

**Resource Efficiency and Sustainable Manufacturing  
in the Forest-based Sector of Eastern Europe  
(ENP-EaP countries)  
Final Conference Proceedings**

Promoting a partnership of industries, research and authorities  
to foster efficient use of raw materials and a more competitive  
forestry and wood manufacturing sector



Date: 18-19 May 2016  
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Organizing Committee

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### Authors

Uwe Kies (IIWH), Lesya Loyko (FORZA),  
Orest Kiyko (UNFU), Volodymyr Vorobey (WPFC)

### Approved by

Andreas Schulte (IIWH, lead coordinator)

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IIWH - Internationales Institut für Wald und Holz e.V.  
Hafenweg 24a, 48155 Münster, Germany  
[uwe.kies@wald-zentrum.de](mailto:uwe.kies@wald-zentrum.de) | [www.wald-zentrum.de](http://www.wald-zentrum.de)



FORZA NGO - Agency for Sustainable Development of the  
Carpathian Region, Uzhorod, Ukraine  
Mynajska str. 27/39, 88018 Uzhgorod, Ukraine  
[lesya.loyko@forza.org.ua](mailto:lesya.loyko@forza.org.ua) | [www.forza.org.ua](http://www.forza.org.ua)



UNFU - Ukrainian National Forestry University  
Gen. Tchuprynka str., 103, Lviv, Ukraine  
[orest.kiyko@nltu.edu.ua](mailto:orest.kiyko@nltu.edu.ua) | [www.nltu.edu.ua](http://www.nltu.edu.ua)



DOMV - WPFC Wood and Furniture Processing Cluster  
Henerala Chuprynky 50, 12, 79044 Lviv, Ukraine  
[vv@ppv.net.ua](mailto:vv@ppv.net.ua) | [www.domv.lviv.ua](http://www.domv.lviv.ua)



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# 1 Project Summary



## **RERAM - Resource Efficiency and Raw Materials in the Forest-based Sector of Eastern Europe**



The renaissance of wood as a renewable resource leads to a globally increasing demand and more and more non-sustainable exploitation of forests, especially in Eastern Europe (ENP-EaP countries). Preserving natural forests and fostering sustainable use of wood to ensure their key role in climate protection is one of today's grand societal challenges.

Wood is an astonishingly versatile raw material: it is at the same time renewable, recyclable, reusable and refineable, offering a multitude of environmentally friendly products to society, such as construction, furniture, flooring, interior, paper products, bioenergy and innovative bio-chemical products. Using wood efficiently is good to substitute fossil fuels or energy-intensive materials and is therefore an active contribution to climate protection.

RERAM's goal is to improve raw material consumption in the forest-based sector through adapted solutions for resource efficiency. Saving resources is important for the SMEs to become competitive and reduce environmental impacts. In general managers are not aware that inefficient processing and low maintenance generate high losses of wasted material and energy, which in fact sum up high, hidden costs. RERAM developed an instructive training programme and hands-on reality checks for efficiency coaching of SMEs. 19 woodworking companies benefited directly from practical checks and knowhow to improve environmental performance of their businesses.

The RERAM Handbook and Toolkit offers a practical guide for managers and technical personnel how to implement a tangible self-check of their company. It introduces Cleaner Production principles, effective tools and improvement options that can leverage a variety of common saving potentials in the woodworking industry. RERAM demonstrated that resource efficiency and sustainability represent smart win-win solutions for business and the environment and offer a real opportunity for SMEs in Eastern Europe.

RERAM was funded by the European Commission's FP7-INCO programme from 06/2014 until 05/2016 under grant no. 609573. It included 11 organisations from the EU and the ENP-EaP countries: IIWH International Institute of Forestry and Wood-based Industries e.V., Germany | HCS Wood Cluster Styria, Austria | ITD Wood Technology Institute, Poland | UNFU National Forestry University of Ukraine | FORZA Agency for Sustainable Development of the Carpathian Region, Ukraine | WPFC Wood Processing and Furniture Cluster, Ukraine | AITT Agency for Innovation and Technology Transfer, Moldova | RECC Regional Environmental Centre for the Caucasus, Georgia / Armenia / Azerbaijan | AUG Agrarian University of Georgia, Georgia | InnovaWood, Belgium | PROKO Projektkompetenz.eu GmbH, Austria.

For further info please visit: [www.reram.eu](http://www.reram.eu)



## 2. Conference Summary Report

### 2.1 Objectives and main outcomes

The RERAM final conference took place on 18-19 May 2016 in Lviv, Ukraine, and offered an international platform for networking and exchange among businesses and stakeholders in the European Neighbourhood Eastern Partnership region (ENP-EaP). The main goal was to present and debate tangible solutions that can foster efficient use of raw materials and resources for a more competitive forest-based sector in ENP countries.

Practical approaches and tools for small and medium enterprises to improve resource efficiency and cleaner production in woodworking were demonstrated and discussed. Three panel discussions with woodworking companies and experts provided a vital forum to showcase and debate these efficiency solutions and new ways to improve business performance and innovation in the ENP-EaP region.

The topics of the three panels were:

1. How can *resource efficiency* be realised in companies and what are the benefits?  
> Company checks & audits, steps for saving wood resources, indicators & toolkits
2. How can *innovation* in resource efficiency be stimulated in companies?  
> Innovation vouchers, competitions, process innovations
3. How can efficient manufacturing promote *value chains* and new markets?  
> Domestic markets, international supply chains, new business models

The event was well attended by a total of 85 participants from wood processing enterprises, business support organizations, research and consulting organizations from the forest-based sector. In total 35 Ukrainian companies and 12 companies from other ENP and EU countries participated. This report provides a full documentation of the event.



Group photo of the conference participants in front of the Hotel Taurus in Lviv, Ukraine

## 2.2 Agenda

RERAM Final Conference – Agenda May 18, 2016	
<b>Time</b>	<b>Activity, Presentation</b>
09:00	Registration & coffee
09:30 (0:15)	<b>Opening Plenary</b> - Chair: Dr. Uwe Kies, IIWH / Moderator: Lesya Loyko, FORZA <ul style="list-style-type: none"> <li>- Overview of agenda</li> <li>- Introduction of consortium</li> </ul>
09:45 (0:15)	<b>Welcome address of the Lviv Oblast Administration</b> Mr. Rostyslav Zemlynsky, Vice Governor of Lviv Regional State Administration
10:00 (0:30)	<b>The RERAM project: Fostering a resource efficient forest-based sector</b> <ul style="list-style-type: none"> <li>- Dr. Uwe Kies, IIWH, Germany</li> </ul>
10:30 (0:30)	<b>Resource efficiency in wood: Lessons learnt from RERAM's enterprise checks</b> <ul style="list-style-type: none"> <li>- Roland Oberwimmer, Holzcluster Steiermark (HCS), Austria</li> </ul>
11:00	<i>Questions &amp; Answers from the audience</i>
11:15	<b>Networking Café 1:</b> Coffee break   RERAM Press Conference
11.50 (0:10)	<b>The state of forest resources and wood sector in Georgia: main challenges</b> <ul style="list-style-type: none"> <li>- Prof. Teimuraz Kandelaki, Agrarian University of Georgia (AUG), Tbilisi</li> </ul>
12:00 (0:20)	<b>The forest-based sector of the ENP: challenges &amp; future opportunities</b> <ul style="list-style-type: none"> <li>- Prof. Orest Kiyko, Ukrainian National Forestry University (UNFU), Lviv</li> </ul>
12.20 (0:10)	<b>Strategies for the forest-based sector in Ukraine</b> <ul style="list-style-type: none"> <li>- Mr. Ostap Ednak, Member of Parliament of Ukraine</li> </ul>
12:30	<i>Questions &amp; Answers from the audience</i>
13:00	<b>Group photo &amp; Lunch break</b>
	<b>Panel Discussions:</b> 3 to 4 panel members give each a short flash presentation on a topic (max. 5 minutes, max. 2 slides), then discussion including the audience.
14:00 (0:45)	<b>1<sup>st</sup> Panel discussion : EFFICIENCY</b> <u>How can resource efficiency be realised by companies and what are the benefits?</u> Moderator: Prof. Ewa Ratajczak, Institute for Wood Technology, PL, <a href="http://itd.poznan.pl">itd.poznan.pl</a>
	<ul style="list-style-type: none"> <li>- Topic 1 – <b>Company Checks &amp; Audits</b>, Ukrainian furniture producer case Mr. Volodymyr Turchyn, Mebli Stil, <a href="http://meblastil.com">meblastil.com</a></li> <li>- Topic 2 – <b>Domestic markets for wood products</b>: Georgian company case Mamuka Khostaria, Georgian Wood Processors Association, <a href="http://nanowood.ge">nanowood.ge</a></li> <li>- Topic 3 – <b>Indicators &amp; Benchmarking Toolkits</b>, Austrian company cases Roland Oberwimmer, HCS, <a href="http://holzcluster-steiermark.at">holzcluster-steiermark.at</a></li> </ul>

<b>Time</b>	<b>Activity, Presentation</b>
14:45 (0:45)	<b>2<sup>nd</sup> Panel discussion : INNOVATION</b> <u>How can innovation in resource efficiency be stimulated in companies?</u> Panel moderator: Gus Verhaeghe, InnovaWood, Brussels, BE, <a href="http://innovawood.com">innovawood.com</a>
	<ul style="list-style-type: none"> <li>- Topic 1 – <b>Innovation Vouchers</b>: Moldovan furniture producer case Mr. Serghei Anastasov, Goliat Vita, Moldova, <a href="http://goliat-vita.com.md">goliat-vita.com.md</a>, <a href="http://ener2i.eu">ener2i.eu</a></li> <li>- Topic 2 – <b>Design in Product Innovation</b>: UA company case. Mr. Vitaliy Kyryliv, Design bureau Hochu rayu, <a href="http://hochurayu.com">hochurayu.com</a></li> <li>- Topic 3 – <b>Process Innovation</b>: Ukrainian furniture producer case Mr. Volodymyr Patis, Eskada-M, <a href="http://eskada-m.com">eskada-m.com</a></li> </ul>
15:30	<b>Networking Café 2</b> : Discussion tables, coffee break
16:00 (0:45)	<b>3<sup>rd</sup> Panel discussion : VALUE CHAINS</b> <u>How can efficient manufacturing promote new markets and value chains?</u> Panel moderator: Volodymyr Vorobey, WPFC, Ukraine, <a href="http://domv.lviv.ua">domv.lviv.ua</a>
	<ul style="list-style-type: none"> <li>- Topic 1 – <b>Resource efficiency: from cooperation to joint promotion</b> Mr. Vasyl Masyuk, Prominfo <a href="http://prominfo.com.ua">prominfo.com.ua</a></li> <li>- Topic 2 – <b>Value chain challenges for SMEs</b>: UA furniture company case Mr. Leonid Vasylyshyn, Goydalka, <a href="http://goydalka.com">goydalka.com</a></li> <li>- Topic 3 – <b>Product design for value chains</b>: UA furniture company case Mr. Artem Ponomarenko, Woodwerk, <a href="http://woodwerk.com/uk">woodwerk.com/uk</a></li> </ul>
16:45 (0:15)	<b>Main conclusions and closing of the conference</b> <ul style="list-style-type: none"> <li>- Prof. Dr. Orest Kiyko, UNFU, Ukraine</li> <li>- Dr. Uwe Kies, IIWH, Germany</li> </ul>
17:00	End of meeting
17:15	Guided city tour through Lviv Old town. Start from hotel “Taurus”
20:00	Joint Conference Dinner. Robert Doms brewery, Kleparivska str. 18, Lviv

<b>Excursion Day, 19 May 2016</b>	
<b>Time</b>	<b>Activity</b>
8:30	Departure by bus from hotel “Taurus”
9:00	<b>Production atelier House Republic</b> . Production of furniture according to own design.
11:00	<b>Lisgal</b> . Production of parquet and massive plank, <a href="http://lisgal.com.ua">lisgal.com.ua</a>
13:00	Arrival to hotel “Taurus”. Lunch in hotel. Departure of participants.

## 2.3 Opening Plenary

The conference moderator **Mrs. Lesya Loyko**, Head of the NGO FORZA ([forza.org.ua](http://forza.org.ua)), and **Dr. Uwe Kies**, the RERAM project coordinator, welcomed all participants to the conference. After an overview of the agenda, the RERAM partnership was introduced. RERAM is a 2-years EU-funded collaboration of 11 business and research organizations in 9 countries (4 EU, 5 ENP countries) aimed at improving resource efficiency in the forest-based sector of Eastern Europe by targeting especially local wood manufacturing enterprises.



**Mr. Rostyslav Zemlynsky**, Vice-Governor of the Lviv Oblast State Administration, opened the plenary with his welcome address. He pointed out the special importance of Western Ukraine as the centre of Ukraine's forest stock and strong wood industry sector. The regional government sees a high priority for innovative approaches in forestry, to safeguard the resource and enable growth of the sector. Therefore it supports the national memorandum to prevent illegal logging in Ukraine. The regional government furthermore has recently approved the formation of a new *Forest Sector Council for the Lviv Oblast region*, which was proposed through the initiative of the RERAM project. The Council includes various representatives of the administration, the state forest enterprise and the wood industries and aims to develop joint strategies for the promotion of more resource efficiency of the regions' forest resources (see more in chapter 6).

**Dr. Uwe Kies**, senior researcher at IWH in Münster ([wald-zentrum.de](http://wald-zentrum.de)), Germany, presented the main outcome of the RERAM project. Resource efficiency means optimizing a company's production process to save raw materials and energy, which helps companies to enhance competitiveness and reduce their environmental impacts. This is a win-win situation for the economy and the environment. The forest-based sector has decisive strengths in fostering resource efficiency: using wood efficiently contributes actively to climate protection, because forests function as carbon sinks while wood products store carbon and substitute fossil fuels and energy-intensive materials. The *cascade use principle* is an optimal way to use wood: wood products should be recycled as long as possible to maximize carbon storage and should be prioritized before the energetic use of wood. The RERAM project demonstrated successfully how resource efficiency can be put into practice and become a tangible opportunity for the wood manufacturing sector in Eastern Europe.



**Mr. Roland Oberwimmer**, wood industry specialist and project manager at the Woodcluster Styria (HCS, [holzcluster-steiermark.at](http://holzcluster-steiermark.at)), Austria, presented the lessons learnt from RERAM's efficiency checks of 19 woodworking companies. The most common problems that were identified are inefficient storage and handling of wood raw materials, ineffective dust collection and defect compressed air systems, low energy efficiency, poor waste management, lack of maintenance and workers' safety issues. Often considered as 'minor problems', most managers are not aware that these neglected inefficiencies generate large losses of material and energy and sum up an '*iceberg of hidden costs*'!

The reality checks of companies successfully identified a series of easy saving options (*'low hanging fruits'*), which can be used to start improving Cleaner Production. In general, about 50% of the identified options can be realised directly with little or no investment (*'good housekeeping'*) and will pay back in less than 6 months, whereas further options will require minor investments and pay back in medium term.

**Prof. Teimuraz Kandelaki** of the Agrarian University of Georgia Faculty of Forestry (AUG, [agruni.edu.ge](http://agruni.edu.ge)), in Tbilisi, Georgia, presented an overview of forest resource use and the woodworking sector in the Caucasus country. The main challenges for forest management are *illegal logging*, unsustainable livestock grazing, forest pests and diseases, water erosion and forest fires. These forms of destructive forest use are growing in recent years, because no effective forestry is in place to counteract these major problems. A key factor is the high *firewood consumption* of the local population in rural areas, which cannot be stopped given the absence of alternatives. Since recently, more and more Georgian wood manufacturers are emerging; however they are barely competitive in the domestic or international markets.



**Prof. Orest Kiyko**, Head of the Furniture and Wood Products Department of the Ukrainian National Forestry University (UNFU, [nltu.edu.ua](http://nltu.edu.ua)) discussed in his presentation the challenges and future opportunities of the forest-based sector of the European Neighbourhood (ENP) countries. He pointed out that wood industries, emerging anew in post-socialist economies, have a real perspective to develop a stronger impact on regional production, value added and employment, based on the natural forest resources in the region.

The main recommendations are (1) to build a *joint forest sector initiative* which can promote a better understanding and collaboration of the forest-based industries as one economic sector, (2) to develop targeted *support and training programmes* for small and medium enterprises to reduce waste and to implement cleaner production and sustainability principles in their business practice, and (3) to setup a *promotion programme* that stimulates higher level manufacturing and domestic value adding, new technologies and investments, and improves the business climate and innovation in the sector. Implementing resource efficiency is the smart solution for the forest-based sector to seize these opportunities and become a main player in the future bioeconomy.

**Mr. Ostap Ednak**, Member of Parliament of Ukraine and Secretary of the Environmental and Natural Resources Policy Committee ([website](#)), who joined the conference by skype call from Kiev, presented his policy vision of the forest-based sector in Ukraine. Mr. Ednak described the upcoming developments in the legislative field in Ukraine for the next 1.5 years and expressed his view that the moratorium on wood export is beneficial to Ukraine due to the currency devaluation. A new government perspective is also emerging, which intends to replace the current moratorium with a new, alternative legislation to prevent raw timber exports and promote more transparency in the timber trade. Mr. Ednak furthermore advocated the development a high profile for education in the forest-based sector and to initiate further collaboration and innovative projects to ensure competence and knowhow for a strong sector in the future.





## 2.4 Panel 1 on 'Efficiency'

The first panel group discussed how resource efficiency solutions can be realised by companies and what the benefits are for them. The session was moderated by **Prof. Ewa Ratajczak**, Head of the Institute for Wood Technology (ITD, [itd.poznan.pl](http://itd.poznan.pl)) in Poznan, Poland, who pointed out to understand resource efficiency as a means to improve competitiveness of Eastern European industries to become equal partners with Europe.



**Mr. Volodymyr Turchyn**, CEO of the Ukrainian furniture factory Mebli Stil ([meblistyle.com](http://meblistyle.com), [hausmobel.eu](http://hausmobel.eu)), presented first hand results how the RERAM enterprise check has been a beneficial exercise for his company, which is already present in European markets. The company already implemented several recommended improvement options and thus generated substantial savings and more efficient energy use. He pointed out that *educating people is key* to successfully implement energy savings, especially during the current crisis.

**Mr. Mamuka Khostaria**, Chairman of the Georgian Wood Processors Association and CEO of Nanowood Ltd. ([nanowood.ge](http://nanowood.ge)) in Tbilisi, Georgia, presented the situation of domestic markets for wood products in Georgia. The main problem is the lack of know-how and well-trained staff, mainly because no proper educational programs or courses are existent. The RERAM trainings managed to introduce a completely different mindset to the companies. Today the Georgian market is dominated by foreign companies. However, a few competitive companies are successful in modern wood construction and respond to a growing domestic demand. Furthermore, the participating companies benefited a lot from the RERAM enterprise checks and these experiences shall be propagated further in Georgia.



**Mr. Roland Oberwimmer**, wood industry specialist at the Wood Cluster Styria (HCS, [holzcluster-steiermark.at](http://holzcluster-steiermark.at)) in Austria, presented how *performance indicators and benchmarking* can be introduced to improve cleaner production in practice in a company. He pointed out that it is key to check and change your managerial mindset to accomplish a self-assessment of your company. Carrying out an internal analysis of consumption and waste will reveal the major cost drivers, which in general also hold the biggest potentials for saving costs and improve environmental performance. Setting up a full CP project is then the next step to plan and implement the best low-investment options.

The Q&A session addressed more aspects how efficiency can be implemented by companies. Disseminating successful examples and best practice have been decisive to 'switch' the mindset of entrepreneurs to take real action. Managers have to understand that efficiency is a long road of continuous improvement, which is why one should take one step at a time. The lack of skilled personnel is mainly due to a big gap in the educational system, which does not (yet) train graduates in modern skill sets such as management, design and soft skills. Therefore business-science cooperation and dual degree programs should be promoted.



