Hardwoods are Good

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Working Conditions in the Hardwood Value Chains in the South Baltic Region

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Summary

The development of prosperous value chains based on hardwood timber in the South Baltic Region depends to a huge extend on the actual and future availability of competent and motivated entrepreneurs and workers in all sectors of the chain, from forestry to wood processing. A first exploratory inquiry with partners of the project "Hardwoods are Good" provides indicative information about the labour situation. Even if detailed information is not yet available the assessment leads to a number of assumptions and it points at some critical problem areas. These need further attention when the enterprises shall be able to contribute to a higher and better utilisation of hardwood timber in the South Baltic Region.

Private forest owners are generally not sufficiently educated to manage their forests themselves. Harvesting is mainly carried out by small and micro contractors. While it can be assumed that workers are adequately trained, it needs to be asked whether the majority of the workers is able to work safely and productive in harvesting large dimensioned timber. This will become more and more the main task in hardwood management. Contractors generally do not have advanced management skills. Here is a major field for development: to enable them to improve their contribution to the value chains.

The timber industry in the hardwood chains is with rare exceptions also composed of small traditional saw mills. The main problem in these enterprises is the work-place design, where technical protection of workers from hazardous objects and agents is often not applied sufficiently, where work-places do not meet the standards of ergonomic design, and where safety cultures are not yet developed in way that the use personal protective equipment is a common standard.

Since the majority of the enterprises are small or even micro enterprises, it can not be expected that they will be able to cope with lacks of training and to innovate the enterprises by their own means. Support, advice and education will be needed to make the enterprises fit for playing their role in improved hardwood value chains in the South Baltic Region.

1 Introduction

1.1 Background

This report is a contribution to the project **Hardwoods are Good**[1] which aims at fostering development of hardwood based values chains in the South Baltic Region[2] by promoting the use of hardwood timber and by facilitating business contacts and networks in the Region.

A previous study has outlined that the Region has real capacity to enhance the hardwood utilisation and to develop *hardwoods* into a regional brand, whereas it must be considered that utilisation and branding should respect the high ecologic and tourism value of South Baltic Forests. To develop real regional value chains, huge efforts are needed to further enhance the wood processing capacities in the Region and to facilitate business relationships between forest owners, harvesting enterprises and wood processing companies, particularly across the national borders in the Region (Kastenholz, 2011).

It is widely understood that today and in the future the availability of a competent workforce is a precondition for sector and regional development. This accounts particularly to the forestry sector. Forestry and timber industries are challenged by the threat of a future lack of workers both in numbers and in competences (Forest Europe, 2011). This is firstly due to the fact that the attractiveness of forestry work tends to decline, compared to other professions, and secondly this is considered as a result of the demographic development throughout Europe leading to less young entrants in working life, and an ageing population and work-force. Again, forestry is more affected by the demographic changes, since here already today in many cases the work-force in average is older than the average working population in general. The Forest Europe (2011) report indicates, that this is particularly the fact in the Nordic countries.

On the other hand, development of a viable and prosperous economies, and in our field, regarding the development of value chains based on hardwood management in the South Baltic Region, depends to a huge extend on the availability of workers and managers to carry out the various tasks to grow trees, to harvest and transport timber and to process timber to added value products. This again is considered as being

[1] See: http://www.skogsstyrelsen.se/Projektwebbar/Hardwoods-are-good/

[2] When it says in the following text “the Region” it always refers to the South Baltic Region in the scope of the EU South Baltic Programme.

threatened by low attractiveness in physically and mentally demanding work environments, and not at least because profitability in forest sectors is often low compared to other branches of economy.

Therefore, the future availability of a qualified work-force to harvest, transport and process hardwood timber is considered as one of the most crucial threats for future development of the hardwood based value chains in the Region (Kastenholz, 2011). On the other hand, the conditions under which work is carried out and the conditions of the work environment are of highest importance for the attractiveness of forestry and forest based industries as work places.

