Handbook of planning tools of regional action plans and strategies formulated objectives and targets in a sustainable perspective

Report in the project Wood Energy and Clean tech

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Introduction

Wood is the first form of energy known and used for cooking, heating and production processes. During the 19th century wood was gradually replaced by fossil fuels (coal, oil and gas) which are easier to handle and have higher energy density. Nowadays, the interest in wood is growing again, as it is a renewable energy source, when managed correctly; moreover, modern technologies enable an efficient conversion of wood into heat, electricity or fuels for transport.

Partners support "GLOBAL ENERGY CHARTER FOR SUSTAINABLE DEVELOPMENT" by the World Sustainable Energy Coalition and the International Sustainable Energy Organization.

Aim of this Handbook is to help for regional or municipal planners in developing processes of planning documents. Mentioned questions here in this Handbook should be taken into account when planning documents are developing in the VPR (presented and accepted in VPR development board).

This work includes materials, documents and proposals in order to promote sustainable energy provision in the regions discussed (Östergötland, the Vidzeme and South Estonian regions). Although the global problems mentioned above are topical in our countries, in this work we are discussing perspectives for expanded application of wood and introduction of pure technologies. As we have stated in our SWOT analyses, such perspectives do exist since we have sufficiently sustainably controlled forests and sufficient resources of wood, and we have surveyed the demand for thermal energy and examined possibilities to introduce cleantech. It should be remarked that we have different experience in planning and implementation of events. There is the East Sweden Energy Agency operating many years in the Östergötland Region, and it has accumulated great experience in planning the use of wood in cooperation with the administration of the region and local municipalities. A similar situation is also in the Tartu Region where the Tartu Regional Energy Agency is operating. At the same time it should be noted that no energy agency is functioning in reality in the Vidzeme Planning Region, and the planning regional functions of energy planning are now only being discussed. This means that within the framework of this project the partners have to carry out intense information exchange in the fields of wood energy utilisation and the cleantech introduction because, after all, such is the purpose of this project – to improve the planning system by applying the experience of the partners.

Principles for the elaboration of regional energy strategy

Plan means to predict future events based on personal and historical experiences, events, statistics and facts that could affect the objectives of the whole or a specific operational phase. More successful and accurate achieve the goals are possible by developing a range of options for action. Planning process helps to select the best of the options. Effective planning reduces the time spending by the responsible for decisions [1].

Strategic Planning is a method for positioning an organization to take advantage of its future by: capitalizing on its opportunities; addressing its challenges and providing the kind of leadership that masters change.

A strategic planning process incorporates an in-depth planning model that takes place over time with community involvement. These basic steps of strategic planning are as follows:

1. Preliminary Readiness Assessment
2. Creating a Vision
3. Taking Stock, Internally and Externally
4. Setting Goals and Objectives

Preliminary Readiness Assessment. The place to start in strategic planning is to assess district's readiness to engage in the overall process. The use of the following checklist will gauge district's readiness to begin strategic planning. Never less this is not a substitute for careful analysis of the conditions under which strategic planning will take place. To use of these tools helps to identify key issues that can help or impede the planning process, this list is excerpted from the Washington State School Directors' "Passport to Leadership" program materials [1]:

1. Focuses on new challenges and issues instead of waiting for emergencies to react.
2. Focuses more on policy than management or curricular issues.
3. Seek community input on decisions.
4. Use of data in making decisions.
5. Change in one part of the organization usually calls for a change in another part.
6. Reach of decision by consensus after some debate.
7. To be informed about what other districts are doing to achieve change.
8. Organisation of regular meetings in an effective manner.
9. Conflict among board members is dealt with in a straight-forward and assertive manner.
10. The superintendent and district staff is trusted by the board.
11. The superintendent and district staff is knowledgeable about current trends.
12. The superintendent and district staff seeks community input to decisions.
13. The superintendent and district staff is effective managers of human and fiscal resources.
14. Communities provide information what it needs and wants.
15. Communities have a long-term way of looking at things.

Creating a Vision. At the beginning of the process of regional energy sector strategic planning, visioning of each community comes first. Is important to realize what preferred future of the region is and be sure that the visions are based on beliefs, mission, and environment of each member of the region. Description of the energy sector future vision of the region is recommended. To make better results it is recommended to be specific to each community. The vision must assume that the system will have not the same framework in

future as it does now. It must be open to dramatic modifications to current organization, methodology, techniques, facilities, etc. The vision must be encompassed by beliefs of community. Once they are clarified, mission statement must be defined which is a statement of purpose and function. The process and outcomes of visioning may seem vague and superfluous. The long-term benefits are substantial, however.

Visioning [1]:

- Breaks out of boundary thinking.
- Provides continuity and avoids the stutter effect of planning fits and starts.
- Identifies direction and purpose.
- Alerts stakeholders to needed change.
- Promotes interest and commitment.
- Promotes laser-like focus.
- Encourages openness to unique and creative solutions.
- Encourages and builds confidence.
- Builds loyalty through involvement (ownership).
- Results in efficiency and productivity.

Taking Stock, Internally and Externally. Once the vision of energy sector is formulated and mission statements are in place, there is a picture of where the region and its communities want to go. The next step is to understand the situation of energy sector in region now. This is the process of taking stock and involves thorough examining of both the internal status of region or community and the external context in which it is situated. An environmental scan conducts to collect data to answer questions about the present and future of the school district. There are many approaches to environmental scanning - surveys, questionnaires, focus groups, open forums [1].

An environmental scan is conducted to collect data to answer questions about the present and future of the region or community in energy sector:

- Environmental scan develops a common perception.
- Environmental scan identifies strengths, weaknesses, trends and conditions, draws on internal and external information – *SWOT analysis*.
- Environmental scan is a key on-going process for internal and external honesty and openness to changing conditions.