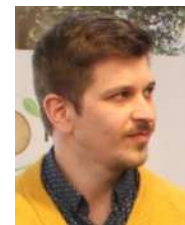
## 2.5 Panel 2 on 'Innovation'

The 2<sup>nd</sup> panel group discussed how innovation in resource efficiency can be stimulated among companies. **Mr. Gus Verhaeghe**, General Director of the InnovaWood Research Network ([innovawood.com](http://innovawood.com)) in Brussels, Belgium, who moderated the panel, explained how innovation can aim at products, production processes and/or the organizational structure of a company. He pointed out that resource efficiency is seen as a main advantage of the raw material wood, which is why research into *new wood-based materials* is paving the way for various novel products and markets in the emerging bioeconomy.



**Mr. Serghei Anastasov**, CEO of the Moldovan furniture producer Goliat Vita ([goliat-vita.com.md](http://goliat-vita.com.md)), presented how following the RERAM check various efficiency improvements have been accomplished in his enterprise. He pointed out the usefulness of tangible, practical solutions and trainings for companies in Moldova. He also presented the results of an innovation voucher project that was realized with support from the [ener2i.eu](http://ener2i.eu) project.

**Mr. Vitaliy Kyryliv**, art director of the Lviv design bureau Hochu Rayu, ([hochurayu.com](http://hochurayu.com)), stressed the role of design and product innovation to stimulate business. '*Catching the big fish*' does not mean to aim for easy money, but for the best people with the greatest ideas and potential. Many businesses just copy-paste existing ideas, but an innovative design originates from a *good teamwork* of designers and businessmen. The psychology of a successful cooperation is that designers ('fishermen') change the perspective of the businessman ('the captain of the ship') in order to visualize and redefine a brand's original qualities. A good design is an investment into an operable, marketable value added solution.



**Mr. Volodymyr Patis**, CEO of the Ukrainian wooden board manufacturer Eskada-M ([eskada-m.com](http://eskada-m.com)), demonstrated the philosophy behind innovation on an organizational level. Following a strategic vision of its founders, Eskada-M embraced a systemic transformation towards a leading market player and strives to expand its position through continuous innovation. Through collaboration with high class business schools, the company implements various modern management concepts such as *Theory of Constraint (TOC)*, *Kaizen* or *Lean Management* without significant investments and a short payback time of a few years. However, a company must be ready to rethink its business model and push through radical transitions. Innovation is more a philosophy than a tool, so the main change has to happen in your own mind: 'The greatest enemy of solving my problems is myself.'

In the Q&A session, the role of innovation in industry was further discussed. Several companies confirmed that the RERAM enterprise checks helped to identify technological innovations that are real improvements and can be implemented by a company on its own. Kaizen is a philosophy to create value and must be understood as a basic hygiene for companies. However, innovation through design is based on dialogue between designers, manufacturers, technicians, financiers, and different industries. The main bottleneck in ENP countries is therefore the readiness of companies to cooperate. Entrepreneurs have to start believing in working together and in new ways of doing business.

## 2.6 Panel 3 on 'Value chains'

The third panel group discussed the question how efficient manufacturing can promote new markets and value chains for the sector in ENP countries. The moderator **Mr. Volodymyr Vorobey**, Managing Director of the Wood Processing and Furniture Cluster (WPFC) in Lviv, Ukraine ([domv.lviv.ua](http://domv.lviv.ua)), pointed out that higher added value lies in unique business ideas and products that are valuable in the market. In his view public support schemes such as *innovation vouchers* or *start-up programmes* are not yet exploited in Ukraine to leverage the creative potential of Ukrainian wood and furniture manufacturers.



**Mr. Vasyl Masyuk**, Director of Prominfo ([prominfo.com.ua](http://prominfo.com.ua)), reflected on the potential of more cooperation and joint promotion in Ukraine's forest-based sector. In his view we are entering a *new industrial era of deficits*: while the past was marked by a deficit of materials and products, today's era is ruled by a shortage of relevant and true information. The next era will be marked by a deficit of time. According to Masyuk, the answer to this challenge lies in more cooperation along all steps of the value chain. The main barrier is the lack of trust between Ukrainian enterprises, which could for example learn a lot from the impressive cooperation of Polish companies. He advocates a stronger effort to unite forces for entering external markets and promote the common brand "*Product of Ukraine*".

**Mr. Leonid Vasylyshyn**, co-owner of the Ukrainian furniture factory Goydalka ([goydalka.com](http://goydalka.com)), confirms that technical upgrading through process innovation and energy independence are promising solutions to develop business and enhance the production culture in the sector. He however points out the problem that foreign business partners consider Ukrainian enterprises primarily as raw material suppliers, but not as manufacturers.



**Mr. Artem Ponomarenko**, CEO of the furniture producer Woodwerk ([woodwerk.com](http://woodwerk.com)), pointed out the role of product design to develop competitive value chains in Eastern Europe. He sees furniture production as a truly viable industry for Ukraine that can find its position in the globalised market. However, the main added value in the post-industrial area lies in knowhow and intellectual property. He therefore strongly advocates the development of an authentic *Ukrainian Design* in furniture and interior, and the promotion of products as closely as possible towards the final European customers.

The Q&A session explored further aspects of the discussion. Innovation grant schemes could be a viable possibility for the sector, if they are set up in a transparent manner and well monitored. They should also require companies to invest their own finances (50/50 grants). A main direction should be the promotion of higher added value and design solutions, encouraging young creative people, because ENP countries are lagging far behind (example of 1 Japanese design table equals the price of 1 truck full of Ukrainian furniture). There is a great need to organize more of such panels and roundtables in the sector, because it opens opportunities to learn from other companies and international experiences.

## 2.7 Main conclusions

Prof. Orest Kiyko and Dr. Uwe Kies presented the main conclusions of the conference. The RERAM project successfully demonstrated that resource efficiency represents a real solution and opportunity for SMEs to improve their production and the environmental performance, while saving costs at the same time. The participating companies have expressed the benefit of the hands-on enterprise checks for their business, and first results of successful implementations of the saving options are already confirmed.

The project facilitated a unique opportunity for sharing the expertise and experience in resource efficiency from EU countries with the emerging industrial sector in ENP countries. RERAM's training programs, enterprise checks and benchmarking trips helped to generate valuable first hand information and results about tangible solutions how to best promote a sustainable development of the raw material-intensive ENP forest-based sector. The RERAM handbook and the toolkit are readily available means to further disseminate and exploit these results and the successful company cases in the wider ENP-EaP region.

The project results are targeted first of all at SMEs in the forest-based sector, but also at intermediaries such as public agencies, consultants, researchers and decision-makers in economic policy. Fostering growth and innovation of the ENP-EaP forest-based sector requires stronger communication and cooperation among all involved stakeholders, to stimulate a broader uptake of efficiency and cleaner production solutions in the sector, and to improve the business climate for SMEs that are ambitious and well positioned to step up onto international markets.

To facilitate this market uptake, the RERAM project recommends three main actions:

- First, a *joint forest-based sector initiative* should be formed, which can unite and join the forces of the different sub-industries and promote a better understanding and collaboration in the ENP sector. Its first purpose is to assess the sector's status, barriers and potentials and develop a common vision, priorities and innovative actions. The second purpose is to raise awareness and improve the public perception of the sector's potentials for sustainable growth in the bioeconomy.
- Second, *the principle of resource efficient use of raw materials needs to be promoted* widely in the ENP sector. Support programs for SMES need to be set up that target the implementation of cleaner production and sustainability. The programs should aim at reduced wastes, higher recycling, less pollution and technological modernisation. The programs can include a range of methods, e.g. innovation vouchers, grants, credit schemes, enterprise checks and audits, competition and prizes, joint market promotion campaigns, and dedicated training and qualification.
- Third, the ENP sector needs a *transformation from 'from volume to value added'*. New investments in higher level manufacturing and domestic markets need to be stimulated. Specific promotion programs for local wood industries should be installed that support companies during the acquisition of new technology, the preparation of new investments and innovations, and facilitate the upgrade of production systems and competence.

Given the large forest resources and the considerable size of the ENP-EaP forest-based sector as a major pillar in the ENP regional economy (e.g. more than 8,000 enterprises with at least 160,000 employees in Ukraine, Moldova and Georgia, according to statistics of the RERAM baseline study), these actions can be expected to have decisive positive impacts on the foundation of new enterprises and the creation of higher employment in local communities.

The foundation of the Forest Sector Council for the Lviv Oblast, which was proposed through the initiative of the RERAM consortium, is a major first step to initiate this transformation in Western Ukraine. The Council, who represents members of the regional administration, the state forest enterprise and the wood industries, will give important impulses for the region to valorise its rich forest resources and improve the situation of woodworking SMEs.

The forest-based sector in Eastern Europe (ENP-EaP countries) has real perspectives. Industries that work with solid wood can be considered as very important, because they offer a tangible way to reduce CO<sub>2</sub> emissions that are the main cause of Climate Change, through the carbon sink effect of the forests (CO<sub>2</sub> absorption by trees), the carbon storage effect of wood products and the substitution of carbon-intensive materials. It is therefore paramount to address the main challenges in the forest-based sector and to elaborate concrete measures and initiatives, which can mitigate the current unsustainable practice and overexploitation.

The RERAM consortium has also developed a series of new pilot project proposals for national, bilateral and international funding programs, which address various aspects of these recommendations, as for example: new competences in the wood industry, transition to zero waste and circular economy in wood industries, efficient bioenergy production from wood, empowering forest communities for climate change adaptation, innovation hubs for technological upgrading, or a mentoring programme for innovative students. The common concept to promote these new strategies and solutions is: resource efficiency.

The RERAM leadership wishes to thank all companies, project participants and stakeholders, who participated and invested themselves in the enterprise checks, trainings, roundtables, joint events and final conference and contributed to the valuable results. The consortium wishes also to acknowledge gratefully the European Commission's financial support, which enabled this very unique, successful collaboration of experts from EU and ENP countries that has led to a lot of improved capacities and promising new partnerships.

## **2.8 Public press conference**

The RERAM team held a press conference as a side session of the final conference, in which Mr. Rostyslav Zemlynsky, Vice Governor of Lviv Regional Oblast Administration, announced officially the foundation of the new Forest Sector Council for the Lviv Oblast region. Prof. Orest Kiyko and Dr. Uwe Kies presented in their statements the main purpose and results of the RERAM project (see Annexes 4.5 Press release and 4.6 Council Declaration).



### 3. Impressions of the conference

#### 3.1 Opening Plenary: pictures



Welcome adress by Mr. Rostyslav Zemlynsky, Vice Governor of Lviv Regional Oblast Administration; RERAM project presentation by Dr. Uwe Kies (IIWH)



Presentation of RERAM's enterprise checks by Roland Oberwimmer (HCS)



Questions and answers, statements from the audience





Presentation of RERAM project results in Georgia by Prof. Teimuraz Kandelaki (AUG)



Presentation on challenges of the ENP-EaP forest-based sector by Prof. Orest Kiyko (UNFU)



Policy statement by Ostap Ednak, Member of Parliament of Ukraine (via videostream)  
Questions and answers, statements from the audience



RERAM press conference with Mr. Rostyslav Zemlynsky (Vice Governor of Lviv Regional State Administration), Prof. Orest Kiyko (UNFU) and Dr. Uwe Kies (IIWH)  
See also Annexes 4.5 Press release and 4.6 declaration of the Forest Sector Council



### 3.2 Panel Discussions: pictures



Panel discussion 1 on 'Efficiency' with Volodymyr Turchyn (MeблиStil), Mamuka Khostharia (Nanowood), Roland Oberwimmer (HCS) and Prof. Ewa Ratajczak (ITD)



Panel discussion 2 on 'Innovation' with Serghei Anastasov (Goliat Vita), Vitaliy Kyrlyiv (Hoch rayu), Volodymyr Patis (Eskada-M) and Gus Verhaeghe (Innovawood)



Panel discussion 3 on 'Value chains' with Vasyl Masyuk (Prominfo), Leonid Vasylyshyn (Goydalka), Artem Ponomarenko (Woodwerk) and Volodymyr Vorobey (WPFC)



More questions and answers / statements from the audience; final conclusions





Vivid discussions and bilateral networking during coffee breaks



### 3.3 Excursion Day: pictures



Impressions from the excursion day: Visit of the companies 'House Republic' and 'Lisgal'



## **4. Annex**

### **4.1 List of Participants**

### **4.2 Opening Plenary: RERAM project presentations**

1. Kies, U. Resource Efficiency and Sustainable Manufacturing in the Forest-based Sector of Eastern Europe (ENP-EaP Countries). The RERAM project: main outcomes. IIWH.
2. Oberwimmer, R. How to improve resource use and efficiency in wood manufacturing: Lessons learnt from RERAM's enterprise checks. HCS.
3. Kandelaki, T. Forest resources and the wood sector in Georgia: the main challenges.
4. Kiyko, O. The forest-based sector of the ENP: challenges & future opportunities. UNFU.

### **4.3 Panel Discussions: Impulse presentations from SMEs**

5. Turchyn, V. Resource efficiency solutions of furniture factory Mebli Style.
6. Khostaria, M. Georgian Woodworking markets. Nanowood.
7. Oberwimmer, R. Indicators & Benchmarking Toolkits. HCS.
8. Anastasov, S. CP Options implemented at Goliat Vita.
9. Kyryliv, V. Design bureau Hochu Rayu.
10. Patis, V. Eskada-M: Nothing but perfection.
11. Ponomarenko, A. Woodwerk: Furniture & Homestyle.

### **4.4 Closing: RERAM project main conclusions**

12. Kies U., Kiyko O. RERAM Final Conference. Main conclusions. IIWH, UNFU.

**Resource Efficiency and Sustainable Manufacturing  
in the Forest-based Sector of Eastern Europe  
FINAL CONFERENCE - List of Participants**

**Date:** 18-19 May, 2016

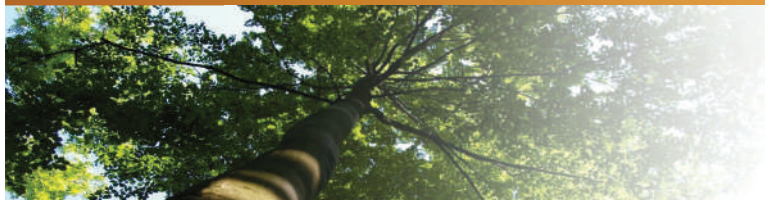
**Place:** Hotel Taurus, Knyaza Svyatoslava square, 5, Lviv, Ukraine

	<i>Name</i>	<i>Country</i>	<i>Company name</i>	<i>Phone, email</i>
1.	AKHOBADZE Sophiko	Georgia	REC Caucasus	+995577797759
2.	ANASTASOV Serghei	Moldova	Municipality of the city of Comrat / Moldova, Mayor of the city	+373 62100150 goliat-vita@mail.ru
3.	ANDRUSEVYCH Roksolana	Ukraine	VGSM LLC	+38 0664461961 rokanan@gmail.com
4.	BALUK Roman	Ukraine	DOMW Woodprocessing and furniture cluster	+380935447061
5.	BREHMAN Svitlana	Ukraine	Interpreter	+380677671236
6.	BRODOVYCH Yuriy	Ukraine	Interwoodkommerts, Ltd.	+380671518801
7.	BULAI Eugenia	Moldova	Agency for Innovation and Technology Transfer, Accountant	+373 68512312 bulai@mail.ru
8.	CICHY Wojciech	Poland	Wood Technology Institute	+48 61 849 24 31 w_cichy@itd.poznan.pl
9.	DERBAL Yuriy	Ukraine	NGO FORZA	+380673101631 yury.dermal@forza.org.ua
10.	DERKACH Vasyl	Ukraine	"Svitanok" LTD	+380678405016
11.	DOLISHCHUK Mykola	Ukraine	"RITON" LLC	+38 0674302563 tov_riton@mail.ru
12.	DZYUNYA Nataliya	Ukraine	"RITON" LLC	+38 0671253226 ndzyunya@mail.ru
13.	HAYDA Serhiy	Ukraine	Ukrainian National Forestry University	38-0677912522 Gaida@e-mail.ua serhiy.hayda@nltu.edu.ua
14.	HROMYAK Yuriy	Ukraine	Lviv Forest and Hunting Administration	+380676767104 hromiak-50@ukr.net
15.	HUBER Yuriy	Ukraine	Ukrainian National Forestry University	+380678117118 huber_leko@ukr.net
16.	HUBYCH Roman	Ukraine	"Maister Klim" LLC	+380673153167 krot88870@gmail.com
17.	IATCHEVICI Vadim	Moldova	Agency for Innovation and Technology Transfer	+373 79333922 vadim.iatchevici@gmail.com
18.	JIBLADZE Ketevan	Georgia	REC Caucasus	+995577797759
19.	KALENICHENKO Volodymyr	Ukraine	State Agency of Forest Resources	+38 0679308423 lisresurs@dklg.gov.ua
20.	KANDELAKI Teimuraz	Georgia	Georgian Agrarian University	+(995) 599 56 15 33 kandelaki2002@yahoo.co.uk
21.	KHOSHTARIA Mamuka	Georgia	NANO WOOD	+(995) 593 20 12 52 mamuka58@yahoo.com
22.	KIES Uwe	Germany	Wald-Zentrum / IWWH, Germany	uwe.kies@wald-zentrum.de
23.	KIYKO Orest	Ukraine	Ukrainian National Forestry University	orest.kiyko@nltu.edu.ua

	<i>Name</i>	<i>Country</i>	<i>Company name</i>	<i>Phone, email</i>
24.	KYRYLIV Vitaliy	Ukraine	Design Bureau "Hochu Rayu"	+380977128947
25.	KOHUT Mykola	Ukraine	Association of wood processors	+380676724819
26.	KOLISNYK Sofia	Ukraine	Ukrainian National Forestry University	+38 0972101810 Sophiekolisnyk@gmail.com
27.	KOLYADZHYN Igor	Ukraine	Broshnivskii lishosp	+380673420972
28.	KORNIA Kostyantyn	Ukraine	Interwoodkommerts, Ltd.	+380982642264
29.	KORZHOV Volodymyr	Ukraine	Ukrainian Research Institute of Mountain Forestry	+380673802508 vl.korzhov@ukr.net
30.	KOSTYUKOVA Olga	Ukraine	NGO FORZA	+380673101631 olga.kostyukova@forza.org.ua
31.	KOVAL Lyubomyr	Ukraine	"Derevoobrobnyk" newspaper	(067) 95-26-269 derevo@derevo.com.ua
32.	KRYSHCHUK Andriy	Ukraine	Euro Standard LLC	+380676227155 tak444@yandex.ru
33.	KUCHMAYDA Andriy	Ukraine	Production atelier House Republic	
34.	KUPTSOVA Svitlana	Ukraine	NGO FORZA	+38 099 383 55 77 skuptsova@ukr.net
35.	KUZYK Roman	Ukraine	Lalok, CEO	rk.mees@gmail.com
36.	KUSHPIT Andrii	Ukraine	Ukrainian National Forestry University	+380972457676
37.	KHOMENKO Alexander	Ukraine	"Shpon Shepetivka" LTD	+380976137797 tovshpon@ukr.net
38.	LESZCZYSZYN Ewa	Poland	Wood Technology Institute	+48 618492437 e_leszczyszyn@itd.poznan.pl
39.	LEDNITSKIY Andrii	Belarus	Belarusian State Technological University	+375297061104
40.	LOSKIY Ivan	Ukraine	"Sakwoia Wood" LLC	+380502928029
41.	LOYKO Lesya	Ukraine	NGO FORZA	+38 067 31016316 lesya.loyko@forza.org.ua
42.	MAKSYMETS Olena	Ukraine	Ukrainian National Forestry University	alyona.maksymets@gmail.com +380971742515
43.	MARTYNIV Volodymyr	Ukraine	Association of woodprocessors of Rakhiv region	+38 067 332 4136 martyniv.v@gmail.com
44.	MASYUK Vasyl	Ukraine	Woodprocessor magazine	+38 093 323 9 000 vasyl.masyuk@gmail.com
45.	MYKLUSH Stepan	Ukraine	Ukrainian National Forestry University	+38 0677913677 msi_s@ukr.net
46.	NALYVAIKO Nataliia	Ukraine	Ukrainian National Forestry University	+38 067 15 12 359 nalivajko21@gmail.com
47.	OBERWIMMER Roland	Austria	Holzcluster Steiermark GmbH	+43 664 963 25 40 oberwimmer @holzcluster-steiermark.at
48.	OLSSON Magdalena	Sweden	Swedish University of Agricultural Sciences	0731414892 olsson.magdalena@hotmail.com
49.	PANCHUK Daria	Ukraine	Ukrainian National Forestry University	+380936584585
50.	PASICHNYK Volodymyr	Ukraine	ECO-OPTIMA LLC	+38 067-37-37-265 v.pasichnyk@nordik.net.ua
51.	PATIS Volodymyr	Ukraine	Eskada-M	+38 0962819458