1.2 Human Resources

Labour and income gained from labour is the source of subsistence for people working in and depending on forestry and in wood industries, and it is one of the important sources of welfare for (mainly rural) economies, especially in remote rural areas, where other sources for employment are rare. Even if the hardwood utilisation in the Region is still below its capacities, it plays in many parts of the Region an important role as an economic factor.

Therefore, the first aspect related to the overall considerations about work force is the availability of *human resources*. This deals with the question how many persons are actually working in the hardwood based value chains and how they can be described. Since detailed research on the personal and social situation in enterprises in forestry and wood industries has rarely been carried out, the situation of the human resources can best be described by the education and competence level of workers and managers, even if also for this indicator it is hard to find statistical information which sufficiently describes the sector.

1.3 Working Conditions

Good working conditions are a prerequisite to make work in the forest based sectors attractive enough to ensure that keen and competent people will stay in or will enter the business. Besides this economic and pragmatic need for good working conditions, it is of course a moral requirement that work must be carried out under conditions which do not harm workers´ health and which do contribute to their wellbeing. There are a number of normative frameworks which describe these requirements for working conditions. For the purpose of this study and the hardwoods value chains in the Region it seems to be most adequate to refer to the **ILO decent work** concept (ILO, 1999) as a reference. This global approach fits quite well to the goals of the "Hardwoods are Good" project objectives, and it is described by the ILO (2012) as follows:

1. “Creating Jobs – an economy that generates opportunities for investment, entrepreneurship, skills development, job creation and sustainable livelihoods.

2. Guaranteeing rights at work – to obtain recognition and respect for the rights of workers. All workers, and in particular disadvantaged or poor workers, need representation, participation, and laws that work for their interests.

3. Extending social protection – to promote both inclusion and productivity by ensuring that women and men enjoy working conditions that are safe, allow adequate free time and rest, take into account family and social values, provide for adequate compensation in case of lost or reduced income and permit access to adequate healthcare.

4. Promoting social dialogue – Involving strong and independent workers’ and employers' organizations is central to increasing productivity, avoiding disputes at work, and building cohesive societies.” (ILO, 2012)

Working conditions in general include many aspects such as:

- Occupational Safety and Health
- Working Time
- Wages
- Organisation of work and job content
- Worker´s welfare

Working conditions further relate the work environment which contains physical and chemical objects and substances, climate, noise, and vibration. All these are factors which affect or harm workers.

Many issues related to labour and enterprises can be used to describe working conditions:

- Workers rights
- Right to associate
- Right to negotiate
- Appropriate, sustaining income
- Job security
- Career opportunities
- Gender equality

These aspects are key requirements which are not at least codified in the core ILO conventions[3] which form a global normative framework for working life, and these conventions are ratified by most countries in the world.

On enterprises level working conditions are a core element and goal of:

- Development of enterprises;
- Viability and profitability of enterprises, since this contributes again to the opportunities of investment in human resources;
- Investment in human resources (recruitment, training, participation);
- Investment in technology, ergonomics and work organisation).

This overview shows that ***working conditions*** are a broad field which generally would need a holistic approach to cover and analyse the situation in a sector. Due to limited resources and an obvious lack of official statistical data for the Region this study needs to focus some core indicators for working conditions and human resource development. The first assessment therefore deals with some core indicators for working conditions in the hardwoods chain, to describe the status quo of the situation related to human resources.

1.4 Working conditions in forestry and wood industries- a general overview

The dominating concern in forestry work always is health and safety. Multiple hazards are based on the work and the task itself, and it can be stated clearly: Forestry work is one of the most dangerous tasks in general! Even if strong efforts have been made over the last decades to reduce accident risks in forestry, e.g. by the mandatory requirement to use personal protective equipment, and by introducing work procedures which bear lesser risks, it is still a fact that forestry work is among the professions with the highest accident rates.