Setting Goals and Objectives. Energy sector goals of the region are simply a clearer statement of the energy sector visions, specifying the accomplishments to be achieved if the vision is to become real. The target objectives are clearer statements of the specific energy efficiency activities required to achieve the energy sector goals, starting from the current status. A common practice for keeping individual workloads to a manageable level is to delegate different topics to different teams. For example, there could be a curriculum team, a facilities team, a budgeting team, etc. A useful tool for keeping track of ideas and seeing how they relate to each other is the affinity diagram. The affinity diagram is a general planning tool. It is a creative process that helps you to identify and gather large amounts of information, ideas, opinions, or issues and organize them in a relatively short amount of time. The finished affinity diagram helps a group identify lots of ideas and come to agreement on those ideas in a relatively short amount of time. The header cards form the consensus on the themes of the ideas generated from the team [1].

Figure1 shows the impact of the SWOT analysis on planning process and setting strategic objectives. SWOT is an acronym for Strengths, Weaknesses, Opportunities and Threats.

There we estimate:

- overall of system;
- manufacturing;
- transmission;

- consumers;
- tariffs which are used;
- Environmental activities and quality.

During the estimation of each phase must be observed:

- National Energy program;
- National and municipality policy;
- National base of lows and regulations;
- EU Directives and requirements were observed these policies and elaboration of system.

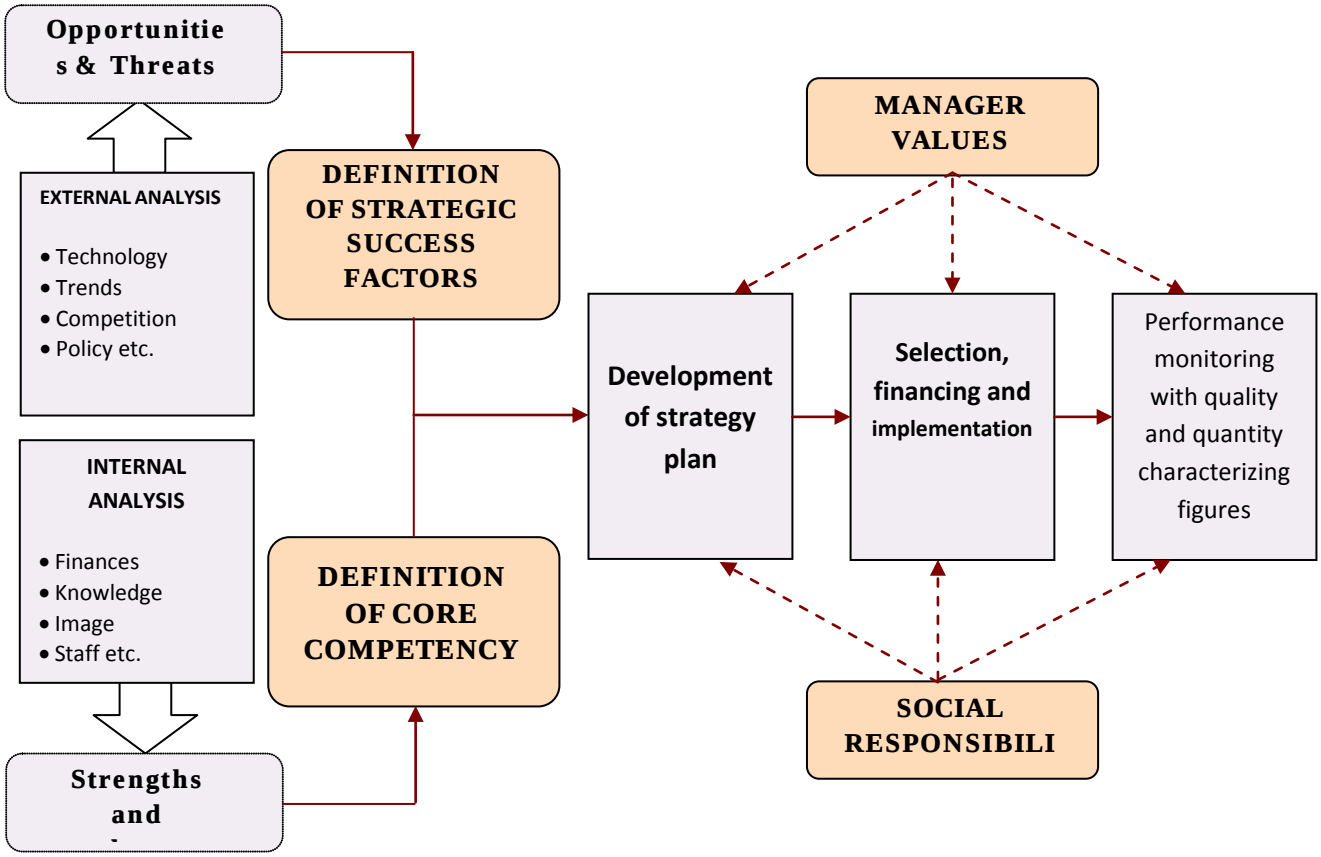


Figure 1. Role of SWOT analysis in the strategic plan development and implementation processes [2]

For more valuable elaboration of future strategy or action plan at first place is necessary to accomplish analyzed of detected shortcoming and options/scenarios of solutions. The SWOT analyze can show failures which emerge by mismanagement. In same time analyze will show how to eliminate these mistakes what mean at least two possibilities: their needs for investments and their needs small reforms which does not takes big investments.