	<i>Name</i>	<i>Country</i>	<i>Company name</i>	<i>Phone, email</i>
52.	POLIKOVSKA Yuliya	Ukraine	DOMW Woodprocessing and furniture cluster	+38 067 341 02 24 yp@ppv.net.ua
53.	PONOMARENKO Artem	Ukraine	WOODWERK	+38 0674454177 artem@woodwerk.com
54.	PONOMARENKO Maria	Ukraine	WOODWERK	+38 0679293049 popovamanu@gmail.com
55.	POPOVYCH Volodymyr	Ukraine	DOMW Woodprocessing and furniture cluster	+38 067 370 78 56 vp@ppv.net.ua
56.	RATAJCZAK Ewa	Poland	Wood Technology Institute	+48 618492401 e_ratajczak@itd.poznan.pl
57.	ROMANYUK Sergey	Ukraine	Furniture Company Gelika	+380936314202 ser@gelika.vn.ua
58.	SAJDAK Magdalena	Poland	Wood Technology Institute	48 61 849 24 86 m_sajdak@itd.poznan.pl
59.	SAMARSKYI Igor	Ukraine	"Prom Wood", Ltd	+380678263311
60.	SAVKA Nataliya	Ukraine	Lviv Regional Administration	+380676707096 nata.savka@gmail.com
61.	SOROKA Rostislav	Ukraine	Regional Business Council, Lviv	+380501917011
62.	STRYSCHAK Vasyi	Ukraine	State Environmental Inspectorate in Lviv region	+380677751055
63.	SCHMIDT Evelin	Austria	Holzcluster Steiermark GmbH	
64.	SHAMANSKYI Anatoliy	Ukraine	Furniture Company Gelika	+380674304786
65.	SHCHUPAKIVSKYI Roman	Ukraine	Ukrainian National Forestry University	+380978569054 shchupakivskyy@gmail.com
66.	SHUBINA Marta	Ukraine	Eskada-M	+38 0674466004
67.	SUITNER Harald	Germany	PROJEKTkompetenz.eu GmbH	+43-650-5013170 (mobile) h.suitner@projektkompetenz.eu
68.	SUZANSKYI Kostyantyn	Ukraine	Euro Standard LLC	096-228-58-51 kosuzansky@gmail.com
69.	TETYUKH Volodymyr	Ukraine	Agroderev LTD	+380676996032
70.	TKACH Yuriy	Ukraine	VGSM LLC	+380961116590 yurii.tkach5@gmail.com
71.	TURCHYN Volodymyr	Ukraine	HausMobel	ceo@hausmobel.eu
72.	ULINICI Doina	Moldova	Agency for Innovation and Technology Transfer	+373 79035394 ulinici.d@gmail.com
73.	USTYCH Radmila	Ukraine	NGO FORZA	+380673101631 radmila.ustych@forza.org.ua
74.	VARVARUK Roman	Ukraine	Ivano-Frankivsk regional Forest and Hunting Management Administration	+380977718110
75.	VASYLYSHYN Leonid	Ukraine	Hoydalka	+38 0673724452 leonid@goydalka.com
76.	VERHAEGHE Gus	Belgium	InnovaWood	+32 472434776- gus.verhaeghe@innovawood.com
77.	VOITOVYCH Ivan	Ukraine	Ukrainian National Forestry University	+380673420008
78.	VOLOSHYNA Nataliya	Ukraine	NGO FORZA	+380673101631 natalia.voloshyn@forza.org.ua

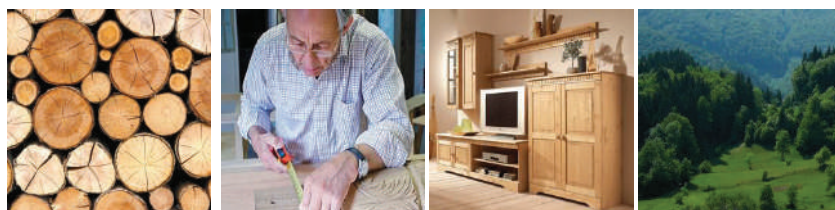
	<i>Name</i>	<i>Country</i>	<i>Company name</i>	<i>Phone, email</i>
79.	VOROBAY Volodymyr	Ukraine	DOMW Woodprocessing and furniture cluster	067 670 01 06 vv@ppv.net.ua
80.	VYTSEHA Ruslan	Ukraine	Ukrainian National Forestry University	vitseha@ukr.net
81.	YAKOVCHUK Viktor	Ukraine	PE UFA NOVA	info@solidbud.com
82.	YAKUBA Myroslava	Ukraine	Ukrainian National Forestry University	+38 067 267 91 88 myroslavaya@gmail.com
83.	ZAMLYNSKY Rostislav	Ukraine	Lviv Regional State Administration	
84.	ZUBCHENKO Andrii	Ukraine	Woodprocessing cluster of Cherkasy region	+ 38 097 492-70-37 vp67@ukr.net



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FP7 no. 609573, 2014-2016  
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## Resource Efficiency and Sustainable Manufacturing in the Forest-based Sector of Eastern Europe (ENP-EaP Countries)



**Final Conference**  
Lviv, Ukraine, 18.05.2016

*Welcome & Opening*



## The project



### Main goal

→ Improve **RESOURCE EFFICIENCY** and **RAW MATERIAL** consumption  
of the *Forest and Woodworking Sector* in ENP Eastern countries  
by bridging the gaps between research and innovation  
among SMEs, science and authorities

### Key project facts

- **FP7-INCO project:** no. 609573, 1st June 2014 – 31st May 2015 (2 years)
- **Budget:** 1.3 million € in total, EC contribution 990,250 €
- **Consortium:** 11 partners in total, 9 countries,  
4 research institutions, 3 SMEs/clusters, 2 NGOs, 1 European network
- **EU countries:** Germany, Austria, Poland, Belgium
- **ENP EaP countries:** Ukraine, Moldova, Georgia, Azerbaijan, Armenia







## The consortium: EU-Partners



International Institute of Forestry  
and Wood Industries e.V.  
Münster, Germany



Dr. Uwe Kies  
(Coordinator)



Wood Cluster Styria  
Graz, Austria



Roland  
Oberwimmer



ACECON Environmental &  
Efficiency Consulting  
Graz, Austria



Christian  
Angerbauer



## The consortium: EU-Partners



ITD Institute Wood Technology  
Poznan, Poland



Prof. Ewa  
Ratajczak



INNOVAWOOD Network  
Brussels, Belgium



Gus  
Verhaeghe

PROJEKTkompetenz.eu  
Salzburg, Austria



Harald  
Suitner



## The consortium: ENP-Partners, Ukraine



Agency for Sustainable Development  
of the Carpathian Region  
Uzhgorod, Ukraine



Lesya  
Loyko



Ukrainian National Forestry University  
Lviv, Ukraine



Prof. Orest  
Kiyko



Wood Processing and Furniture Cluster  
Lviv, Ukraine



Volodymyr  
Vorobey



## The consortium: ENP-Partners, Moldova



Agency for Innovation and  
Technology Transfer  
Chisinau, Moldova



Roman  
Chirca



Vadim  
Iatchevici



## The consortium: ENP-Partners, Georgia



Regional Environmental Centre  
for the Caucasus  
Tbilisi, Georgia



Sophiko  
Akhobadze



Agricultural University of Georgia  
Tbilisi, Georgia



Prof. Teimuraz  
Kandelaki



Georgian Association of Wood Processors  
Tbilisi, Georgia



Mamuka  
Khostharia



## The consortium: Partnership of EU & ENP countries







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## Resource Efficiency and Sustainable Manufacturing in the Forest-based Sector of Eastern Europe (ENP-EaP Countries)



### The RERAM Project: Main outcomes

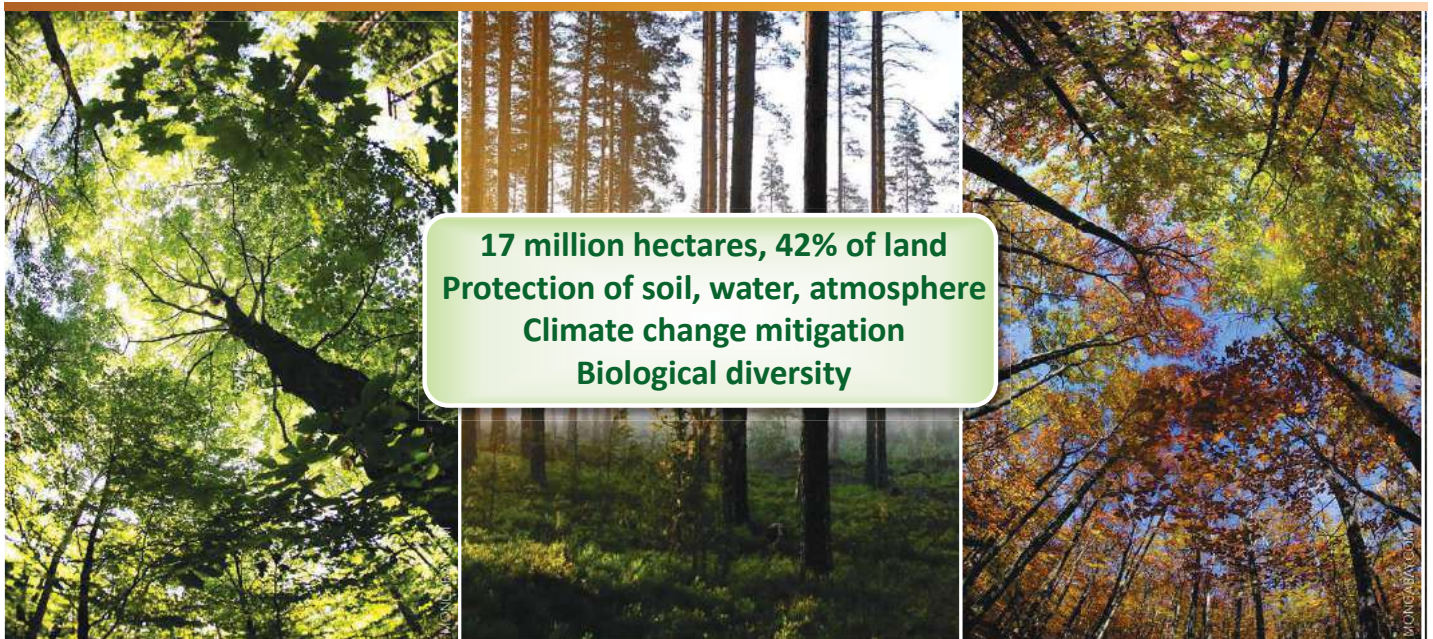
Dr. Uwe Kies (coordinator)  
Wald-Zentrum / IIWH, Germany



Wald-Zentrum



## Forests of Europe An abundant natural resource



17 million hectares, 42% of land  
Protection of soil, water, atmosphere  
Climate change mitigation  
Biological diversity



## EU forest-based sector

### A multitude of sustainable products



## EU forest-based sector

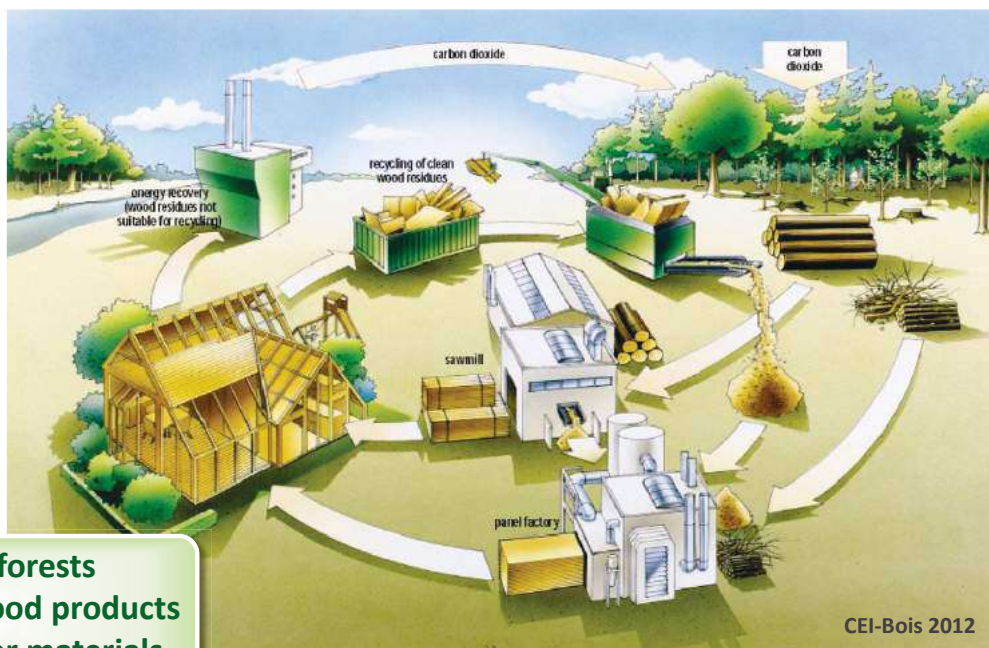
### An unknown 'giant' in regional employment







Carbon sink in forests  
Carbon storage in wood products  
Substitution of other materials



### Main goal

→ Improve **RESOURCE EFFICIENCY** and **RAW MATERIAL** consumption of the *Forest and Woodworking Sector* in ENP Eastern countries by bridging the gaps between research and innovation among SMEs, science and authorities



# Resource efficiency

## Why should the wood industry invest in it?

Raw materials



Energy



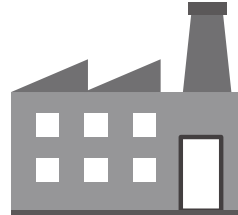
Work



?

?

?



Factory

?

Final product



?

Waste



# Resource efficiency

## Why should the wood industry invest in it?

### The "Cost of Waste" Iceberg



Bierma et al. 1998

"Wastes and emissions are input materials, which have been bought for money and have not been converted into products to be sold for money."



Waste





# Resource efficiency

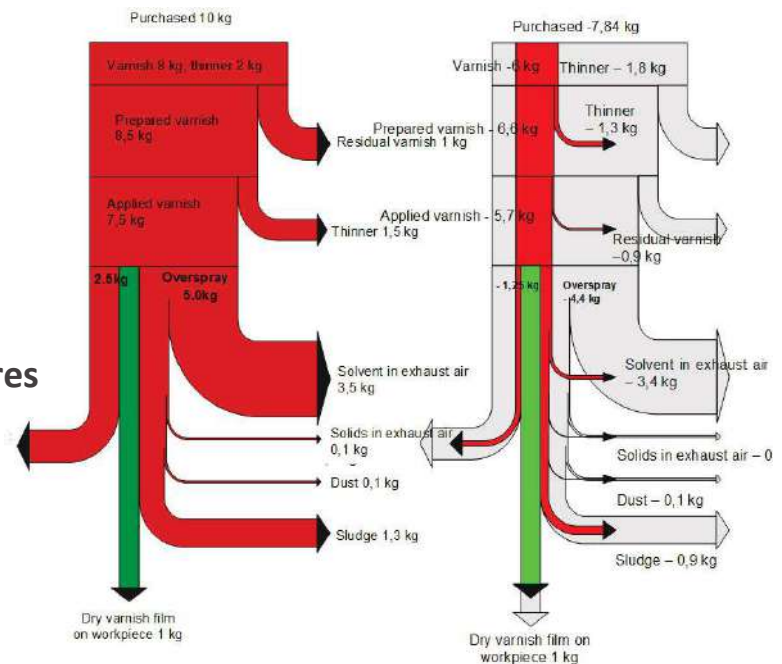
## Why should the wood industry invest in it?

### Material Flow Analysis

- Example of a very inefficient painting process with huge losses:  
10 kg input per 1 kg = 10%
- Improved process:  
2,12 kg input per 1 kg = 47%

### Implementation of saving measures

1. Collect & analyse data
2. Compare & decide for a solution
3. Invest to restructure the process
4. Educate or train staff



# Resource efficiency

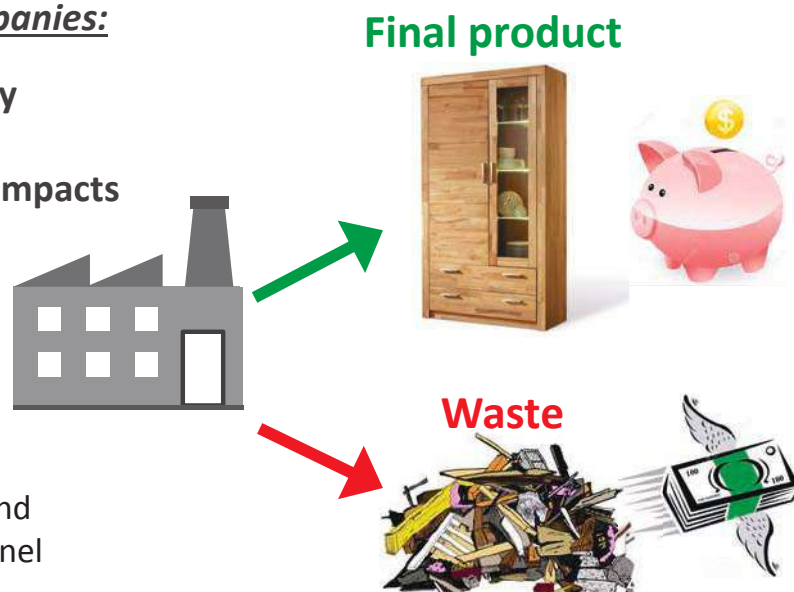
## Why should the wood industry invest in it?

### Managing efficiency in companies:

By saving resources & energy  
= saves hidden input costs  
+ reduces environmental impacts

### Additional benefits

- ✓ Higher quality of products
- ✓ Stronger marketing position
- ✓ Better working conditions and higher motivation of personnel



1. Training programme for efficiency managers
2. Enterprise Reality Checks
3. Handbook & Toolkit
4. Dissemination

### 1. Training programme for efficiency managers

- Introductory course to:  
Cleaner Production, Material Flow Analyses,  
Waste Management, Green Procurement,  
Environmental Controlling, etc.
- All material in English + Russian

→ **15 wood industry experts have successfully accomplished the course!**



# The RERAM approach: Practical training and coaching of SMEs

## 2. Enterprise Reality Checks

- 1-day company visits for quick assessment
- Report: List of saving potentials and proposed no/low investment solutions
- Follow-up coaching during implementation

→ The team performed successful checks of 19 companies!



