknowledgement of the capabilities of private forest owners in relation to sustainable forest management and their needs for information and training. During the project period, however, these risks were not realised.

Secondly, an explanation is to be found inside the scientific organisation and concerns the perceived need and interest in bringing the sustainable forest management related research out to managers, forest owners and other decision makers. At the outset it was assumed that the forest scientists would assume this role of disseminator more or less readily – and that they would be able to do it. However, during the Latvian-Danish project it became evident that such a process should include guidance to create greater awareness of this role and how to combine such work with the basic research work. One issue was that forest scientists could benefit from the interaction with key forest stakeholders in understanding current problems faced and in developing feasible solutions. Moreover, coaching was essential to bring better understanding of how to extend the knowledge and to bring specific skills.

In addition, financing of ways such activities were in need of being considered. Some of the options are financing through selling of information services, financing through sponsors and advertisements, financing through external project funding, financing through other project funding and financing through SILAVA directly. One of the most preferable, and probably, secure ways of economically sustaining the information unit is through the last option – direct, basic SILAVA funding. However, it is equally clear that the other options to the degree feasible should be explored to complement the basic funding.

Conclusions

There are promising signs in Latvia that the link between forest science and practice and policy making is on its way to be strengthened much to the benefit of the forest stakeholders as well as the state of the forest and the benefits accruing from it. Some of the main things, which a project of the type described in this paper, should do to help in the process of finding new ways to build bridges between forest science, policy and practice in order to achieve more sustainable forest management practices include:

- Tangible products. Readily available information for forest advisors, managers, decision makers in the political system as well as forest owners in the form of e.g. condensed fact sheets, targeted seminars, guide field trips on sustainable forest management practices can help forest stakeholders to realised their needs and what is possible to get through science based knowledge,
- Institutional building. Strengthening the capacity of the forest science institutions to handle dissemination of knowledge beyond academia, preparing research scientists to consider the forest stakeholder's knowledge-related needs and enter into a dialogue with forest stakeholders is a good starting point, and finally
- Creating awareness. By actively involving forest stakeholders, giving them a chance to give feedback on specific products and the process of improving the links between forest science and practice and policy making, and by encouraging them to articulate their needs which can be remedied (partly) by science based knowledge, an awareness about how the interface between forest science and practice and policy making can function, is raised.

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УСТОЙЧИВОЕ ЛЕСНОЕ ХОЗЯЙСТВО В ЛАТВИИ: УКРЕПЛЕНИЕ СВЯЗЕЙ МЕЖДУ ЛЕСНОЙ НАУКОЙ, ПОЛИТИКОЙ И ПРАКТИКОЙ

Ю. Ошлейс и Х. Гамборг

Резюме

В настоящей статье предлагаются и критически обсуждаются новые способы устранения недостатков взаимосвязи между лесной наукой, политикой и практикой, используя опыт, полученный в течении разработки латвийско-датского проекта, целью которого было разработать наилучшие способы передачи научных знаний в практику лесного хозяйства. Леса занимают около 50% территории Латвии, и удельный вес лесного хозяйства в экономике страны постоянно растет. В Латвии леса играют важную эстетическую роль, а также содержат широкий спектр видов растений и животных, которым в Европе грозит исчезновение, и тем самым обеспечивают высокий уровень биологической разновидности. Латвийское законодательство в области леса и лесная наука развиты хорошо. Поэтому можно сказать, что в Латвии леса находятся в более или менее хорошем состоянии, хорошо защищены в юридическом смысле и являются предметом научного исследования. Однако, ощущаются серьезные недостатки во взаимодействии между наукой, практикой и принятием политических решений. В статье описывается ситуация в секторе лесного хозяйства в настоящее время и дается характеристика основным препятствиям на пути сотрудничества между исследователями, практиками, лицами, принимающими решения и другими профессионалами в области леса. Проводится тематический анализ проблем, с которыми участники проекта столкнулись, работая над устранением недостатка взаимодействия между лесной наукой и политикой в области лесного хозяйства. Предлагаются три главных способа, как улучшить диалог и обмен информацией между сферами лесной науки, практики и принятия решений в области лесного хозяйства в Латвии.

Ключевые слова: окружающая среда, лесное хозяйство, Латвия, политика, наука, заинтересованные организации и лица, долгосрочное уравновешенное развитие