Such estimation allows elaborate action plan which give opportunity to save financial investments matter of short time actions. That means immediately savings what can underlay for project efficiency in short period. Estimation must be divided in separate stages and research has to be done for each phase. After each phase of analyze must be set up straights and weaknesses, forecast of possible threats if situation does not changed.

Before start SWOT analyzes of a region or municipality is important to collect all information about geographical and economical situation. To understand economical condition of region it's important to set up main points of possible development of this region. That is:

- Development program of National economy and region place in this program;
- National industry development policy and region place in this action plan;
- National transport infrastructure development policy and region place in this plan;
- Local development plans for each municipality and whole region.

These are possible directions to make SWOT analyze for energy consumption which can be part of overall analyze of economical development of the region.

Perform large scale analyses for energy resources of the region appear some aspects which would be advisable to analyze separately or before SWOT analyze. These data can be used as base of SWOT analyze. Those are:

- ✓ consumption of energy resources by sort;
- ✓ consumption of renewable energy resources and percentage to fossil energy resources;
- ✓ percentage of loses;
- ✓ percentage of possible savings;
- ✓ percentage of renovated heating systems;
- ✓ new projects for heating systems in region;
- ✓ percentage of green energy or possibility to develop one (geographical and climate conditions for region);
- ✓ population decries influence on energy consumption;
- ✓ regional advancement and is independence from National economy development/stagnation;
- ✓ unemployment percentage;
- ✓ population structure by age, ect.

According to subject of SWOT analysis which is ground work for accessibility of energy resources and development of energy efficiency projects in regions takes shape metric of SWOT analyze. There are two dimensions:

- external: Strengths and Weaknesses which means the internal environment - the situation inside the region. Those factors tend to be in the present;
- internal: Opportunities and Threats which means the external environment - the situation outside the region and factors tend to be in the future

That means – each criteria can be internally or externally affected and sometimes can be internal opportunity and external threat or contrariwise.

The sustainable energy strategy includes:

- The aims of the energy policy
- Main directions of the energy policy
- The supply reliability and external energy policy
- Raising energy efficiency
- The use of the renewable and local energy resources in the production of electric and thermal energy, and in the sector of transport
- Extraction and use of other local energy resources
- Development of the national energy infrastructure
- Creation of conditions for an efficiently functioning energy market
- A trading policy with energy taxes and emissions
- The competitive capacity of energetics as a branch of national economy
- Development of the science of energetics
- Introduction of the strategy of energetics 2030 and its subsequent measures

Principles for the elaboration of regional energy strategy within woodenergy perspective (VPR)

The Energy Strategy for Europe [3] and the Latvian "Energy strategy for 2030" [4] set following objectives:

1. a competitive economy - a balanced, efficient, economically, socially, environmentally sound market-based energy for the economy's future development, the competitiveness of the region and the world;
2. sustainableeEnergy - rightly diversified primary energy balance and reduced dependence on energy imports, promotion of new, efficient renewable energy technologies to improve energy efficiency measures;
3. security of supply - power users access to a stable energy supply and developed infrastructure.

These are the goals which generally determine the energy strategy in the VPR.
However, the VPR has regional peculiarities. Therefore a SWOT analysis was carried out for the VPR the result of which we will briefly discuss in this chapter.
In order to investigate the possibilities to expand the use of wood energy and introduce the Cleantech technology, Latvia has to construct an energy balance for the Vidzeme Planning Region. In this connection it is recommended to use as a model the Latvian energy balance for the year 2010 (see Appendix 1). In the Statistics SCB homepage it is possible to get acquainted with the rules how to draw up these parts of the energy balance. It is essential to create a common energy flow in the region especially for the following kinds of wood fuel and energy:

- Wood chips
- Firewood
- Wood briquettes
- Wood pellets
- Fuel wood
- Heat
- Power
- Natural gas
- Coal

This common (the present period – the years 2010 – 2011) energy balance has such essential indicators for each kind of fuel and energy.

- ✓ Conversation factor for TJ
- ✓ Production
- ✓ Imports
- ✓ Exports
- ✓ Bunkering
- ✓ Changes in stocks
- ✓ The total consumption
- ✓ Transformation sector consumed:
  - ❖ Power plants

- General use CHP
- General use in the boiler room
- Boilers
- End-use
- Industry and construction

By compiling this energy balance we obtain an output information base, and, on the basis of the results of the SWOT analysis, one can study the wood energy flows in order to substantiate the regional energy strategy and draw up the planned energy balance for the subsequent periods of time (2020 – 2030).

On the whole, when creating a wood energy strategy based on the data of the SWOT analysis and dividing the supply chain of wood fuel into five links, we can draw the role of the wood energy chain of supply as a part from energy strategy

1. Sustainable forest harvesting

The forest sector, including wood processing, is one of the most important elements of the development of Latvian economy. In this sphere the goals of the Vidzeme Planning Region (VPR) and the national plans of the Latvian state are coordinated. The main task in the sphere of sustainable forest harvesting is to increase the output of products with high added value thus ensuring the total competitive capacity of the Latvian state on a world scale.

The resources of forests belong to the most significant and, at the same time, the most dynamic natural resources used in the VPR, and they have not only ecological and social economic value. They are also an essential constituent part of a mosaic landscape and an important potential for recreation. The dominant species of trees in the Vidzeme forests are a pine, a fir, and small-leaved trees, mostly a birch. Most of the forests consist of medium-aged copses of trees in which the greatest amount of wood-pulp is concentrated. The dominant wet forests (in the north-west and south-east of the region) are of lower economical value but they play an important role in the preservation of biological diversity of the territory.

Forests influence the climate, clean the air and water, give shelter to many species of plants and animals. The great diversity of plants and animals has survived owing to the diversity of forests.