# The RERAM approach: Enterprise Reality Checks - Impressions





## The RERAM approach: Enterprise Reality Checks - Participants

19 woodworking companies participated:  
UA 4, MD 4, GE 5, AT 6



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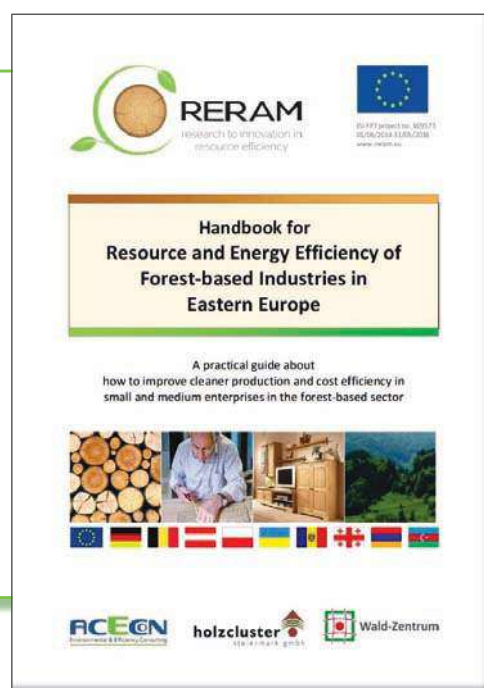
[www.reram.eu](http://www.reram.eu)

## The RERAM approach: Practical training and coaching of SMEs

### 3. Handbook & Toolkit

- Guide for managers and technical personnel
- Practical knowhow to improve production efficiency through cost savings and reduce environmental impact
- Collection of useful assessment tools

→ Published on [www.reram.eu](http://www.reram.eu) (soon)



RERAM Final Conference • Lviv, Ukraine, 18.05.2016

[www.reram.eu](http://www.reram.eu)

# The RERAM approach: Practical training and coaching of SMEs

## 4. Dissemination

- Training workshops for SMEs
- Dialogues with decision-makers
- Joint events with other EU initiatives
- Conferences
- Publications (press, scientific)

→ See more on [www.reram.eu](http://www.reram.eu)



# The RERAM approach: Workshops, Conferences, Joint Events - Impressions



# Resource Efficiency in SMEs:

## Main conclusions and Outlook

### 1. The forest-based sector is an important pillar of the future sustainable bioeconomy

- Wood = a uniquely versatile raw material: at the same time renewable, reusable, recycable and refinable
- Sector = a multitude of sustainable products and a main contributor to regional employment and value-added



### 2. Using wood efficiently is active climate protection

- Carbon sink in forests (CO<sub>2</sub> absorption by trees)
- Carbon storage in wood products (for hundreds of years)
- Substitution of carbon-intensive materials (innovative products)
- Cascade use principle (solid products before energy use)



# Resource Efficiency in SMEs:

## Main conclusions and Outlook

### 3. Wood and wood products are globalised commodities

- Growing global demand leads to decisive regional changes.
- Shift of production/pre-fabrication to Eastern Europe on-going.
- More domestic value-adding, international supply chains and new markets are real chances for ENP countries.



### 4. Resource efficiency offers new opportunities for SMEs

- Saving raw materials and energy helps companies to improve competitiveness and reduce environmental impacts (win-win).
- Reality checks identify easy saving options ('low hanging fruits'), which can be used to start improving Cleaner Production.
- Investing in efficiency enhances also quality and market position.







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## How to improve resource use and efficiency in wood manufacturing: Lessons learnt from RERAM's enterprise checks



Mr. Roland Oberwimmer  
[oberwimmer@holzcluster-steiermark.at](mailto:oberwimmer@holzcluster-steiermark.at)  
Holzcluster Steiermark GmbH  
[www.holzcluster-steiermark.at](http://www.holzcluster-steiermark.at)



## Raw material and Energy efficiency checks in SMEs

### Enterprise Reality Checks

- 1-day company visit for a situational assessment
- Audit team of 3 Styrian experts
- Findings report with saving potentials and proposed no/low investment solutions
- Feedback work shops in GE and MD
- Organization of a study trip to Styria for Ukrainian companies
- Follow-up coaching through local and Austrian specialists

19 woodworking companies participated: UA 4, MD 4, GE 5, AT 6



1. Storage of raw material, semi finished products
2. Proper handling of materials
3. Exhaust system, dust collection
4. Compressed air
5. Painting
6. Lighting
7. Waste management
8. Workers care
9. Building insulation/Heating systems

## 1 Storage of materials



05.2016

[www.reram.eu](http://www.reram.eu)

## 1 Storage of materials



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## 1 Storage of materials

Good storage example:

- vertical storage
- sorted



## 1 Storage of materials

Excellent storage example:

- Boards are labeled and are in inventory



## 1 Storage of materials

Proper Storage raw material and tools



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www.reram.eu

## 2 Proper handling of materials



What do you observe?



## 2 Proper handling of materials



## 3 Exhaust systems & dust collection

Dust – one of the major problems:

- Product quality
- Productivity
- Lamps & Lighting
- Health & Safety
- Motor clogging







## RERAM 3 Exhaust systems & dust collection

Reasons:

- open ducts, broken ducts
- leaks in dust bags



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## RERAM 3 Exhaust systems & dust collection

Reasons:

- missing devices to close ducts (blast gates)
- open blast gates (lack of worker training)



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## 4 Compressed Air

„Global issue“: maintenance, insufficient layout are main problems



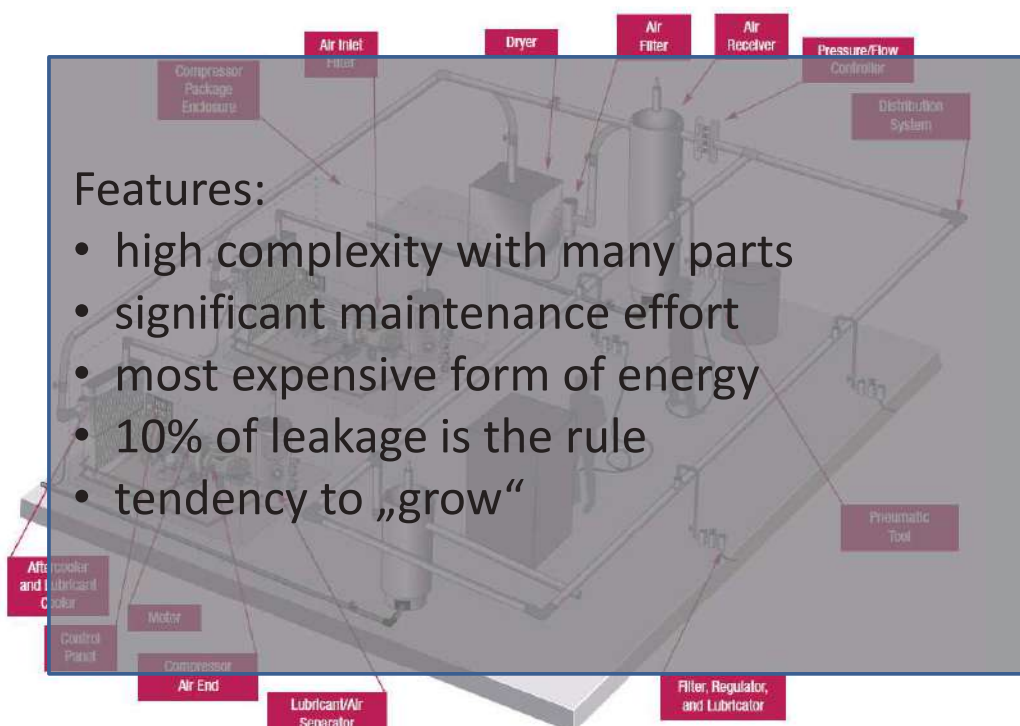
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## 4 Compressed Air

Features:

- high complexity with many parts
- significant maintenance effort
- most expensive form of energy
- 10% of leakage is the rule
- tendency to „grow“

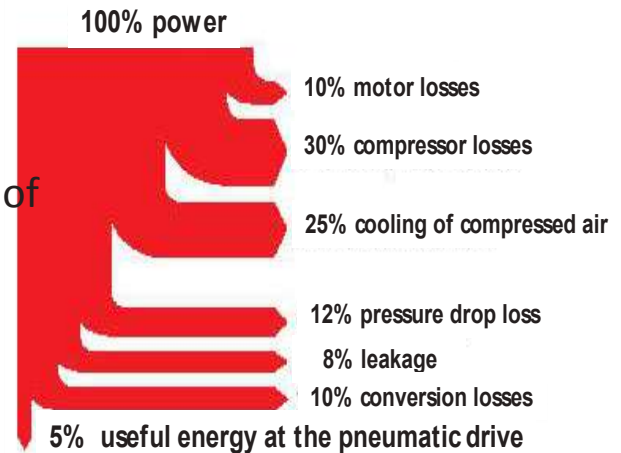


[www.reram.eu](http://www.reram.eu)

## 4 Compressed Air

### Main facts & recommendations

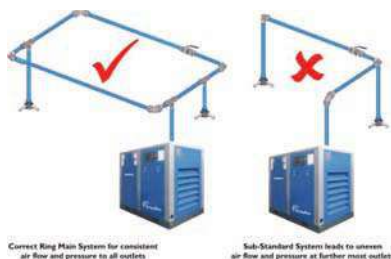
- overall efficiency compression approx. 5%
- Investment costs approx. 20-30% of total cost
- Pay attention to the compressor room:
  - Temperature between +5°C and 40°C
  - Intake air at compressor cool and clean
  - Maintain the air filters regularly



## 4 Compressed Air

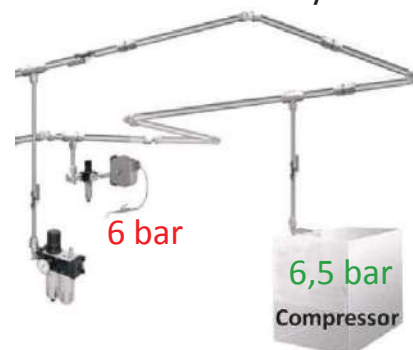
### Main recommendations

- Install a ring system



- Keep pipeline length to a minimum
  - reduce number of consumers
  - avoid too many branches
  - replace with electrical tools if possible

- Pressure difference between compressor – consumer: 0.5 bar (optimal system)
- +1 bar = +6% electricity





### Costs of air leaks:

- 1 mm = 0,9 €/day = 317 € /year
- 3 mm = 8,7 €/day = 3.145 € / year
- 5 mm = 23,3 €/day = 8.515 € / year
- 10 mm = 93 €/day = 33.900 € / year

\* based on electricity price of 0,09 €/ kWh

\* running 24/7, 365 days

- Storage of Chemicals must be in a separate room
- Avoid open containers



### Painting in 2 different ways



- Regular training of workers required
- Pay attention to the right spray technology

Common issues: No reflectors , damaged lamps are not removed (maintenance)



### Common issues: Insufficient lighting for work activity



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### Recommended light level in different work spaces (impact von product quality, productivity and safety)

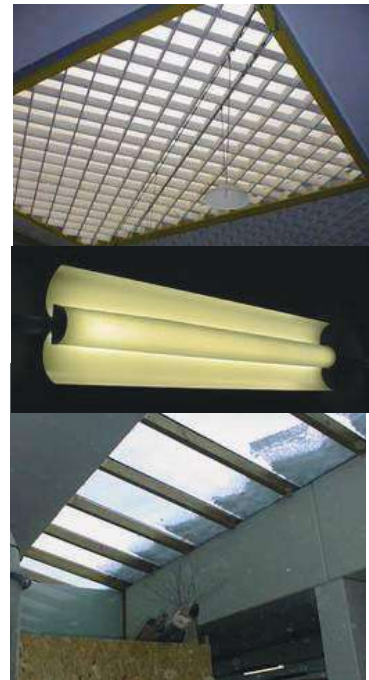
Activity	Illumination (lux, lumen/m <sup>2</sup> )
Public areas with dark surroundings	20 - 50
Simple orientation for short visits	50 - 100
Working areas where visual tasks are only occasionally performed	100 - 150
Warehouses, Homes, Theaters, Archives	150
Easy Office Work, Classes	250
Normal Office Work, PC Work, Study Library, Groceries, Show Rooms, Laboratories	500
Supermarkets, Mechanical Workshops, Office Landscapes	750
Normal Drawing Work, Detailed Mechanical Workshops, Operation Theatres	1,000
Detailed Drawing Work, Very Detailed Mechanical Works	1500 - 2000
Performance of visual tasks of low contrast and very small size for prolonged periods of time	2000 - 5000
Performance of very prolonged and exacting visual tasks	5000 - 10000
Performance of very special visual tasks of extremely low contrast and small size	10000 - 20000



## 6 Lighting

### Numerous improvement options

- Use day light whenever possible (e.g. roof windows)
- Lights close to window areas shall be switched independently of the others
- Clean windows and lamps/bulbs regularly
- Use reflectors
- Use energy efficient bulbs (preferably LED), short payback time when used 8-10h/day
- Use time or motion sensor, dimmer, daylight control, etc.
- Turn off light when not needed



## 7 Waste management



- closely connected to legal requirements
- lack of waste separation
- upcoming issue



## 7 Waste management

Good practice from Central Europe

- high legal requirements
- waste as a business



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## 8 Workers care (safety & health)

Company + Workers safety, Risk management



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### Health & safety protection

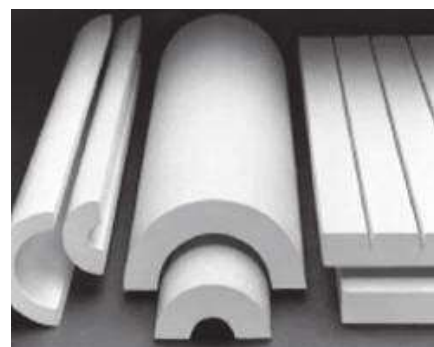
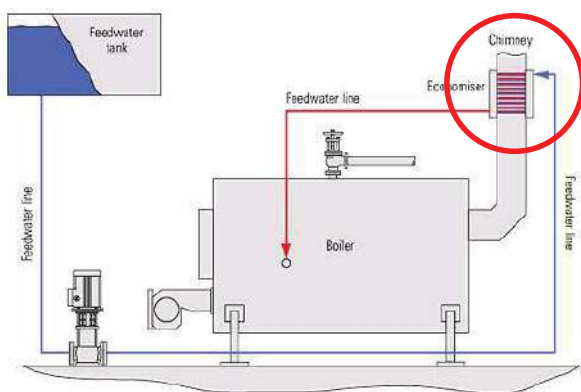
- another „global“ issue
- cooperation of workers required
- awareness training



## 9 Heating system/ Building insulation

- Outdated Boiler systems
- Insufficient maintenance
- Missing insulation
- Missing heat recovery

**Stack economizer for heat recovery (approx. 5% of boiler input capacity can be saved)**



**ALL hot surfaces must be insulated:**

- Water pipes
- Boilers
- Valves, fittings and controls where possible



## 9 Heating system/ Building insulation

Major issue: old factories reused for production, but improvements are possible



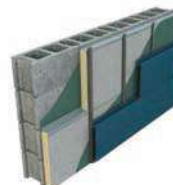
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## 9 Heating system/ Building insulation

Options for improvement:

1. Insulate roof or uppermost floor first  
→ payback quite reasonable (30-35%)
2. Install or improve sealings of doors and windows, close holes (21%-31%)
3. Insulate walls (18-25%)
4. Use of plastic curtains



iv, Ukr

[www.reram.eu](http://www.reram.eu)

Agricultural University of Georgia

FOREST RESOURCES AND WOOD SECTOR:  
THE MAIN CHALLENGES

Professor Teimuraz Kandelaki

Lviv

18 May 2016

Аграрный университет Грузии

ЛЕСНЫЕ РЕСУРСЫ И ЛЕСНОЙ СЕКТОР:  
ОСНОВНЫЕ ПРОБЛЕМЫ

Профессор Теймураз Канделаки

Львов

18 Мая 2016 г.



## Water Erosion





## Forest fires



## Results of 2008 aggression



## A shortage of high-quality forest roads







## Remains of wood at logging sites





## Firewood Consumption



## Small scale of afforestation



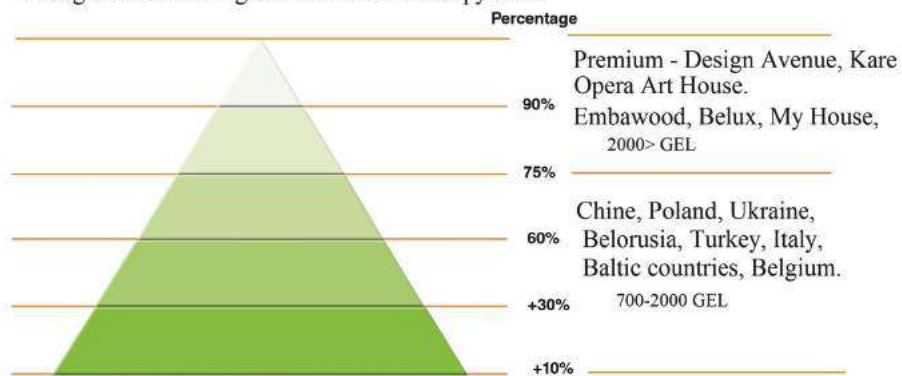
## Non-competitiveness in the markets of furniture and timber







Georgia woodworking and furniture market pyramid





# RERAM



EC-FP7 no. 609573  
www.reram.eu

**Resource Efficiency and Raw Materials in the  
Forest-based Sector of Eastern Europe (ENP)**



## **The forest-based sector of the ENP: challenges & future opportunities**

Final Event, 18 May 2016, Lviv, Ukraine

**Prof. Orest Kiyko**

**Ukrainian National Forestry University (UNFU)**

**Head of the furniture and wooden articles technology Department**



## **Contents**

- 1. Introduction.**
- 2. Analysis of the forest sectors in ENP countries. Challenges and future opportunities for forest sectors of the ENP.**
- 3. Conclusions.**

The concept of one large forest-based sector was put forward by the European Union to promote a better understanding of one of its largest industrial sectors. The main idea is to unite industries that are closely related to the common resource 'forest' and can benefit from a shared strategy for sustainable development.

Source; FAO. 2014. Contribution of the forestry sector to national economies, 1990-2011, by A. Lebedys and Y. Li. Forest Finance Working Paper FSM/ACC/09. FAO, Rome.



The forest-based sector, as defined for this survey, includes four main branches, or subindustries, which are dependent on solid wood as a main raw material: forestry, woodworking industries, furniture manufacturing, carpentry and joinery.

Sector subindustry			
Forestry (02)	Wood-working industry (16)	Furniture manufacturing (31)	Carpentry and Joinery (43.91, 43.99, 43.32)

The forest-based sector is described based on national statistics in terms of turnover, number of enterprises and number of employees for Ukraine, Moldova and Georgia. For a comparison, Poland was included as an example of a post socialist country that is today a full member of the EU.