[3] The ILO Fundamental Conventions are:

- Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87)
- Right to Organise and Collective Bargaining Convention, 1949 (No. 98)
- Forced Labour Convention, 1930 (No. 29)
- Abolition of Forced Labour Convention, 1957 (No. 105)
- Minimum Age Convention, 1973 (No. 138)
- Worst Forms of Child Labour Convention, 1999 (No. 182)
- Equal Remuneration Convention, 1951 (No. 100)
- Discrimination (Employment and Occupation) Convention, 1958 (No. 111)

Particularly, when we deal with harvesting hardwoods, accident risks are present and can not be eliminated. When felling large trees with heavy tree-tops work can only be mechanised to a minor extend. It still needs in most cases the person with the chainsaw to fell and branch the trees. This task has to be carried out with high technical skills, a very high alertness for the risks involved in the task, and a very good work organisation to reduce the danger for the fellers and their colleagues in the stands.

But also mechanised work – the use of harvesters and forwarders – is not free from health risks, even when here the risk of accidents is reduced considerably. New technologies, like mechanised harvesting lead to new health risks mainly deriving from the repetitive tasks in the cabin of the machines. And not only the work as such but also mental strain, production pressure and long working hours contribute to the health problems. Today, it is well understood that also many forest machine operators suffer from work related health problems (Vik, 2005).

In the wood industry working conditions of course are very different from forestry. The working conditions are much more related to the workshop layout, the use of machinery and the ergonomic design of the work-places itself. Different form forestry as well is that wood industry at least in low-tech enterprises offers still a lot of jobs for rather low skilled workers, who to a large proportion have the task to manually handle the wood in the processing process. The main hazards are noise, dust, handling wood and of course, when it comes to wood processing, dangerous agents like paint and solvents. Depending on the stage of technical development and safety culture in the respective enterprises workers can be exposed to high concentration of carcinogenic substances.

While we need to focus in forestry mainly on the competences of the workers themselves to carry out their tasks with a very high responsibility and care, and to organise the work in teams which safely work together, wood industry is to a larger extend a field for workplace design, to reducing the risk from dangerous objects and poisonous agent.

Generally, for all work tasks tackling health and safety can not only focus on the tasks and physical environment alone. It is a global complex issue which includes man, technique and management. The design of the work needs to be based on:

- Choosing the right work procedure;
- Using the right and safe tools and machines;
- Do it correctly, which means do it safe;
- Organising work in way that it is carried out in the safest possible way.

This leads directly to the predominant aspect: ***competences***. Both, workers and management have to be competent to plan, organise and carry out their tasks in a safe but also productive way.

Health and safety is the predominant indicator for working conditions, since it reflects problems on the job and physical and chemical work environment by accidents and damages to health. But it needs to be clearly stated that good working conditions contain much more than the protection of health and safety. Well trained workers, who carry out responsible tasks, earn an income which allows them to sustain a decent life, and have rights in the enterprises individually and collectively form the human resources which are necessary to maintain prosperous enterprises in prosperous value chains.

1.5 Objectives

The focus of this study is mainly **on working conditions** in the hardwoods value chain, but the overreaching objectives goes beyond assessing competences, health and safety and work environment. It is to provide directions for investment in workplaces, training and education to provide the prerequisite on the human resources level for enterprise development and capacity building in the Region.

1.6 Method and scope of this report

This report on working conditions in the hardwoods value chains in the South Baltic Region summarises the first findings from an explorative data assessment and background information gathered in literature studies. A first data collection was started with the "Hardwoods are Good" project partners in late 2010. A data collection template was used where three categories were covered in a rather rough scale: Number of workers, competences and occupational safety and health. However, the returns to this inquiry were not exhaustive, and it was found that official statistics on regional level are rarely available. However, the data which were collected have an explanative value and can be used to draw a picture of the situation in the Region, which of course needs at various points further detail to verify the interpretation.

2 Situation in the hardwood value chains

The first issue of concern is the actual state of employment in the Region. Before discussing the working conditions an overview is needed about the quantity of the work force in the Region. We need at least an indicative information about how many people are working in the different links of the value chains.