Vidzeme is one of the most wooded regions of Latvia – they cover half of the territory of the region. This is more than the average indicator in Latvia (44.6%) and one of the highest indicators in Europe.

Although the entire territory of the Vidzeme Region is rich in forests, especially notable is its north-western part with the economically most significant largest forest tracts: a forest tract between Valka, Vijciems, Strenči, Vireši Parish in Alūksne District and the woodland in Alūksne District (Liepna and Mālupe parishes) near the border with Balvi District.

A factor promoting implementation of the principles of sustainable forest harvesting is a possibility to attract local labour force. At the same time it should be remarked that there is deficiency of professional knowledge exactly about the production and utilisation of wood fuel.

When forest harvesting is carried out, there is threat that biological diversity will be diminished. As a risk to sustainable forest harvesting one can mention the fact that insufficiently high responsibility is demanded for the violation or negligence of the ecological requirements.

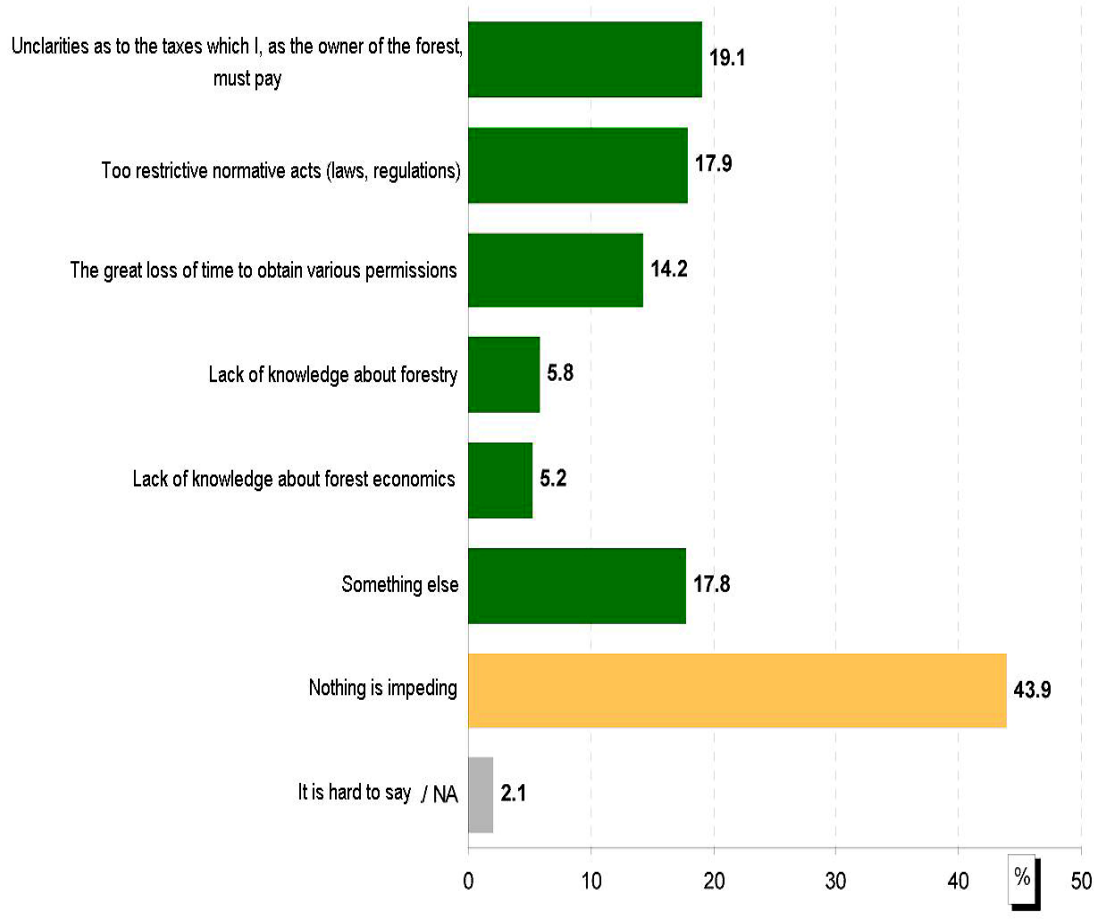
The above mentioned facts confirm that such forest harvesting is organised in the region which ensures sustainable development both in the economical and ecological, as well as social aspects. However, we can mention as a certain risk insufficient cooperation between the local municipalities and private owners of forests in order to ensure sustainable

development of forest harvesting. Efficient forest harvesting is hampered also by the fact that, according to the existing regulations, the Latvian State Forests Company "Latvijas valsts meži" (LSF), sells wood which is located not farther than 50 km from the driveways. To diminish the risk created by these regulations, the municipalities should conclude agreements with the LSF about a permission to purchase wood from a greater distance, inside the forest. In such a case, a better solution could be found how to increase bilateral economic benefits – both to the LSF and municipalities. Another solution could be foundation of a wood stock exchange which would include a coordinated system of transport logistics and warehouses for the respective wood fuel, ensuring economically profitable sales and purchase of energetic wood.

There are cases in the forest harvesting practice when the heavy vehicles carrying out timber create gullies as a result of which the ecological damage increases.

In order to increase the mass of the produced energetic wood, one has to examine possibilities how to raise the yield of the energetic wood from the tops of the trees and branches, as well as to make use of the energetic wood from the unused lands (roadsides, under the high voltage lines).

A negative impact upon sustainable forest harvesting is exerted by the short-term decisions with a desire to gain unreasonably high income in a short period of time, particularly in the forest sectors managed by private entrepreneurs.