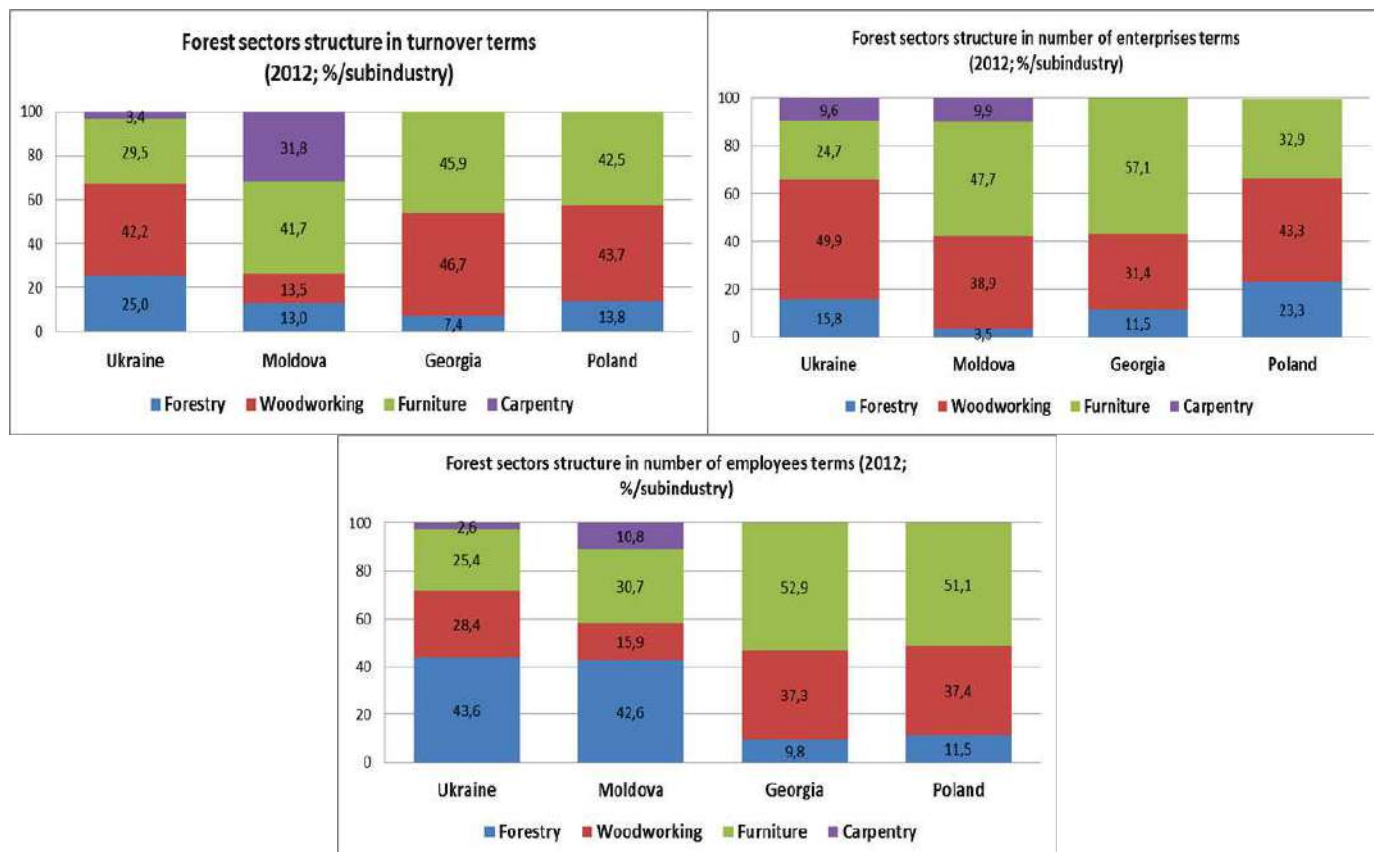


## Self-assessment in RERAM project

Suggested by partners number of enterprises			
5 enterprises	37 enterprises	22 enterprises	5 enterprises
Forestry(5)	Sawmilling (17) Veneer (1), Parquet (7) Construction (9), Panels (1) Packaging, pallets (2)	Furniture (9) Windows, doors, stairs, joinery (11) Special products (2)	Qualification and training (1) Secondary wood processing(4)
RAW GOODS	LOW DEGREE OF WOOD PROCESSING	DEEP WOOD PROCESSING	DEEP WOOD PROCESSING
AT - 0	AT - 1	AT - 2	AT - 0
PL - 0	PL - 2	PL - 1	PL - 0
UA - 0	UA - 4	UA - 7	UA - 0
GE - 0	GE - 5	GE - 4	GE - 0
MD - 0	MD - 0	MD - 2	MD - 0
0 enterprises	12 enterprises	16 enterprises	0 enterprises
Received filled up questionnaires with feedback from enterprises (in reference to countries)			

## Structure of the global survey

Contents of the actions	Explanation
1. Identification of the wood-forest sector.	We should identify wood-forest sectors to evaluate its competitiveness and resource efficiency
a. Determination of the main components for the wood-forest sector.	It is suggested to consider forest sector in RERAM project as a complex which includes following <b>four subindustries (subsectors)</b> : forestry, woodworking industry, furniture manufacturing and carpentry (the main subindustries which use wood as resource).
b. Determination of the main parameters for the wood-forest sector.	Determination of the main parameters for the wood-forest sectors will allow analyzing its capacities. It is suggested to determine the following main parameters of the national forest sectors: <b>turnover, number of enterprises and number of employees</b> .
2. Wood resources analysis.	It is suggested to assess the <b>quantity, quality and availability</b> of wood resources.
3. Determination of the forest sector contribution to the national industry.	It is suggested to determine the <b>place (share, contribution)</b> of the national forest sector in regard to the national industry.
4. Forest sectors main players identifying.	It is suggested to identify the <b>main players</b> in the forest-wood sector and assess their capacities and linkages (e.g. <b>authorities, wood industries, suppliers, research bodies, supporting institutions, forest administration, consultants, entrepreneurs in harvesting, transportation, trade</b> ).
5. Market Position identifying.	It is suggested on the base of carrying out of points 1-4 to evaluate the forest-wood-sector profile, identify <b>gaps/opportunities</b> , compare it against the national/international state-of-the-art, explore new market opportunities (e.g. <b>SWOT</b> ).
6. Resource efficiency potentials determination and elaborating of the conclusions and recommendations.	It is suggested on the base of carrying out of the points 1-5: <ul style="list-style-type: none"> <li>• to synthesize <b>innovation potentials</b> for more effective wood resources use that could have a strong impact on national resource efficiency within the low carbon economy;</li> <li>• to conclude <b>policy-relevant findings and recommendations</b> to decision-makers on the national level.</li> </ul>



## Opportunity 1

**1. Forest sector as a single unit**

**2. Criteria and priorities**

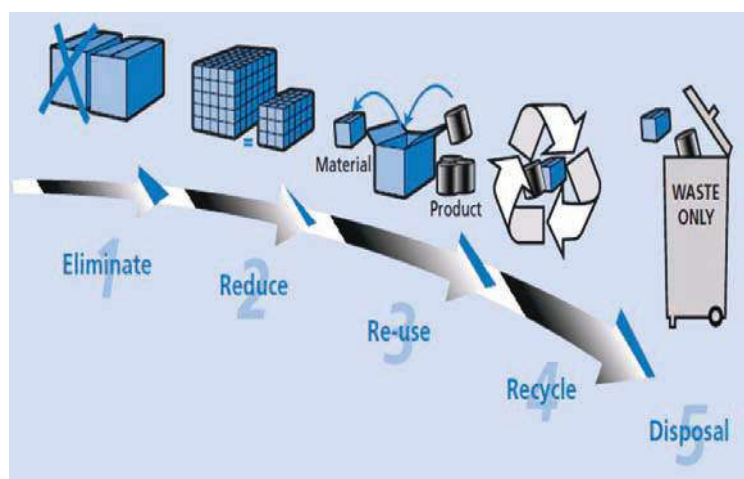
**3. Public council of forest sector creation**



### Forest resources and key indices of ENP countries, 2012

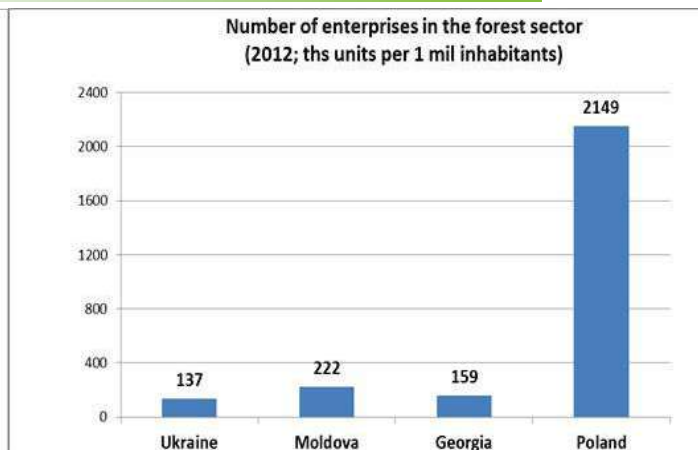
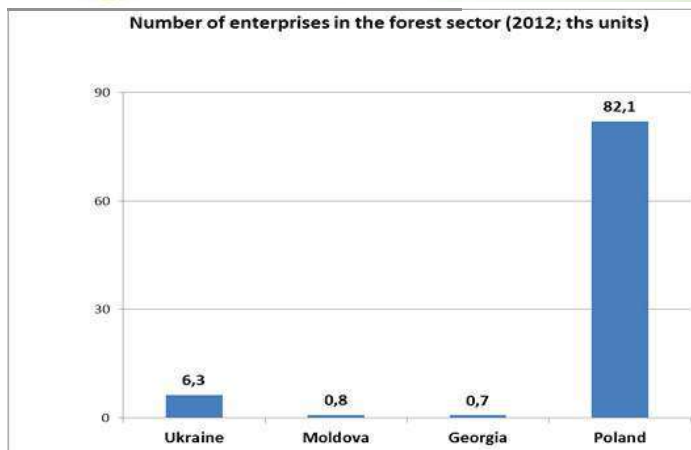
Parameter	Ukraine	Moldova	Georgia	Poland <sup>1</sup>
Population (million persons)	46.05	3.60	4.40	38.20
Forest land area (million ha)	10.80	0.37	2.82	9.40
Forest land percentage (%)	15.70	12.70	40.50	30.06
Forest land area per inhabitant (ha/person)	0.23	0.10	0.64	0.25
Overall timber stock (billion m <sup>3</sup> )	1.80	0.05	0.45	2.40
Timber stock per inhabitant (m <sup>3</sup> /person)	39.09	12.50	103.30	62.83
Timber stock per enterprise (ths. m <sup>3</sup> /number of enterprises)	287.17	57.99	670.35	29.20
Turnover per timber stock (EUR/m <sup>3</sup> )	1.31	2.29	0.21	6.88
Procurement of merchantable wood (ths. m <sup>3</sup> )	17,506.7	490.0	447.5	37,045.0
Turnover per procurement of merchantable wood (EUR/m <sup>3</sup> )	134.30	210.11	208.40	445.86

## Opportunity 2



**2. Cleaner Production system**  
**3. Consistent training**



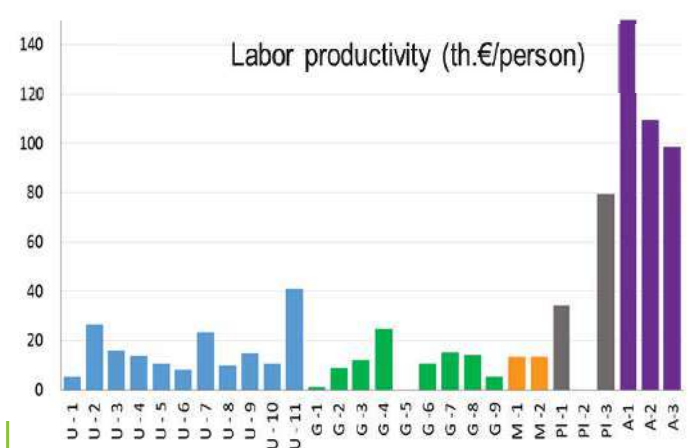
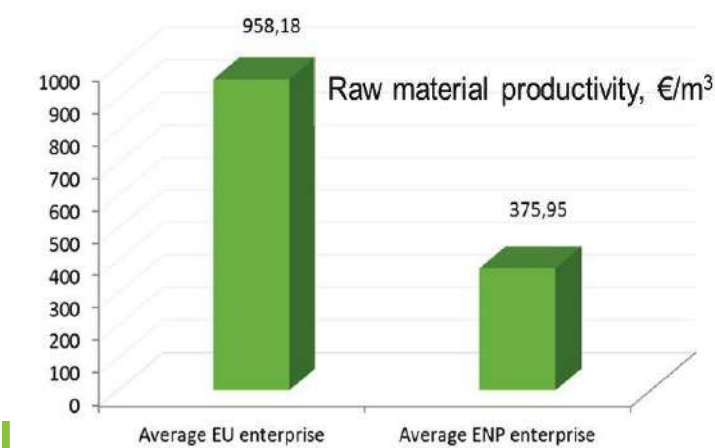
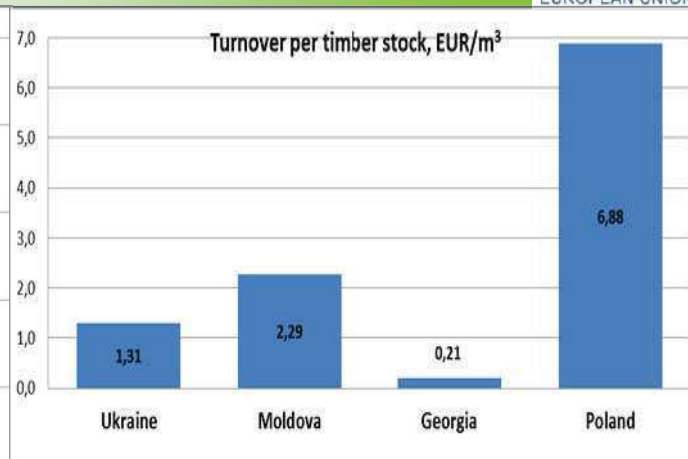


### Trends of the ENP forest-based sector, 2008 to 2012

Country	Turnover <sup>1</sup> (million EUR)			Enterprises (number of)			Employees (ths. persons)		
	2008	2012	Change (%)	2008	2012	Change (%)	2008	2012	Change (%)
Ukraine	1502.0	2349.3	+56.4	1,2292	6,268	-49.0	189.4	151.7	-19.9
Moldova	99.5	102.6	+3.1	667	776	+16.3	13.1	8.8	-32.8
Georgia	22.7	93.3	+311.0	572	678	+18.5	3.5	5	+42.9
Poland	12668.4	14230.6	+12.3	8,4802	8,2194	-3.1	316.4	271.2	-14.3



1. Availability of wood recourses
2. Sustainable development rules
3. Business climate improving



## Opportunity 4

**1. New internal and external investment**

**2. New technologies**

**3. Innovation and creativity**



## Macroeconomic position of the ENP forest-based sectors, 2012

Parameter	Ukraine	Moldova	Georgia	Poland <sup>1</sup>
Forest-based sector share of national turnover (%)	1.8	3.47	1.4	5.0
Forest-based sector share in national employment (%)	6.6	12.1	1.0	9.0
Forest sector's share to the overall GDP. %	1.68	1.88	0.90	1.60

## 1. Internal competition





## Sharpening of the competition for wood resources

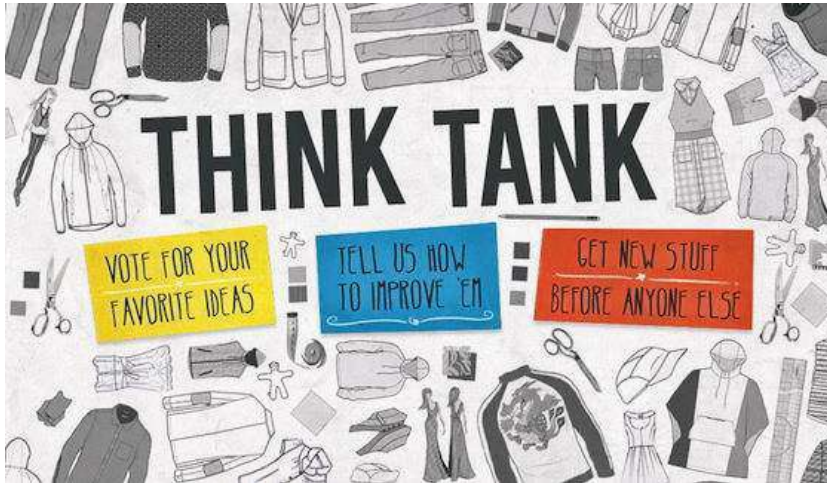


## Understanding of the forest sector – common awareness.



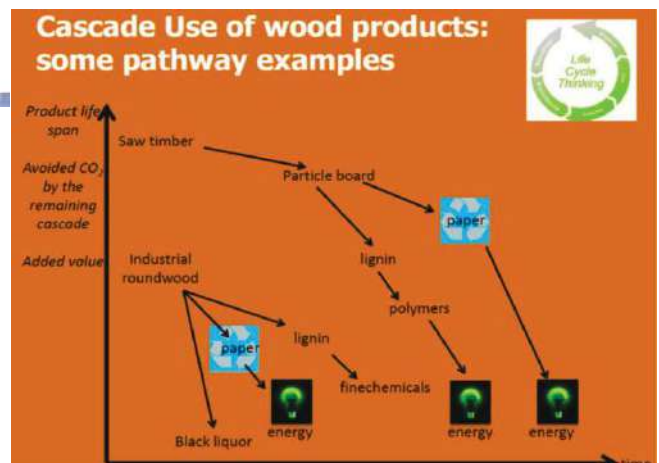
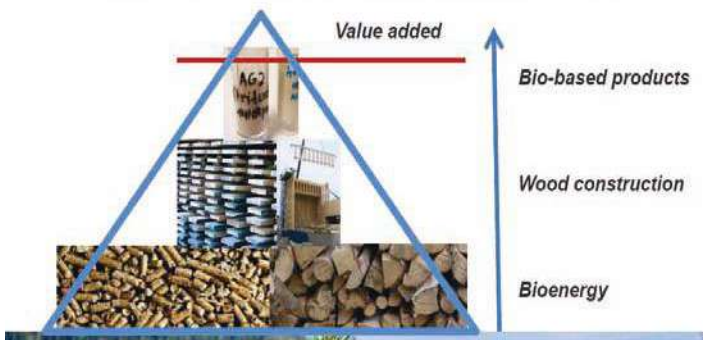
Number of the "forest" subindustry	Name of the "forest" subindustry according EU classification (NACE)	Name of the "forest" subindustry according UA classification (KVED)
<b>Forestry subsector</b>		
1	Forestry (02)	Forestry (02)
<b>Solid wood subsector</b>		
2	Wood products (20.1)	-
3	Sawmilling (20.1)	Sawmilling (20.1)
4	Wood-based panels (20.2)	Wood-based panels (20.2)
5	Wood construction (20.3)	Wood construction (20.3)
6	Wood packaging (20.4)	Wood packaging (20.4)
7	Misc. wood products (20.5)	Misc. wood products (20.5)
<b>Furniture subsector</b>		
8	Furniture (36.1)	Furniture (36.1)
<b>Carpentry subsector</b>		
9	Wood crafts (45x)	-
10	Carpentry (45.22.3)	Carpentry (45.22.0)
11	Joinery (45.42)	Joinery (45.42.0)
12	Parquet laying (45.43.1)	-
13	Wood trade (5x)	-
<b>Cellulose subsector</b>		
14	Paper products (21)	Paper products (21)
15	Paper production (21.1)	Paper production (21.1)
16	Paper articles (21.2)	Paper articles (21.2)
17	Publishing, printing (22)	Publishing, printing (22)
18	Publishing (22.1)	Publishing (22.1)
19	Printing (22.2)	Printing (22.2)

Think tanks, in regard to forest sector, creation  
(at the country levels; EU etc.)