2.1 Number of workers

The assessment is divided in tasks and enterprise categories along the chain. For each of the task areas *Harvesting*, *Road Transport*, *Timber Marketing* and *Primary Processing* the question was raised, which actors (Forest Owners, Owners Employees, Forestry Contractors, Specialised Contractors, Merchants, Sawmills, and other processing enterprises) actually carry out the respective task? Further, the number of enterprises was assessed. Indicative numbers of enterprises are provided in table 1.

Table 1: Number of enterprises in the hardwoods value chain in the South Baltic Region. (Figures based on information from national correspondents)

Country	District/County	Harvesting			Timber Transport			Marketing /Trade			Processing		
		Private Forest Owners	Forest Owners Employees	Forestry Contractors	Private Forest Owners	Forest Owners Employees	Forestry Contractors	Private Forest Owners	State Forest	Contractors /Merchants	Sawmills	Board and Panel	Other
Lithuania											20	6	13
Poland	RDLP Gdańsk	5	1	73	4	7	25	5	15	10	45	2	
Germany	Project Region			30							10		
Sweden	Project Region			80			60				9	1	2
Russia	Kaliningrad region	4		115	1			4			1		

Even if this first assessment does only provide a very rough picture and considerable number of blank fields, it already shows a trend towards concentrations of enterprises.

- In all project regions harvesting is mainly in the hands of contractors. Here we find the highest number of enterprises.
- Timber transport is also a contracting business.
- Only in Poland it seems that timber marketing is mainly carried out by the state enterprise, while in Kaliningrad this is allocated to privatised forest holdings. In the other areas, trade and marketing is done by a mix of actors.
- Wood processing is mainly, with exception of big companies in Sweden and in the Kalinigrad region, the business of rather small saw mills.

Overall, the hardwood based value chains can be characterised by a rather high number of enterprises in forest operations (forestry contractors). The timber processing industry is also quite fragmented, with the exception of the Kaliningrad region where processing is centralised in one major company.

The assessment of the size of the enterprises shows that the sector is dominated by small and micro enterprises (see table 2).

Table 2: Average number of employees per enterprise category in the hardwoods value chain in the South Baltic Region. (Figures based on information from national correspondents)

Country	District/County	Harvesting			Timber Transport			Marketing /Trade			Processing		
		Private Forest Owners	Forest Owners Employees	Forestry Contractors	Private Forest Owners	Forest Owners Employees	Forestry Contractors	Private Forest Owners	State Forest	Contractors /Merchants	Sawmills	Board and Panel	Other
Poland	RDLP Gdańsk	3	2	8	2	4	12	2	50	4	15	35	
Germany	Project Region												
Sweden	Skåne län			6			2		10		100	1	2
	Blekinge län			4			2				100		
	Kalmar län			3			2				1300		
	Kronobergs län			1			2				50		
Russia	Kaliningrad region	72		250									

The average number of employees in forestry contracting companies in the Polish, German and Swedish parts of the Region characterises these as micro enterprises with a work force far below 10 people.

The largest work force in harvesting can be found in Kaliningrad (this figure needs to be checked) where an average number of 250 workers per enterprise in provided. Also the 4 forest holdings employ a considerable number of workers.

In wood processing the saw mills in Sweden contribute to a huge employment, whereas the mills in Poland in average are very small. A considered guess is that the saw mills in Germany will also range in the smaller scale of the Swedish enterprises (about 100 people per enterprise)

Even if this quantitative overview is rather rough and a lot of information is missing this first assessment provides useful indications about scale and type of enterprises and employment in each category. It shows at least where the focus should be drawn to look deeper into the human resources in the chain.

- ***Harvesting***: With exception of the Kaliningrad region harvesting is a small and micro enterprise business. Here we should have a closer look in the working conditions, safety and training standards, because it is evident that

small and micro enterprises have particularly high problems with work organisation and health and safety. The same accounts for road transport, where the enterprises are even smaller.