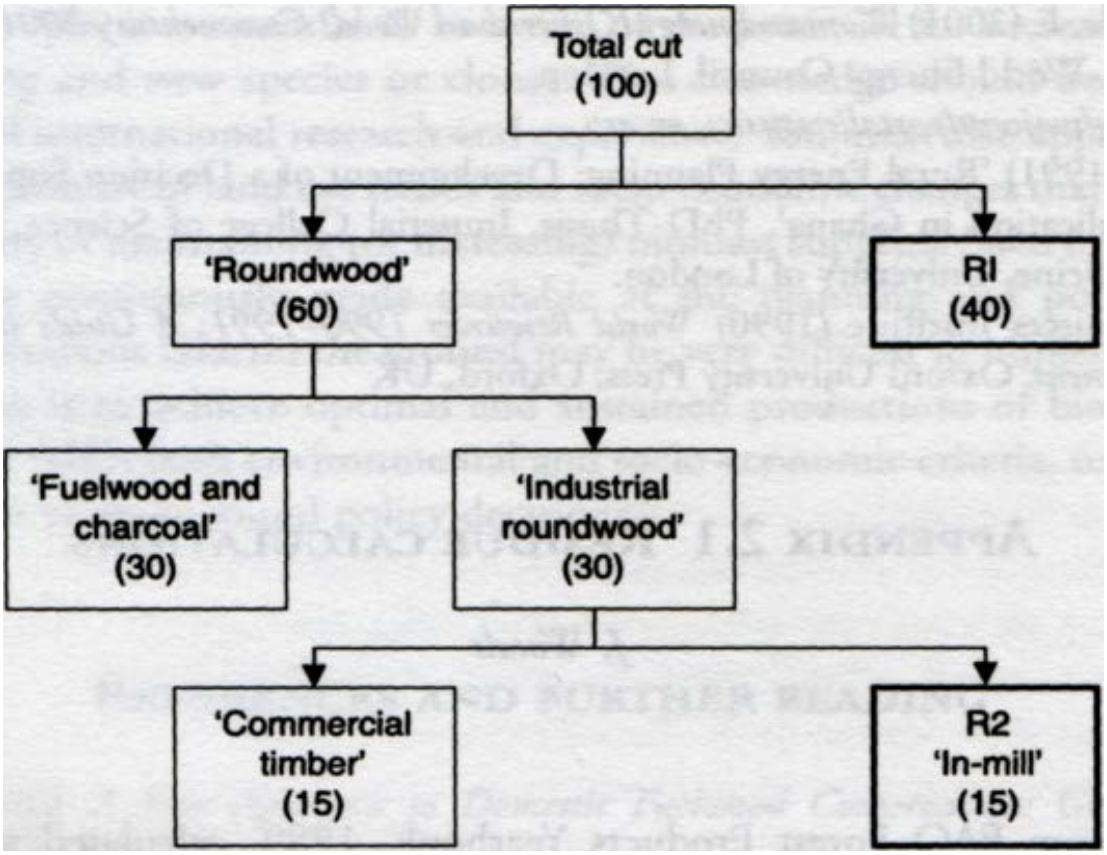


The most impeding factors in forest harvesting in the private sector

(Source: SIA „Meža un koksnes produktu pētniecības un attīstības institūts", Andrejs Domkins „Meža nozares ekonomiskās situācijas monitorings", Jelgava 2009, 35 pages.)

2. Wood processing and wood fuel production

The sustainable forest part in the chain is here defined as the (main) provider of raw material in the system. The forest is however also important from other perspectives (social, economic, environmental; biological and chemical).



Notes: Total cut = 1.67 'roundwood'.
'Industrial roundwood' = 'roundwood' - 'fuel wood + charcoal'.
R1 = portion of total cut left on site, and is equivalent to 40 per cent of the total cut.
R2 = portion (50 per cent) of 'industrial roundwood' lost through processing.
'Potentially harvestable residues' = R1 + R2 = 55 (globally).
Forestry residues were analysed individually to deduce 'R1' and 'R2'.
Individual regional totals are aggregates of the individual countries.

Diagrammatic breakdown of forestry production to show origin of residues (hypothetical example based on global averages) [5].

Efficient utilisation of the wood resources in the aspect of the carbon cycle, the life of wood life-history and the chain of value (see .Fig. 2) can be achieved, first of all, using wood as raw material for the production of articles, then recycling it and finally using as source of energy. The added value of wood products is 10 times greater than the added value when it is burned for energy. The issue of an efficient use of wood is still topical. It needs a complex solution. It is essential to elaborate a concept of using wood with a maximum added value. On the regional level, the added value can be generated by such activities as instalment of modern wood processing technologies and establishment of new factories that would allow using by-products as a high quality energy wood. The economic development of the region

can also be promoted by creating an investor-friendly environment and enhancing education of the society and positive attitude