Implementations of the Think tanks' ideas

## Focus on Forest-based Lead Markets



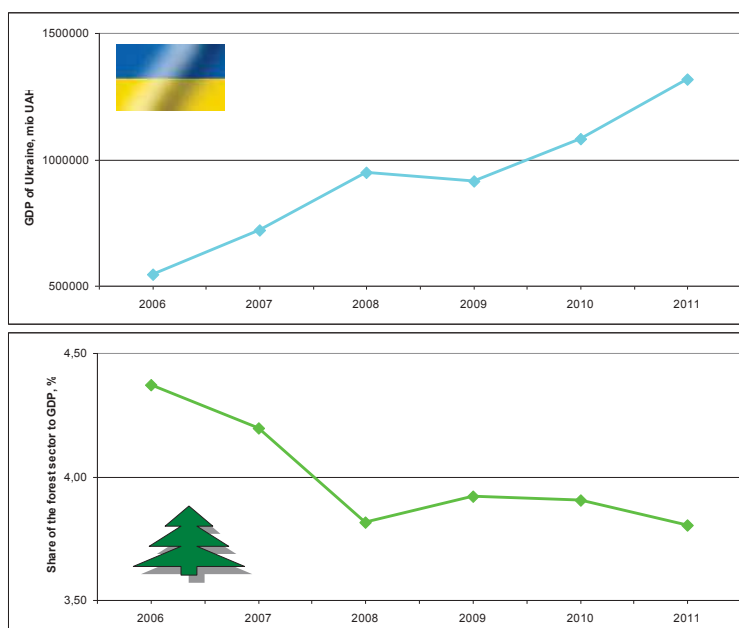


## 2. External competition



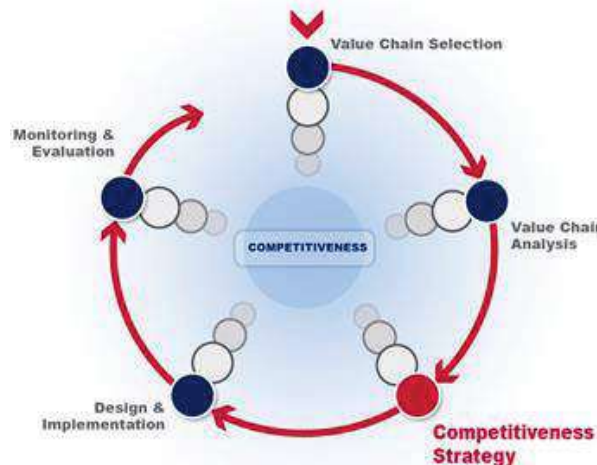
## Some challenges and conclusions

Decreasing of the forest sector's share to GDP





3. Real involving of the woodworking and furniture SMSs representatives – real usefulness for business.



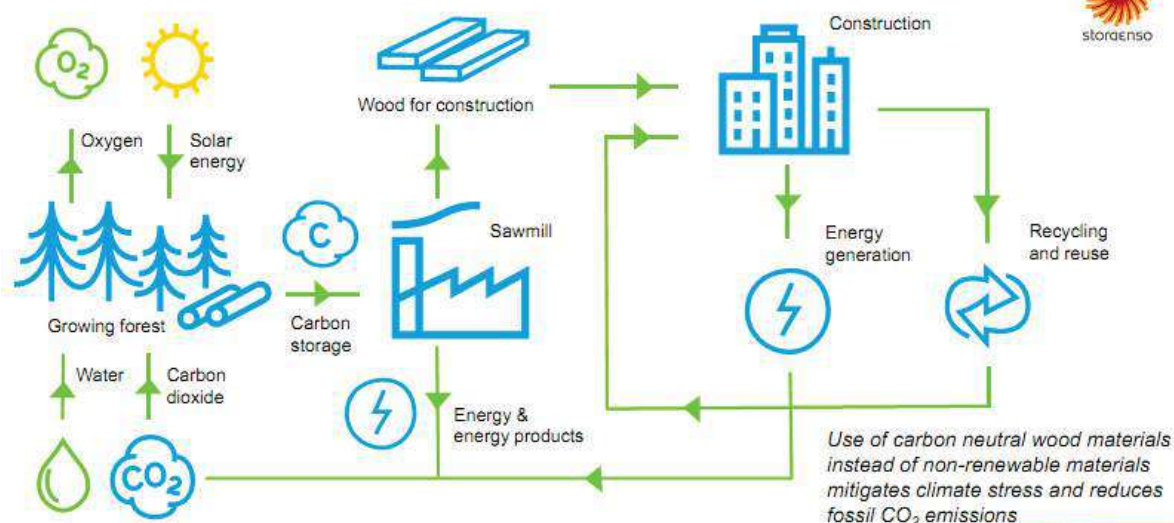
1. *Only forest sector can provide three different possible ways of CO<sub>2</sub> emissions reduction: sink effect, storage effect and substitution effect and, therefore, we can mitigate climate change and that is why provide life for our future generations by developing forest sectors*
2. *Bioeconomy needs cross sectorial approach with leading role of the forest sector*
3. *Everything that's made with fossil-based materials today can be made from a tree tomorrow*
4. *Forest sector is an important player providing solutions in bioeconomy*
5. *Forest sector can provide your personal sustainability*



or

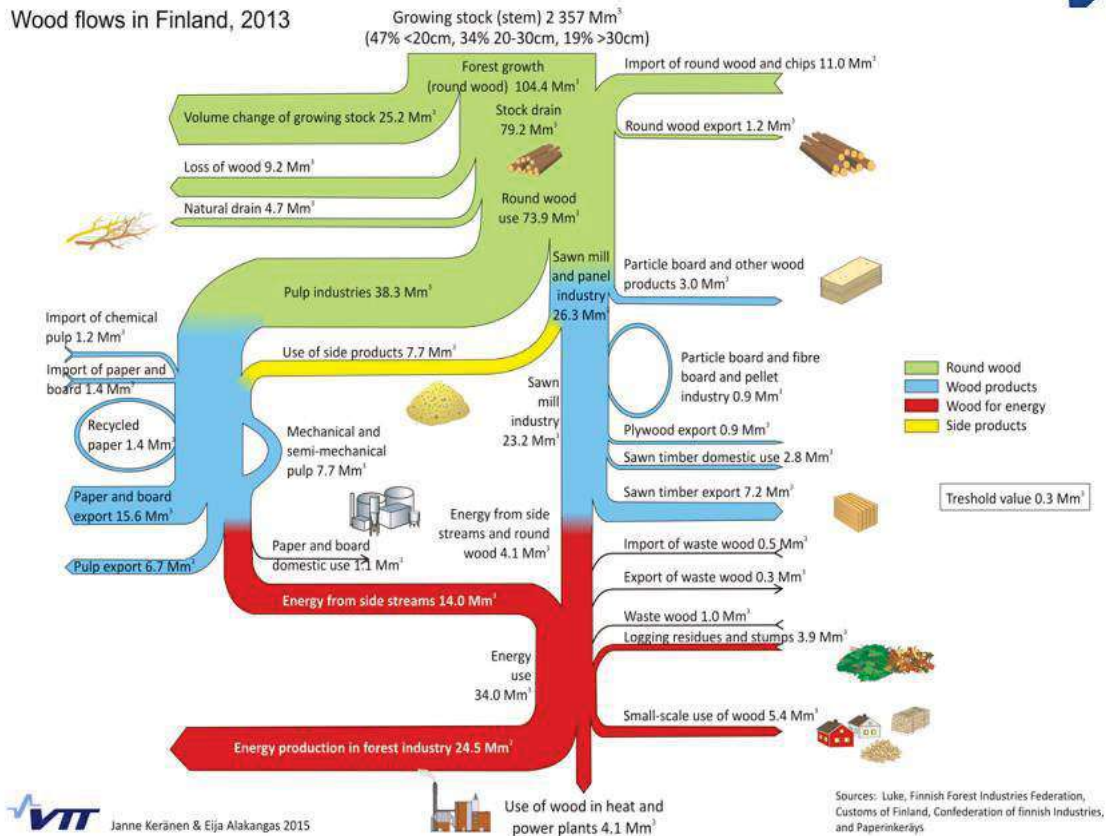


### Forest, wood products and the carbon cycle





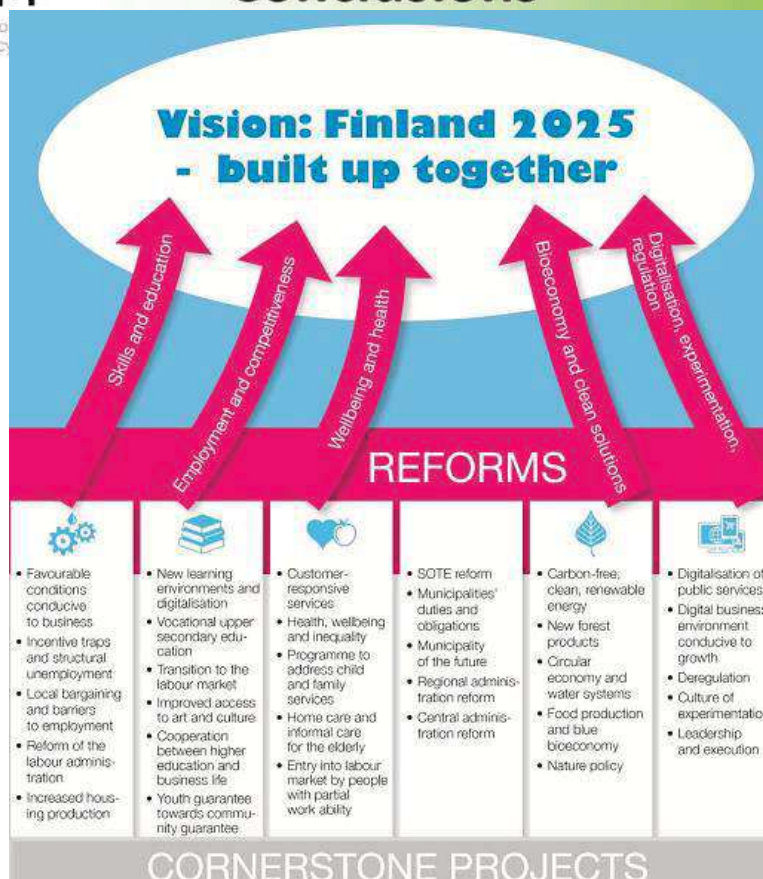
## Wood flows in Finland, 2013



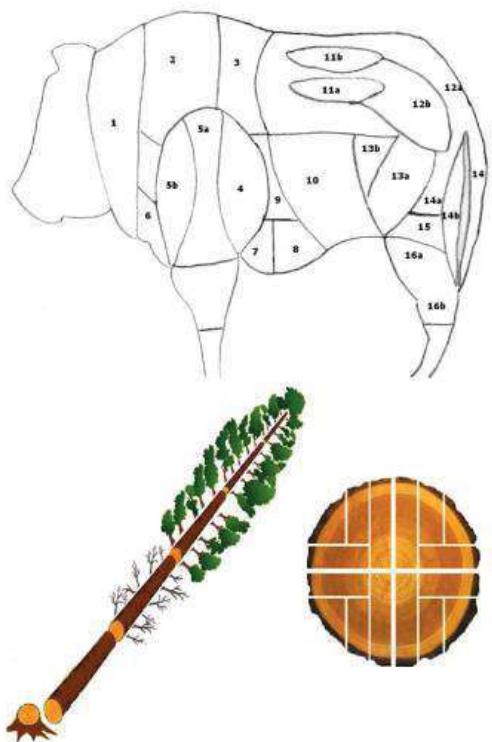
VTT Janne Keränen & Eija Alakangas 2015

14/04/2016

16







Packaging



Bio-chemicals



Medicine and  
wellness



Buildings and  
interior design



Wood and other  
materials  
together



Energy and  
biofuels



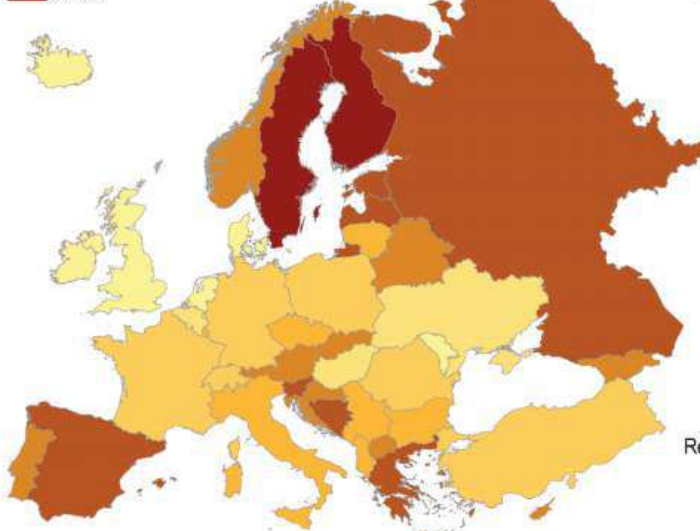
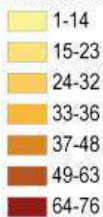
Biopolymers and  
bio plastics



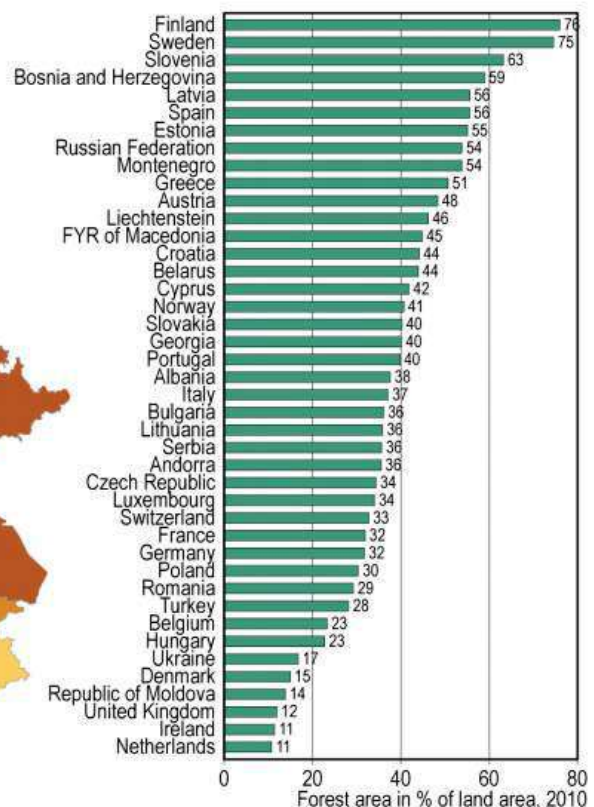
Pulp and paper

21

Forest area in % of land area, 2010



© State of Europe's Forests 2011



8

# Thank you for your attention!



**Prof. Orest Kiyko**  
**Ukrainian National Forestry University (UNFU)**  
**Head of the furniture and wooden articles**  
**technology Department**  
**<http://www.tvd.org.ua/en/koa-main-en.htm>**  
**[orest.kiyko@nltu.edu.ua](mailto:orest.kiyko@nltu.edu.ua)**

# Resource efficiency challenges and solutions

## of furniture factory Meбли Style

Львів - 2016 рік

## About us

### ■ Who we are?

19 years on the market of Ukraine, 150 employees

### ■ What we are?

Production and sales of upholstered furniture, standard and prestige segments

The range includes over 50 models, including non-standard models and models on individual orders

### ■ Where we are?

Yesterday on the market on Ukraine, today – of Europe

### ■ With whom we are?

50+ dealers all over Ukraine, as well as with designers, architects, project managers, final customers



## Resource efficiency check

- Conducted by RERAM in 2014
- List of potential savings and recommendations proposed

## Conclusions

- Recommendations are partly implemented → substantial savings and efficient energy resources use
- Educating of people is key to successful solution to energy saving during crisis

# Thank you!

*Volodymyr Turchyn*

тел.: +38 (067) 67 29 397

тел./факс: +38 (03245) 3 64 68, 3 66 25

e-mail: [office@hausmobel.eu](mailto:office@hausmobel.eu)

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**Проблеми енергозбереження  
та шляхи їх вирішення**

## Таблиця 1

Проблема	Рекомендації експертів	Впроваджено
<ul style="list-style-type: none"> <li>Відсутність системи показників електроенергії на місці.</li> </ul>	<ul style="list-style-type: none"> <li>Необхідно реалізувати систему показників електроенергії засновану на вихідних даних, та використовувати для управління.</li> </ul>	<ul style="list-style-type: none"> <li>Встановлено конденсаторну установку для компенсації реактивної енергії.</li> </ul>

## Конденсаторна установка





## Таблиця 2

Проблема	Рекомендації експертів	Впроваджено
<ul style="list-style-type: none"> <li>■ Великі втрати тиску через нещільність трубопроводів та велике розгалуження повітряної системи.</li> </ul>	<ul style="list-style-type: none"> <li>■ Провести випробування повітряного витoku, щоб ідентифікувати кількість повітряних втрат в стислій повітряній системі.</li> <li>■ Переконалися, що клапан після повітряного баку є надійно закритим.</li> <li>■ Перевірити вимогу мінімального тиску в машинах і інструментах. Кожен БАР робить споживання електроенергії на 6% більшим.</li> <li>■ Використовувати тепло, що відпрацювало з компресора, як джерело нагріву для виробництва.</li> </ul>	<ul style="list-style-type: none"> <li>■ Проведено ущільнення трубопроводів.</li> </ul>

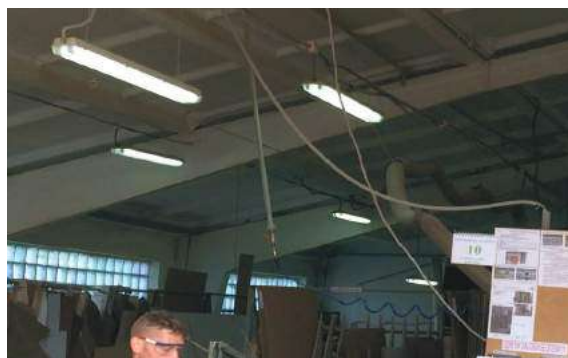
## Компресор та повітряні системи



## Таблиця 3

Проблема	Рекомендації експертів	Впроваджено
<ul style="list-style-type: none"> <li>■ Система освітлення складається вбільшості з ламп-труб Т8, що освітлюють з обумовленим баластом</li> <li>■ Лампи-труби розташовані надто високо</li> <li>■ В різних зонах світлом керує єдиний вимикач</li> <li>■ Здорожчення освітлення через утилізацію люмінесцентних ламп</li> </ul>	<ul style="list-style-type: none"> <li>■ Заміна існуючих ламп на енергозберігаючі</li> <li>■ Відімкнути дефектні лампи-труби, щоб уникати непотрібного споживання електроенергії</li> <li>■ Переробити освітлення таким чином, щоб лампи були розташовані на оптимальній висоті</li> <li>■ Встановити окремі вимикачі на кожному робочому місці</li> <li>■ Мотивувати працівників вимикати штучне освітлення, коли є денне</li> </ul>	<ul style="list-style-type: none"> <li>■ У виробничих приміщеннях здійснено заміну ламп ДРЛ на ЛЕД лампи (кількість 250 шт.), освітлення території проводиться світлодіодними прожекторами</li> <li>■ Демонтовано дефектні лампи</li> <li>■ Лампи розташовані на оптимальній висоті над робочою зоною</li> <li>■ Встановлено окремі вимикачі на кожному робочому місці</li> <li>■ Розміщено над кожним вимикачем в офісі напис: "Вимкни світло - не допомагай Путіну!"</li> </ul>

## Система освітлення



## Таблиця 4

Проблема	Рекомендації експертів	Впроваджено
<ul style="list-style-type: none"> <li>■ Аспірація не сполучена безпосередньо з верстатом, вона продовжує працювати навіть коли верстат зупинено</li> <li>■ Переповнення мішків викликає додаткову витрату енергії (збільшення тиску)</li> </ul>	<ul style="list-style-type: none"> <li>■ Організувати роботу аспірації так, щоб пов'язаний з нею верстат зупинявся одночасно</li> <li>■ Забезпечити процес випорожнення мішків аспірації, відразу після того, як вони повністю наповнились</li> </ul>	<ul style="list-style-type: none"> <li>■ Проведено паралельне підключення аспірації до верстатів</li> <li>■ Випорожнення мішків проводиться одразу після їх наповнення</li> </ul>