- ***Timber marketing***: Except where state forests (Poland) or large holdings (Kaliningrad region) act as monopolists in timber marketing, trade and marketing seems to be rather fragmented, which points at challenges for capacity building in this field to foster a prosperous hardwoods value chain.
- ***Wood processing:*** Mainly the hardwood saw mills in Poland and Germany and the considerable high number of wood processing enterprises in Lithuania points at a big challenge for capacity building in these sectors. On the other hand, the small size of these enterprises raises concern that they might not be competitive in the future while timber industries in general follow a world wide trend of centralisation.

It will be necessary to take a closer look at the working conditions in these small enterprises. It can be expected that there are differences between areas within the project region. But in general it can be assumed that in the very small harvesting enterprises we find a huge number of small companies with old fashioned technology and critical safety standards. This needs further assessment with a comparison between the countries and regions.

2.2 Competences

Competences of workers and management are the most important prerequisite for enterprise development. Forestry and wood industries require a set of basic technical skills. The most important skill in hardwood harvesting is of course that workers are able to operate a chainsaw perfectly and safely, and that skidding machines (winches, cables but also horses) can be used effectively and appropriately for to the respective local stand conditions. The basic working techniques are standard techniques which are applied world wide in nearly the same way, and they are clearly described in multiple manuals for forest operations (e.g. in ILO 1998). However, it is an evenly well known fact, that in far too many cases these basic skills are not available. Of course there are many enterprises, where well trained workers are employed. But particularly in small and micro enterprises general training and education schemes are not always common, and trained on the job workers can be found, who do not have the necessary skills.

More complex are the managerial skills in forest enterprises. In most cases running a harvesting company does not require a specific education. A recent development project assessed the competence demands for running an enterprise successfully and laid out a catalogue for competence needs of contractors (Morat, 2010). It is a well considered assumption that in most cases contractors are missing many of these skills, particularly with regards to managerial competences.

In wood industries the assessment of skills and competences is much more complex and difficult, since these handcraft and industrial companies have a much more differentiated work organisation. In a traditional saw mill many persons are needed to handle sawn wood in the process. Here, the skills demands are rather low, and this is still a field for employment for unskilled or lowly skilled workers. But the more advanced the production units become, the higher the skills requirements get. Operating computer aided processing machinery requires at least vocational training.

A first approach to get an impression of the skills levels in the hardwood value chains in the Region was a simplified data collection scheme, asking for an estimation of the average actual skill level in the enterprises along the chain. A five level scale was used to estimate the situation:

1 = unskilled;

2 = no formal education (trained on the job) ;

3 = vocational education (certificate);

4 = technical education (master craftsman etc.);

5= higher education

Table 3 provides a first indicative overview of the first findings for competence levels in the management of enterprises along the chain.

Table 3: Skill levels in enterprises in the hardwoods value chain in the South Baltic Region MANAGEMENT. (1 = unskilled; 2 = no formal education (trained on the job) ; 3 = vocational education (certificate); 4 = technical education (master craftsman etc.); 5= higher education (Figures based on information from national correspondents)

Country	District/County	Harvesting			Timber Transport			Marketing /Trade			Processing		
		Private Forest Owners	Forest Owners Employees	Forestry Contractors	Private Forest Owners	Forest Owners Employees	Forestry Contractors	Private Forest Owners	State Forest	Contractors /Merchants	Sawmills	Board and Panel	Other
Lithuania		1	3	3-4	1	3-4	3-4	1	5	5	3-5	5	
Poland	RDLP Gdańsk												
Germany	Project Region												
Sweden	Project Region	2	2	5		3	5			5	3	4	
Russia	Kaliningrad region	5		3-4									

From this assessment it can be seen that regarding management skills in enterprises the weakest link in the chain are private forest owners which have no formal education or have been just trained on the job.

The forestry side of the chain generally is staffed with people who have at least a vocational education. An exception here is the Swedish forestry where a considerable number of contractors have passed higher education. This reflects again that general education scheme in Sweden, where vocational training is embedded in the secondary education, and not generally subject to training in enterprises.

As can be expected, management in the wood industry is in sawmilling carried out by "craftsmen" (i.e. people with vocational education), whereas managing further processing units like board and panel enterprises can be considered as a professional task (higher education).