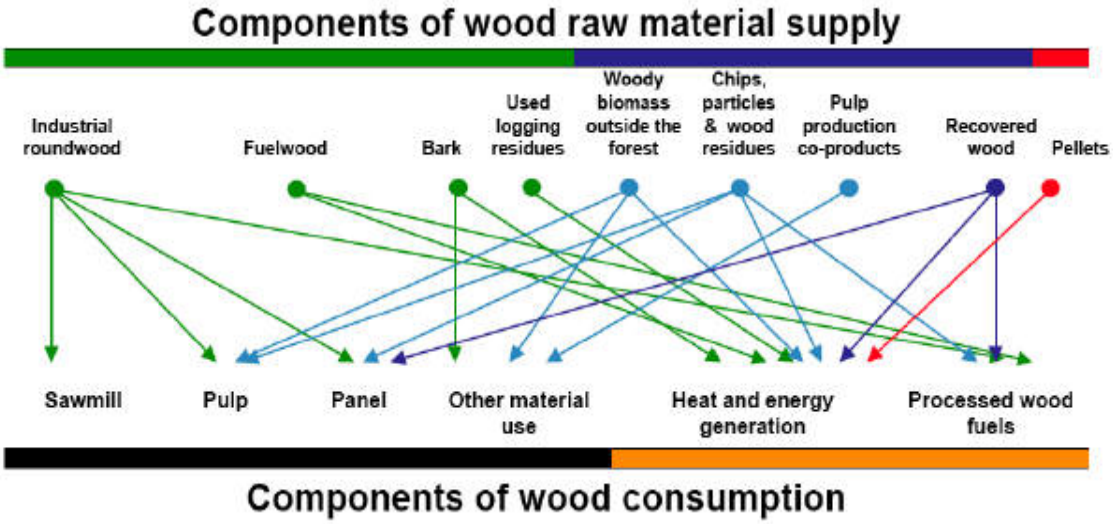


Figure 2. Components of wood raw material supply and wood consumption [6]

The production of woodchips, for example, is very developed in Latvia, and these plants are rather uniformly distributed around the entire territory (see Fig. 3).

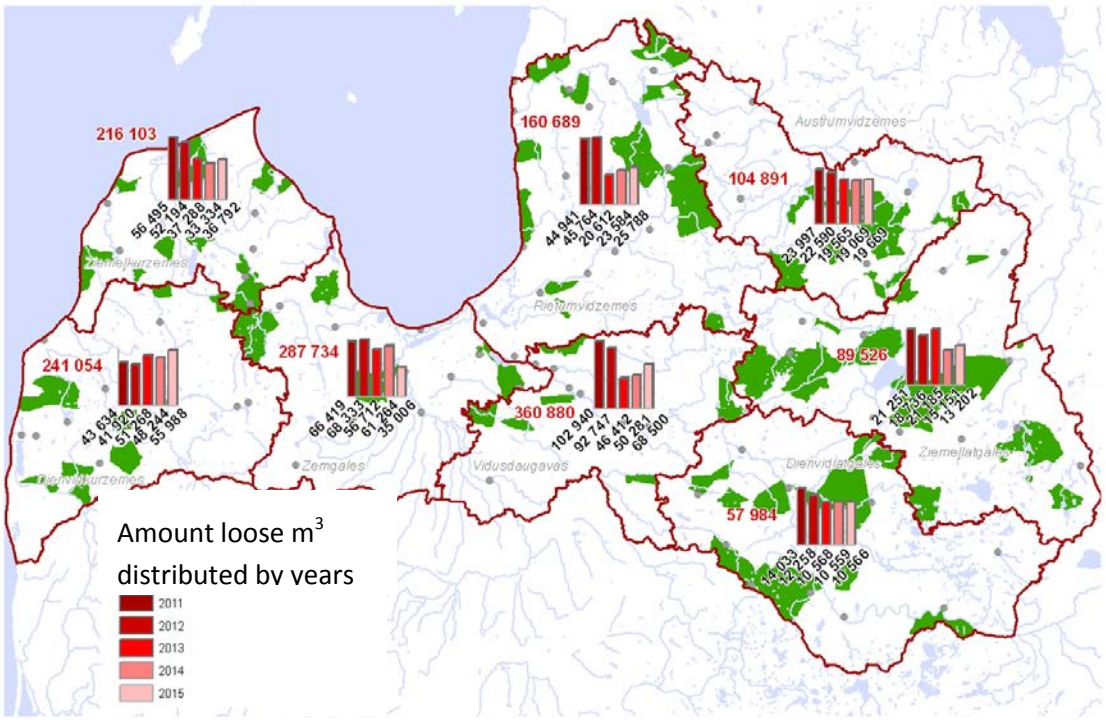


Figure 3. Production of woodchips (2011-2015, LSF)

Boilers and infrastructure of the district heating

The structure of boilers and centralised district heating systems and their role in the conversion of wood into heat is the next link in the chain of the use of wood fuel.
Study on technologies in the framework of WP5 indicated large discrepancy in the provided data of boiler houses in Vidzeme planning region. There are 120 boiler houses in the region from which data on 45 boiler houses and CHPs were gathered.
There are mainly wood log, wood chip and pellet small size boiler houses with installed capacity between 0.2-4.0 MW. There are also natural gas boiler houses in four municipal districts (Valmiera city, Cesis, Valmiera parish and Ligatne district). The installed capacity varies between 0.24 and 54.2 MW.
Collected data of 22 boiler houses show that the efficiency of these plants is almost 100% or more and in one case - it is less than 40%. Discrepancy in the data can be caused by different reasons: weak (no) accounting of purchased fuel; wood fuel quality difference; lack of heat meter and heat energy produced is calculated; human behaviour, which creates errors; low level of awareness and information.
Selection of the technologies now and in the future will determine the development of the energy sector in VPR especially for heat supply of public and dwelling buildings. There are at least four cases how the heating systems are managed in municipalities:

1. In the parishes or cities where district heating systems have been closed inhabitants and local governments chaotically try to ensure the heat supply. Usually stoves or individual boilers in the apartments are installed. Flue gases are discharged through chimneys that are installed just outside the windows of the apartments. The number of chimneys on the facades of the buildings usually corresponds to the number of the apartments in the buildings or even to the number of the rooms in the whole building. In cases when the owners of the apartments have left abroad the heating system gets destroyed there. This is due to the fact that water in the system during the frost freezes and destroys the walls of the building.
2. There are municipalities that are looking for solutions to keep the heating systems and install boilers outside or inside the buildings. The main factors here are the interest of the inhabitants and the vision of the municipality regarding the future development of the territory. There are buildings where pellet, woodchip and wood log boilers are installed and well operated. In the meantime there are places where boilers with low efficiency and high wood consumption.
3. There are municipalities where main fuel is natural gas. This is comfortable solution for centralised district heating system. But it is imported and is also 2-3 times more expensive than local fuels.
4. There are municipalities that decisively install and maintain energy efficient woodchip centralised district heating systems. These usually are municipalities that have a long term energy vision and implement activities to keep the heat tariff stable.