## Аспірація у виробничих цехах





## Таблиця 5

Проблема	Рекомендації експертів	Впроваджено
<ul style="list-style-type: none"> <li>■ Паливо для парового котла (стружка для деревини) має високу вологість (40%), що викликає пониження жару</li> <li>■ Не використовується відпрацьоване тепло з труби, що йде на пальник</li> <li>■ Відсутність терморегуляторів на радіаторах у виробничих приміщеннях</li> <li>■ Відсутність теплоізолюючих екранів між стіною та радіатором</li> </ul>	<ul style="list-style-type: none"> <li>■ Використовувати відпрацьоване тепло для сушіння стружки</li> <li>■ Ізолювати гарячі трубопроводи в котельні</li> <li>■ Встановити терморегулятори на кожний радіатор</li> <li>■ Встановити теплоізолюючі екрани між радіатором та стіною</li> </ul>	<ul style="list-style-type: none"> <li>■ Встановлено терморегулятори на радіаторах</li> </ul>

## Опалення офісних та виробничих приміщень



## Таблиця 6

Проблема	Рекомендації експертів	Впроваджено
<ul style="list-style-type: none"> <li>■ Сушильна камера вимагає 10% повного енергоспоживання, процес сушіння займає 14-20днів через відсутність Мінливої системи (VFD) в системі вентиляції, яка керує швидкістю вентиляторів базованих на температурі та вологості повітря в камері</li> <li>■ Ущільнення дверей в сушильних камерах не зроблене належним чином, що викликає втрати енергії</li> <li>■ Відсутня система повернення енергії в мережу, гаряче повітря залишається не використаним</li> </ul>	<ul style="list-style-type: none"> <li>■ Встановлення Мінливої системи (VFD) в системі вентиляції</li> <li>■ Забезпечити належну щільність дверей сушильної камери щоб уникнути витрат</li> </ul>	<ul style="list-style-type: none"> <li>■ Проведено ущільнення дверей сушильних камер</li> </ul>

## Сушильні камери





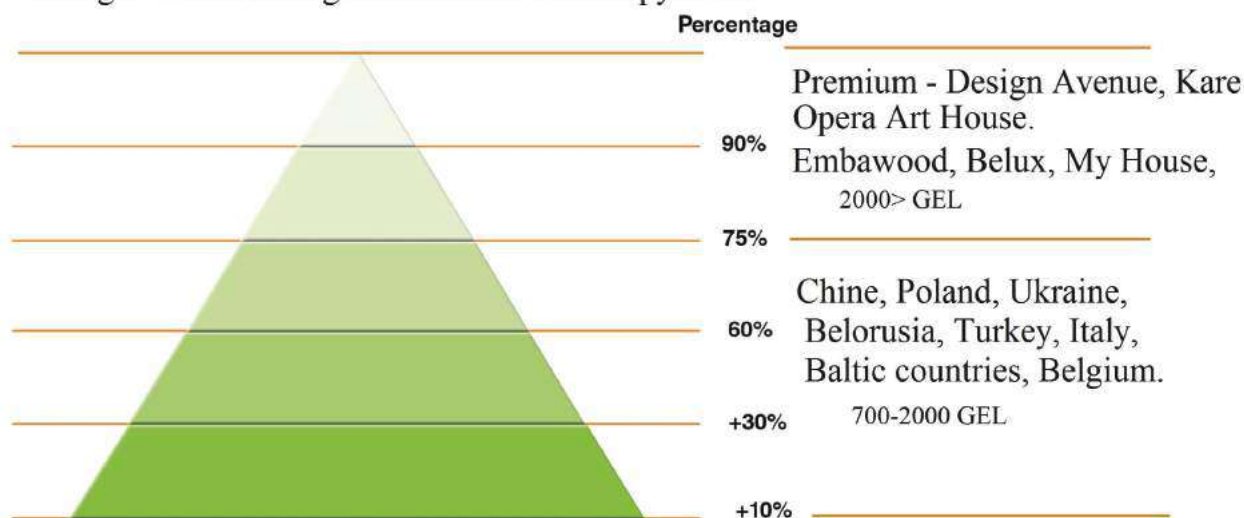
## Topic 2 – Domestic markets for wood products: Georgian Company Case Input for Panel Discussion on “EFFICIENCY” Lviv, May 18, 2016



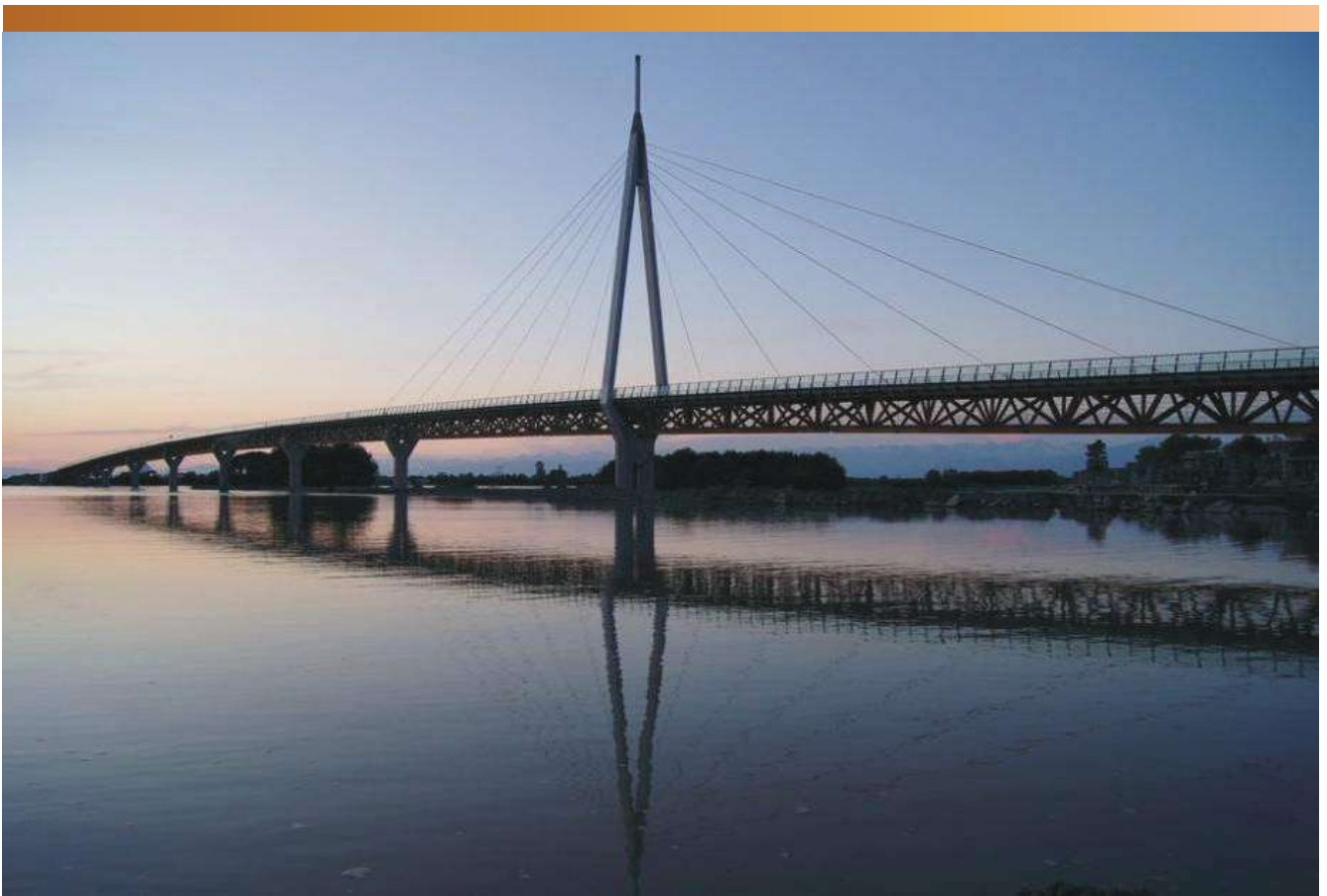
Mr. Mamuka Khostaria  
Georgian  
Woodprocessors Association  
[www.nanowood.ge](http://www.nanowood.ge)



### Georgia woodworking and furniture market pyramid

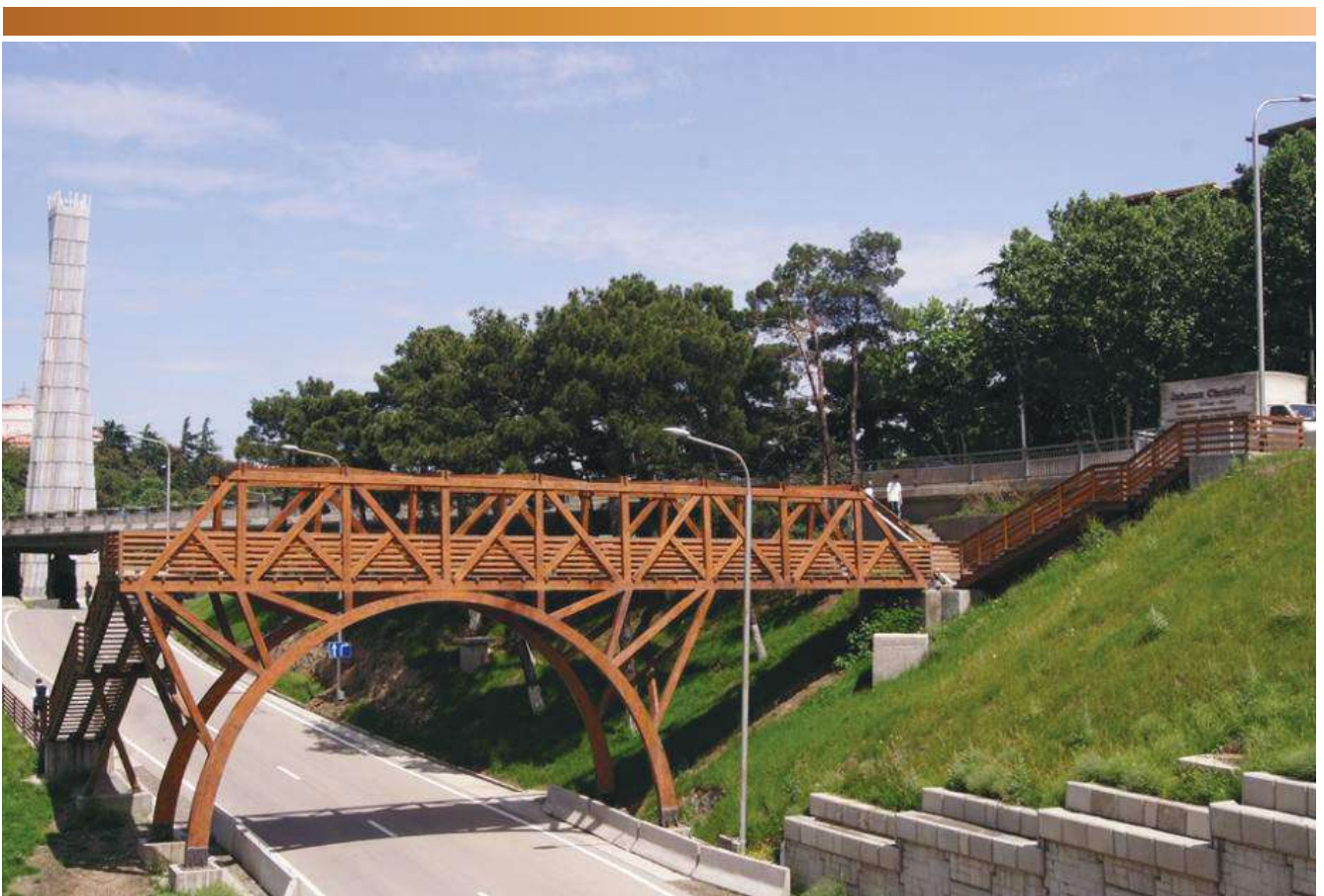






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European Commission  
FP7 no. 609573, 2014-2016  
[www.reram.eu](http://www.reram.eu)



## Topic 2 – Domestic markets for wood products: Georgian Company Case Input for Panel Discussion on “EFFICIENCY”

Thank you for your attention!



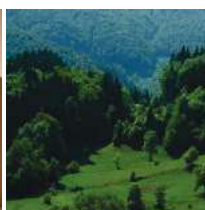
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## Topic 3 - Indicators & Benchmarking Toolkits Input for Panel Discussion Lviv, May 18, 2016

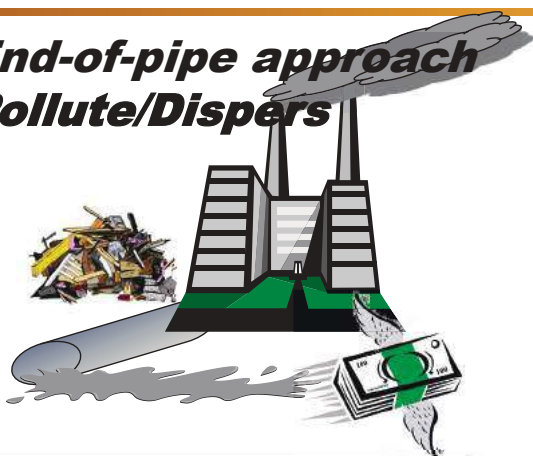


Mr. Roland Oberwimmer  
[oberwimmer@holzcluster-steiermark.at](mailto:oberwimmer@holzcluster-steiermark.at)  
Holzcluster Steiermark GmbH  
[www.holzcluster-steiermark.at](http://www.holzcluster-steiermark.at)



## Business Approach to (Cleaner) Production

### ***End-of-pipe approach Pollute/Dispers***



- ✗ Turning valuable raw material into waste
- ✗ Increasing effort of handling with waste and emission

### ***Avoidance at the beginning***



- ✓ Less production cost reduction
- ✓ Higher productivity
- ✓ Material and Energy efficiency



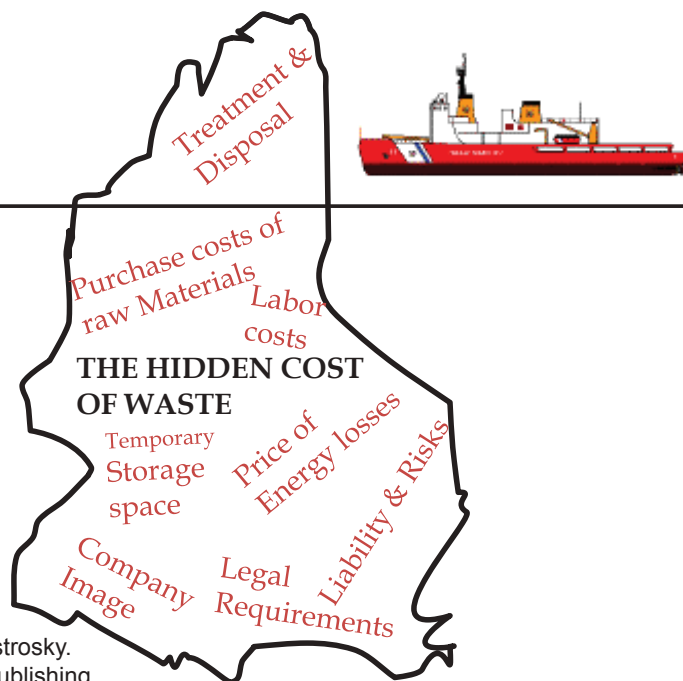
**Value to  
Society**



# The "Cost of Waste" Iceberg

## Benefits of CP measures – "the Iceberg Issue":

- 1/3 is directly measurable/tangible
- 2/3 additional benefit on hidden costs



Based on: Bierma, T.J., F.L. Waterstaraat, and J. Ostrosky.  
*Green Bottom Line, Chapter 13*, 1998. Greenleaf Publishing

## Big Question – where to start?

### Changing the managerial mind Set



vs.



**Focus on selling and client acquisition**

**Internal losses & hidden costs overlooked / poorly estimated**

## Check your mind-set: Where are you now?

- a) **Waste is not an issue**
- b) **Waste is only disposal issue**
- c) **Waste is cost and regulatory issue**
- d) **We plan to reduce waste**
- e) **We have identified our waste and monitoring it**



- f) **Waste has been reduced since we change the way we work**
- g) **We are optimising our processes and achieving big cost reductions**
- h) **Only a change in technology would eliminate waste completely**

## Identifying your potentials

- External benchmark data (not always comprehensive/rough indicators)
- Suppliers of machinery & equipment
- External specialists

Comparison with own performance data

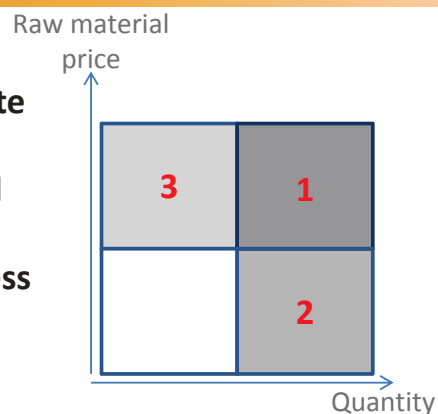


## Identifying your potentials

RERAM toolkit (available by May 31)

**Internal analysis of consumption and waste patterns:**

- ranking of input materials by price and quantity
- ranking of input materials by hazardness
- Types and volumes of waste and emissions
- Leak test for pressurized air systems
- List of energy consumers



**Rule of thumb:**

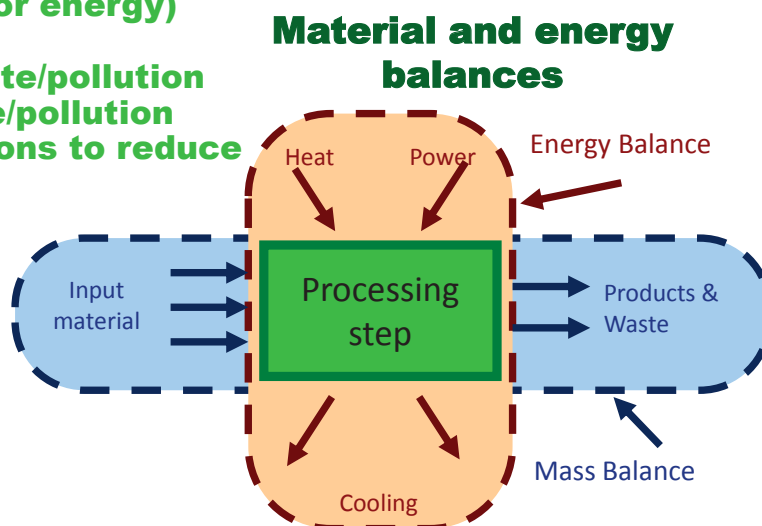
**Major cost drivers = biggest potentials for saving costs and the environment**

## Assessment of potential (the tricky part)

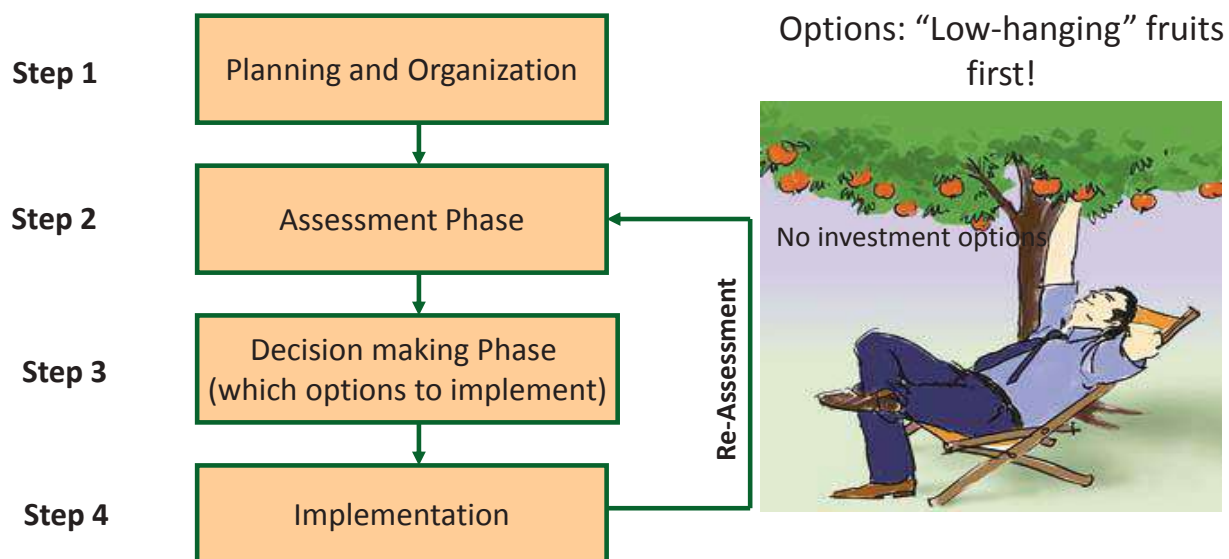
**For each processing step of the potential input (material or energy)**

- ✓ Identify amount of waste/pollution
- ✓ What causes the waste/pollution
- ✓ Generate possible options to reduce waste/pollution

**External guidance is highly recommended!**







## Topic 3 - Indicators & Benchmarking Toolkits Input for Panel Discussion

Thank you for your attention!