This overview, even if it is only a very rough glimpse in the sector´s management, allows a first assumption about weaknesses in the chain:

- Forest owners do not provide competences themselves to manage the forests in a way that hardwood utilisation can be optimised. Competences of private forest owners generally are low. Here is a huge demand for training in forest management and marketing.

- Forestry contractors in most cases are good craftsmen but not real businessmen. This is general knowledge which is again backed up by the indications in this assessment.

- Smaller "traditional" sawmills which are the major actors in processing hardwood timber are generally on a craft level with rather low professional management competences. This is a point for awareness when the development of business networks is concerned, and when an advanced development of the hardwood value chains should be achieved.

The competences of ***workers*** are according to the responses to the inquiry quite sufficient for the tasks which need to be carried out along the chain. Table 4 provides an indicative overview.

Table 4: Skill levels in enterprises in the hardwoods value chain in the South Baltic Region WORKERS. (1 = unskilled; 2 = no formal education (trained on the job) ; 3 = vocational education (certificate); 4 = technical education (master craftsman etc.); 5= higher education (Figures based on information from national correspondents)

Country	District/County	Harvesting			Timber Transport			Processing		
		Private Forest Owners	Forest Owners Employees	Forestry Contractors	Private Forest Owners	Forest Owners Employees	Forestry Contractors	Sawmills	Board and Panel	Other

Lithuania		1	3	3-4	1	3-4	3-4	1		
Poland	RDLP Gdańsk	2		3-4		3	4	4		
Germany	Project Region									
Sweden	Project Region	3	3	3			3	2	3	
Russia	Kaliningrad region			1-2						

In forestry the general skills level seems to be vocational training which meets the general demand. Only in the Kaliningrad region forestry workers are supposed to be very low trained. This is an indication that in Kaliningrad region rather large enterprises with many employees work in rather low technical procedures. A lot of manual labour might prevail, where unskilled workers can be used. This assumption needs further verification by local experts.

A considerable low training standard is indicated for saw mill workers in Lithuania. This indicates that particularly here simple manual tasks prevail, what again opens the question, if working conditions in the small scale wood industry in Lithuania are "decent" according to the normative frame which was outlined in the introduction of this paper.

This first approach to get an overview of skills in the chain draws up following conclusions:

- Forestry contractors generally employ professional forest workers, with the exception of Kaliningrad. The question here is: are workers sufficiently trained for hardwood operations, mainly, are they competent to harvest and process large dimension timber in a safe and effective way? Here a closer look on the training demands for workers, particularly with regards to the skill requirements to apply environmentally sound operations (e.g. soil protection) seems necessary.

- Mainly small saw mills employ a considerable number of low skilled workers. This requires a closer look at technical and safety standards in these enterprises.

2.3 Health and Safety

One crucial aspect in assessing the situation of enterprises in the value chain is the conditions under which people work. Working conditions, respectively the quality of work should be assessed by a number of indicators such as workers rights, job security, career opportunities and investment in human resources (recruitment, training,

participation). However, at this stage in the study we have just scratched the surface with considered guesses about the health and safety situation.

Safety and Health is a major indicator for working conditions. Therefore we tried to collect a first indication about the safety and health situation in the respective region and segments of the chain. However, it seems that accident statistics for the Region are not sufficiently available. But some indicative figures could be obtained which however do not provide sufficient evidence for a sensible analysis of working conditions.

This assessment could also not provide sufficient information about accidents and work related illnesses. Where data are available these do not have enough explanative value to describe the safety standards in enterprises. Here we need to draw back on observations and previous knowledge.

It has been outlined before that forestry work is a high risk operation. Particularly, motor manual harvesting is among the most hazardous tasks at all. From overall accident statistics it is known that despite many efforts in the past, accidents in forestry remain on an unacceptable high level (Forest Europe et al. 2011, pp 107-108). It is evident that accident frequency is very much related to the decree of mechanisation of operations. On the other hand, safety and health are result of management, planning and good competent performance, which has been addressed before.