3. End consumers and end users

The consumers of wood energy have a positive impulse from the fact that there are no essentially forked pipelines of natural gas on the VPR territory, and on the most its part the wood energy is the only real kind of energy. At the same time, it is of vital importance to rouse the end consumer's interest in using the resources of wood energy because of its lower cost than for the users of natural gas. Positive is also the fact that there is a possibility for the end consumer to attract the local labour force thus ensuring efficient utilisation of the wood resources. It should be noted that in the year 2007 wood in the VPR constituted 24.9% of the total consumption of energy resources (in other regions – from 2.8 to 17.5%).

This testifies that the region has traditions and great experience in efficient utilisation of wood resources. The demand is met and the consumers are satisfied. At the same time, the state energy policy does not promote the involvement of the end consumers as there is insufficient responsibility to carry out measures favouring the use of the renewable resources and energy. There is not sufficiently much professional knowledge in the use of the resources of wood energy. It is extraordinary important that the end consumers are not motivated enough to improve the local heat supply systems. There are problems with the acquisition of reliable and exact data pertaining the fuel consumption and production of energy in the municipalities of the region. This is very essential because such an energy strategy plan can be made only on the basis of exact data obtained on the level of the local municipalities. At the same time one should note that the Vidzeme Planning Region has a potential to develop economy and prosperity on the basis of the green energy. The interest of the consumers of wood energy is increased by the fact that they can apply adequate forms of financing in order to develop the systems of green energy. One of the fundamental threats is that there is a possibility for the prices of wood energy resources to rise. Yet this risk is diminished because also the costs of the competing energy resources increase simultaneously which, as it was already mentioned, are higher than the costs when using the resources of wood energy. Without doubt, the prices of the energy resources (their support from the state) are connected with political decisions to support or not to support some consumers of the renewable or fossil energy resources.

In order to avoid the supply risk, it is recommended that the purchase of the fuel wood had long-term contracts. When large-scale projects are implemented, one ought to consider a possibility to involve also the potential supplier of resources into the investment project thus ensuring long-term supplies and immediate incentive in sustainable activities.

The demand of woodchips is very great because almost as much as it is consumed in Latvia is exported mainly to Sweden, as well as to Finland (see Fig. 4).

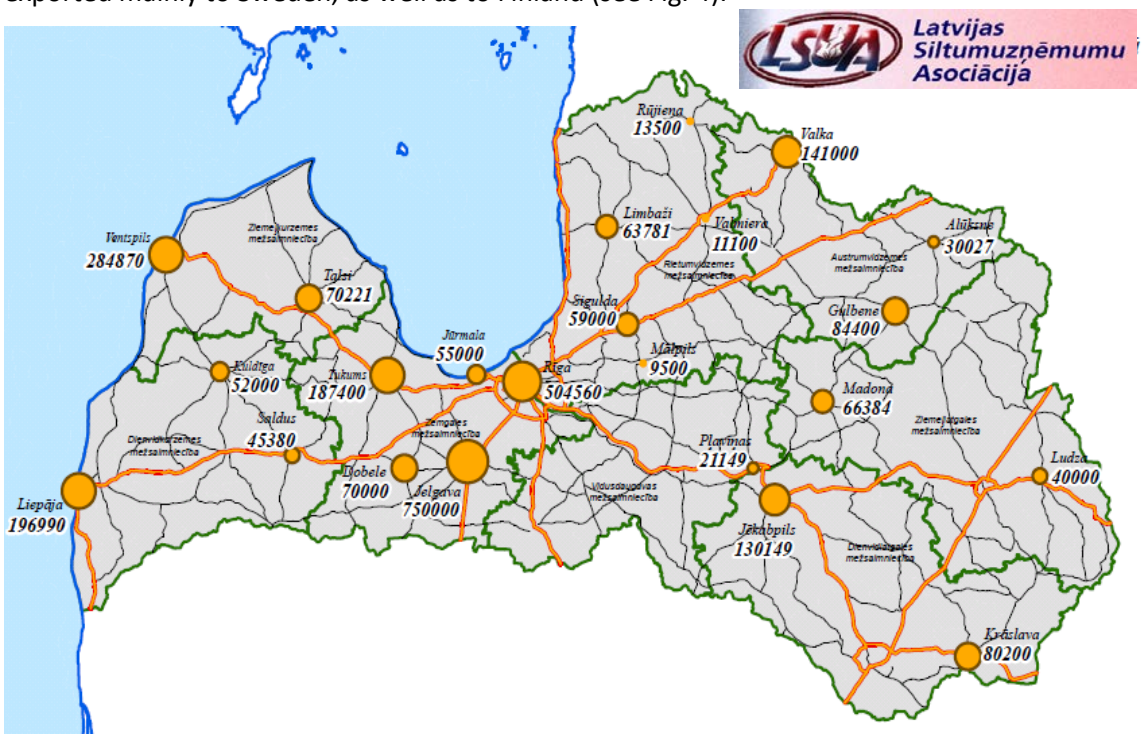
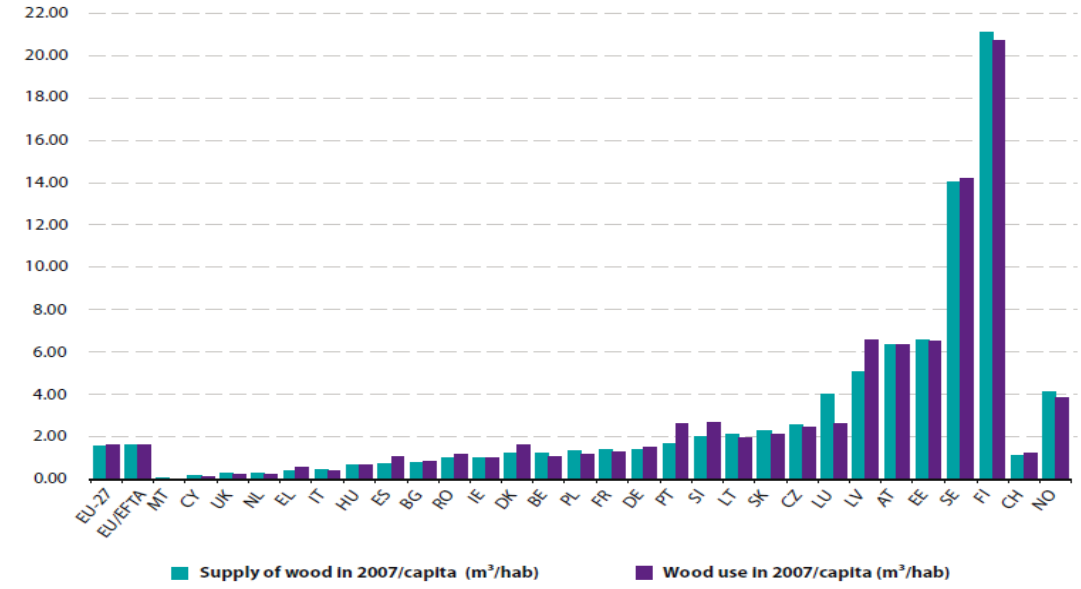