In processing industries the working conditions are mainly subject to the workplace design. There are very different levels of technical development in the Region. That also accounts for to the technical and organisation protection against dangerous objects and agents. The lack of lifting aids for handling of timber and ergonomic design of individual work places is a prevailing problem in the timber industry. The most crucial demand is that enterprises and workers develop a culture of maintaining decent working conditions. Of course, all necessary protective equipment needs to be provided and – even more important – has to be used by workers and the workers have to be encouraged to use it. Observations in timber processing companies show that for example ear protection is not generally used by all workers. This is only one example, but it is a good indicator for the lack of health awareness in an enterprise.

In high mechanised timber industry companies the major issue is work organisation to reduce the strain from repetitive and monotonous tasks which are related to operating and observing timber processing machines.

3 Conclusions

Generally it can be concluded that working conditions in the hardwood chain in the Region are very heterogeneous, since the nature of the enterprise is very differentiated. There are huge differences between the sub-regions, but also within the sectors in the difference parts of the Region. This makes it challenging to provide general findings in the frame of this assessment.

This first assessment does not provide a deeper insight into the working conditions in the hardwood value chains. Based on the information which was collected in the project partnership a rough overview can be provided. But to develop focussed measures to improve the working conditions, much more detailed information would be required what is beyond the scope of the project.

The findings point at observed and assumed problem areas which need closer attention to develop the hardwood value chains. Despite the lack of detailed information first conclusions can be drawn:

- The hardwood chain contributes to a considerable amount to employment in the region, with hundreds of forestry contractors which are small and micro enterprises, and about 100 mainly small wood processing enterprises which have a focus on hardwoods. Some large enterprises like the saw mill in Kalmar/Sweden with 1300 employees are important socio-economic factors for the whole Region.

- Towards the goal of the “Hardwoods are Good” project it needs high awareness that the sector will ensure the availability of competent workers for the future. This is very much related to maintaining decent working conditions, and thus to provide attractive jobs.

- Development areas for working conditions and training are

    - Skills for harvesting large dimensioned broad-leafed trees.

    - Health and Safety management in enterprises, both in forestry and timber industries.

    - Particular attention needs to be drawn to the situation of unskilled workers, because they are the most vulnerable group of employed people.

- Small scale forest enterprises and wood processing enterprises need support and advice to develop skills and competences and to maintain good working conditions.

The most critical aspect is training and education. Whereas in some parts of the Region the qualification standards is quite high, there is the question whether contractors and particularly workers in general own the skills to work safely and productive in the challenging conditions of hardwood harvesting and processing. Rather than assessing competence gaps in this tasks, we can draw up the requirements which need to be met:

- Contractors need improved management skills to be able to meet the demand of their business partners and to be able to innovate their enterprises. In many cases a modernisation of the technological equipment will be needed.

- Harvesting enterprises need to be able to choose the best working procedures and measures to harvest timber with highest regards to stand and soil protection, which is a prerequisite to manage hardwoods sustainably. This includes a keen knowledge of environmental conditions and requirements.

- Workers need to have the skills to harvest large dimensioned timber safely and with care.

- Forest owners need better knowledge about hardwood management.

- In timber industries – mainly in small scale saw mills which are specialised on hardwoods modernisation of the machinery and ergonomic work place design is needed.

Since the sector is to a large extend composed of small and micro enterprises (with the exception of Swedish timber industries, and the large harvesting companies in Kaliningrad) it is evident that improvement of the working conditions can not be expected from the enterprises themselves. Support systems are needed which focus on the demand of small and micro enterprises. State forest services or companies offer to some extend advice and support of small enterprises, eg. for owners of small forest properties, and for contractors. But it can be assumed that this is not systematically the case in the whole Region.

Extension services and organisations which provide business advice to enterprises are needed to advice, train and educate the enterprises towards meeting the requirements of an advanced hardwood value chain in the Region. Again, competent entre-

preneurs will gain the ability to design working conditions in a decent way and thus to provide attractive jobs.

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