Figure 4. Woodchips consumer location and consumption amount forecast in Latvian 2013, (loose m^3)

It is a profitable export commodity for the small ports along the entire Baltic Sea coast. Unfortunately, the woodchip importers pay well, and this raises the price on the home market, too. As it is evident from Figure 5, Sweden has the largest resources in Europe (more than three times exceeding the Latvian resources).



Source: EUwood.

Figure 5. The balance of the wood resources, 2007 (m^3/ per capita)

Apparently, it is profitable for Sweden to buy woodchips from Latvia where the labour costs are lower and transportation across the sea is not far and it is cheap. In Latvia the woodchip export will not restrict its use in the DHSs for the expansion of the sources of heat based on bio fuel because the resources of wood are sufficient. Just wider utilisation of woodchips in the boiler houses due to the developed free market and competition with natural gas may help implement the tasks of the EU Directive 2009/28/EK and achieve the 40% ratio of RES in the energy balance of Latvia before the year 2020 although this will require a state support and additional expenditure but possibly lesser than the expansion of the use of the other renewable resources.

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Appendix1 . Energy balance, example - Wood chips in Latvia, TJ, 2010

http://data.csb.gov.lv/Dialog/varval.asp?ma=EN0070&ti=ENG07%2E+ENERGOBILANCE%2C+TJ+%28NACE+2%2Ered%2E%29&path=../DATABASE/vide/Ikgad%E7jie%20statistikas%20dati/Ener%EC%E7tika/&lang=16

ENG07. ENERGY, TJ (NACE Rev. 2.)	
	2010
	Wood chips
CONVERSION FACTORS FOR TJ	3:40
Production of (+)	13866
Recycled products (+)	-
Imports (+)	-
Exports (-)	5399
Bunkering (-)	-
Transfer (+)	-
Changes in stocks (+)	129
Statistical differences (+)	-
The total consumption	8596
Transformation sector consumed	-5600
Transformation sector production	-
Transformation Sector	-5600
Power plants ..	-
General use .. CHP	-711
CHP business ..	-
General use in the boiler room ..	-3842
Boilers ..	-1047
Heat recovery equipment ..	-
Peat briquettes ..	-
Charcoal production ..	-
The energy sector (-)	-
Loss (-)	-
End-use	2996
Transportation ..	-
International air transport ...	-
Domestic air transport ...	-
Road ...	-
Rail transport ...	-

Inland shipping ...	-
Pipelines ...	-
Industry and construction ..	2231
Metals ... (24.1, 24.2, 24.3, 24.51, 24.52)	-
... Of chemicals and chemical products Manufacture of basic pharmaceutical products and pharmaceutical preparations (20, 21)	160
... Other metals (24.4, 24.53, 24.54)	-
... Non-metallic mineral products (23)	-
... Motor vehicles, trailers, semi-trailers and other transport equipment (29, 30)	-
... Fabricated metal products (except machinery and equipment), computer, electronic and optical equipment, electrical equipment, other non-qualified equipment, machinery and equipment nec (25-28)	17
... Mining and quarrying (07, except for 07.21, 08, 09.9)	-
... Food products, beverages and tobacco products (10-12)	51
Paper ... and paper products, printing and reproduction (17, 18)	102
... Of wood and cork, except furniture, and straw and plaiting materials (16)	1867
Construction ... (41-43)	20
... Textiles, clothing, leather and leather products (13-15)	-
... Rubber and plastic products, furniture and other manufacturing (22, 31, 32)	14
Other sectors ..	765
... Other consumers - commercial and public sectors (33, 36-39, 45-47, 52, 53, 55, 56, 58-66, 68-75, 77-82, 84-88, 90-96, 99)	500
Household ...	-
... Crop and animal production, hunting and related service activities, forestry and logging (01, 02)	265
Fisheries ... (03)	-

Source: Central Statistical Bureau of Latvia