# CP Options implemented (at Goliat Vita)

**holzcluster**  
steiermark gmbh



## Insulation of hot water piping



BEFORE



AFTER

## Replacement of boiler



BEFORE



AFTER

## Improved storage of material



BEFORE



AFTER



## Improved use of day light



BEFORE



AFTER

## New, maintained fire extinguisher



BEFORE



AFTER



ЩО СПІЛЬНОГО?



ПРЕДМЕТ  
ЯК КОНЦЕПЦІЯ

АЛЕ ЩО ВІДБУВАЄТЬСЯ В РЕАЛЬНОСТІ?

COPY

PASTE



ЩО ВАРТО І ЩО МОЖНА РОБИТИ?



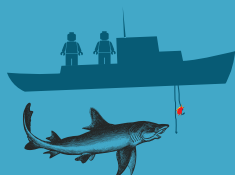
СПІВПРАЦЯ-  
ПАРТНЕРСТВО //  
КОМАНДА  
СИНТЕЗ //



ЗАХМАРНИЙ ДИЗАЙН  
«ОЧИМА» БІЗНЕСУ (ВИРОБНИКА)

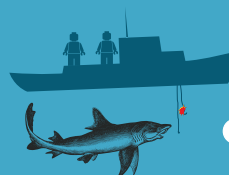


ЗАМОВНИК (ВИРОБНИК)  
Vs  
ВИКОНАВЕЦЬ



ПСИХОЛОГІЯ  
ВЗАЄМОДІЇ

ВІЗУАЛІЗАЦІЯ  
БРЕНДУ



ДОЦІЛЬНЕ  
ІНВЕСТУВАННЯ



# ДИЗАЙН -

ЦЕ ЗАВЖДИ РІШЕННЯ  
У СПІВВІДНОШЕННІ  
ЕМОЦІЙ ТА ФУНКЦІЙ,  
ЯКЕ ДОСЯГАЄ ЦІЛІ

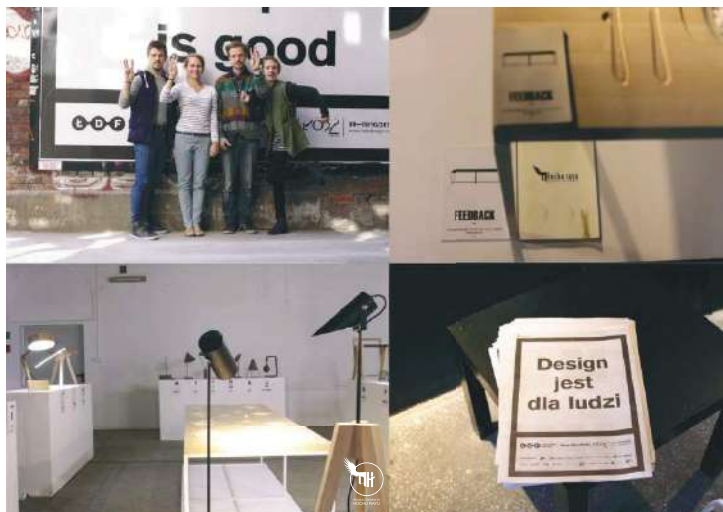
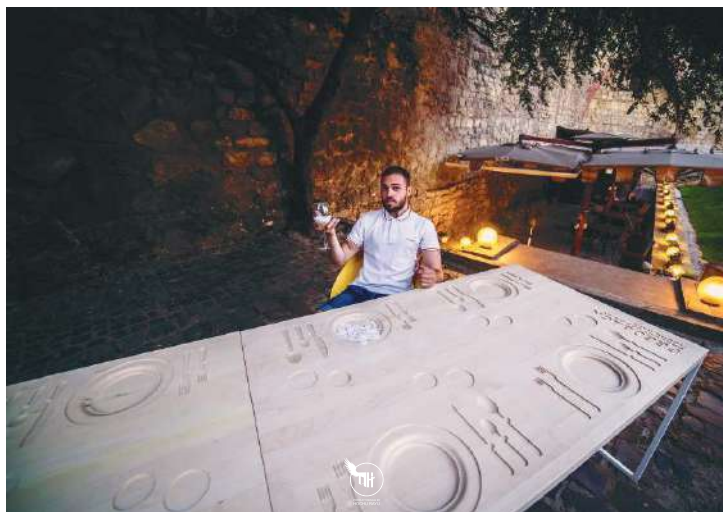
В.ХИРИЛІВ



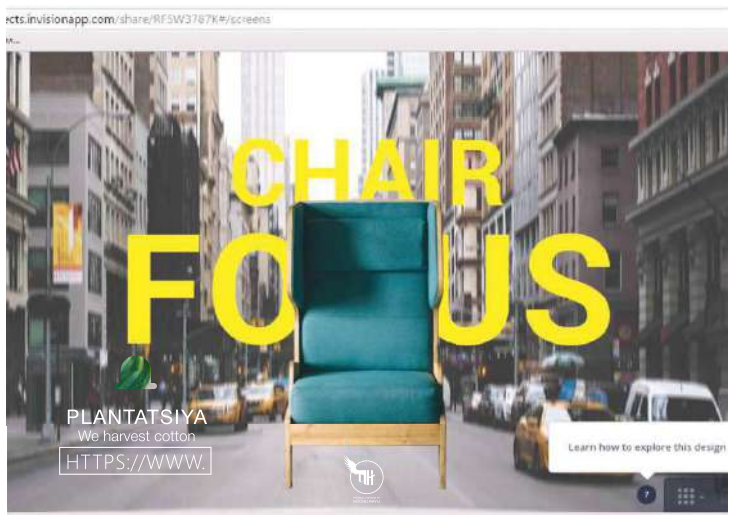
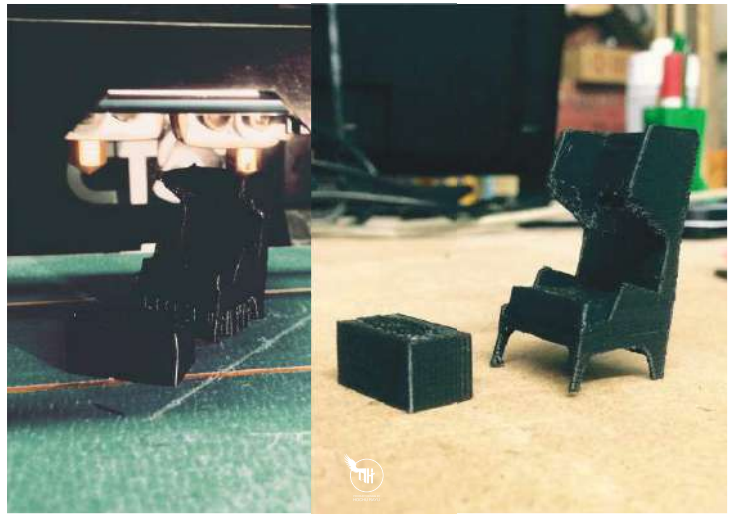
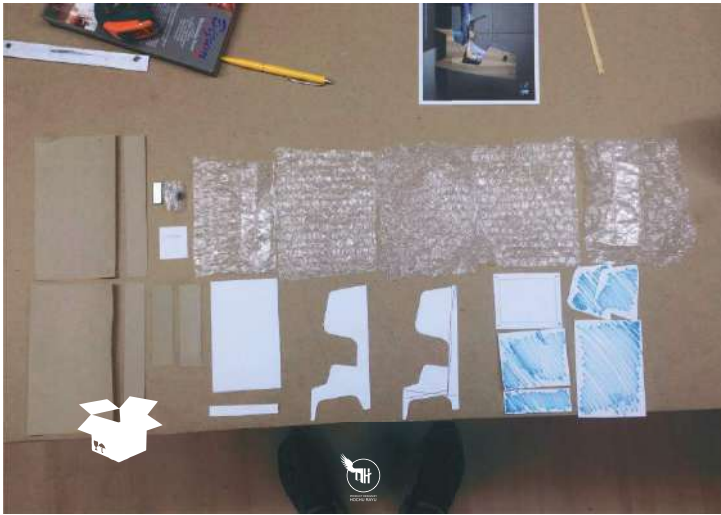
ПРЕДМЕТНИЙ  
ДИЗАЙН













# УЧАСТНИКИ & ПОБЕДИТЕЛИ 2019

МЕБЕЛЬ

ОБОРУДОВАНИЕ

ОСВЕЩЕНИЕ

БЫТОВАЯ И КОМПЬЮТЕРНАЯ ТЕХНИКА

ТРАНСПОРТ

ДЕКОР В ИНТЕРЬЕРЕ

УКРАШЕНИЯ И АКСЕССУАРЫ

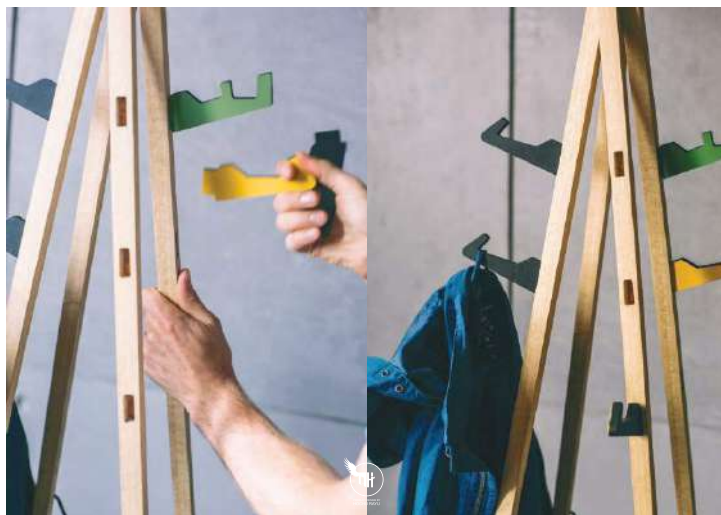


## FOCUS chair

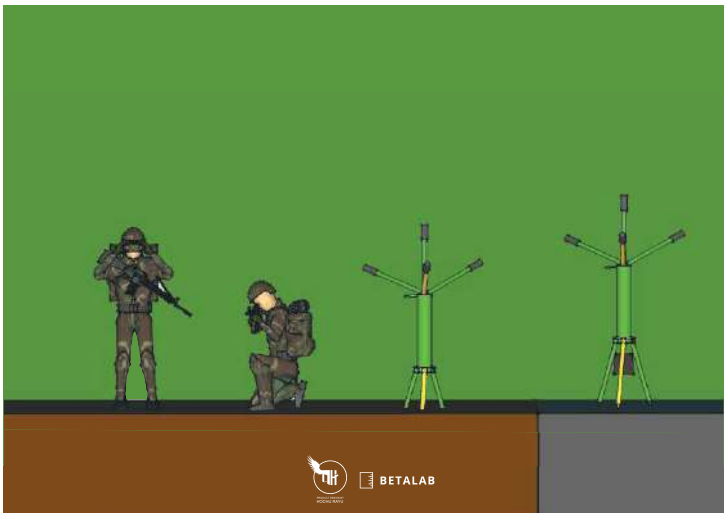
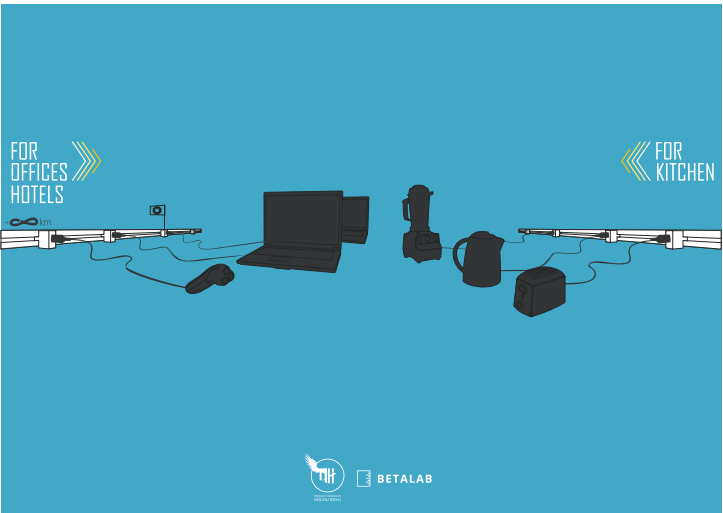
Категория	РЕАЛИЗОВАНН
Кем разработано:	design bureau #
Купили & Danuta Kril	
По заказу:	Our project
Страна :	Украина

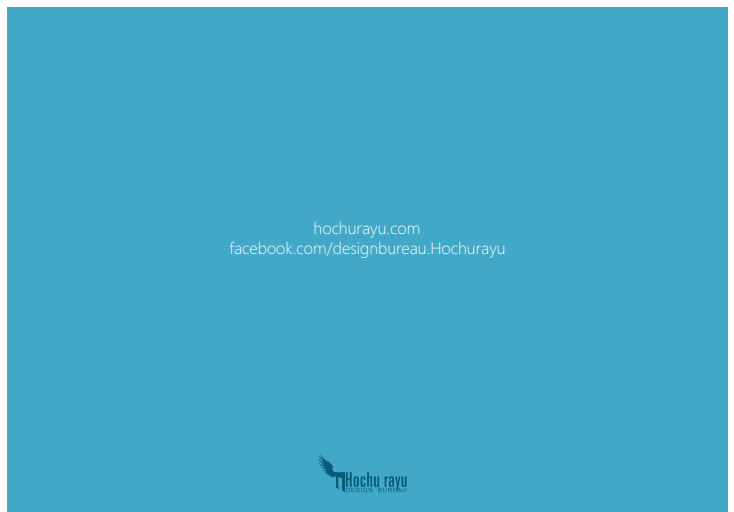
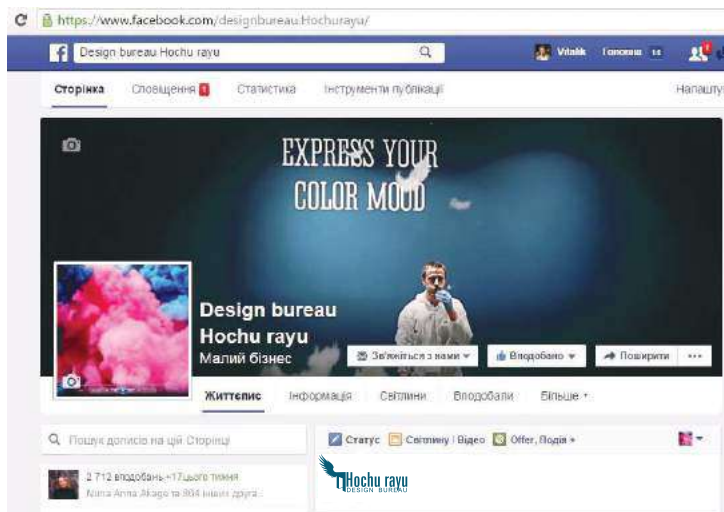
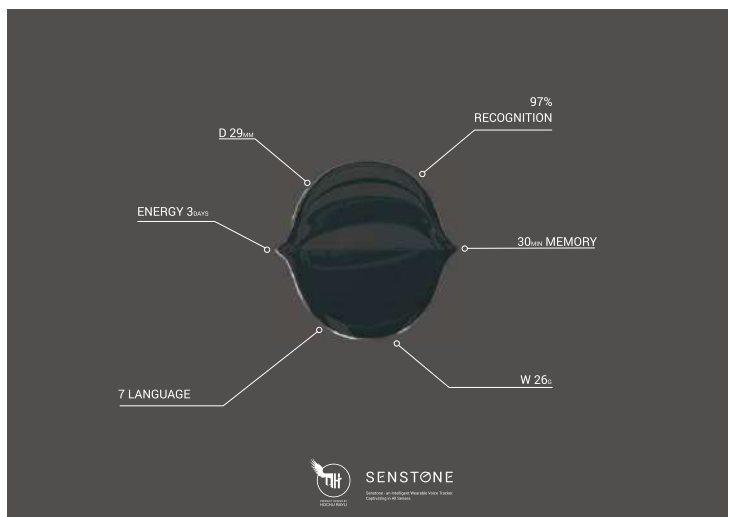
Описание проекта

It's perfect for lounge hotel zone, resta, so it's easy to change color. Same goes change it easily. Movable cushion can t comfort.











Eskada-M

Виробник шпонованих плит №1



Виробник  
шпонованих плит №1

NOTHING BUT PERFECTION



Виробник  
шпонованих плит №1

NOTHING BUT PERFECTION



Школа управління продажами:

- Ріст продажів за рік - 50 %
- Вихід на експортні ринки: Швейцарія, Білорусь, Молдова, Польща, Скандинавія.





## Філософія Адізеса

- Зміна культури;
- Генерація ідей на всіх рівнях;
- Наші працівники – драйвери компанії.



## Результати впровадження ТОС:

- Скорочення термінів доставки з 14 до 5 днів;
- Розмір складу зменшився на 30%;
- Цикл оборотності складу знизився з 63 днів до 19;
- За 2 роки – оборот став нашим прибутком.

## Lean Production



Аналіз всієї  
Майстерні



200 ідей вдосконалення



Збільшення  
продуктивності на 20%



Створення KAIZEN  
клубів

WOODWERK

furniture & homestyle

WOODWERK

furniture & homestyle





WOODWERK

furniture & homestyle



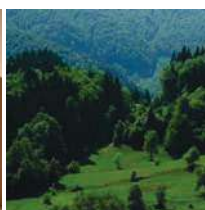
WOODWERK

furniture & homestyle





## Resource Efficiency and Sustainable Manufacturing in the Forest-based Sector of Eastern Europe (ENP-EaP Countries)



### Main conclusions

Prof. Orest Kiyko, UNFU  
Dr. Uwe Kies, IIWH



## Project Objective



### Main goal

→ Improve **RESOURCE EFFICIENCY** and **RAW MATERIAL** consumption of the *Forest and Woodworking Sector* in ENP Eastern countries by bridging the gaps between research and innovation among SMEs, science and authorities



Forest clear-cutting



Wood wastes



Outdated equipment





## Main outcomes of the RERAM project

1. Regional Baseline Study
2. Train-the-trainers programme for efficiency managers
3. Enterprise Reality Checks and Benchmarking
4. Handbook & Toolkit
5. Increased International Cooperation
6. Dissemination



## Main recommendations to strengthen the ENP forest-based sector

### 1. Formation of a joint forest-based sector initiative

- New organisation or institution to be formed
- Mission: Unite and join forces of the subindustries, promote better understanding & collaboration
- in principle inclusive to all subindustries
- First purpose:
  - Assess sector's status, barriers, potentials
  - Develop a common vision, priorities and innovative actions
- Second purpose:
  - Raise awareness and improve public perception of the sector's potentials for sustainable growth in the bioeconomy

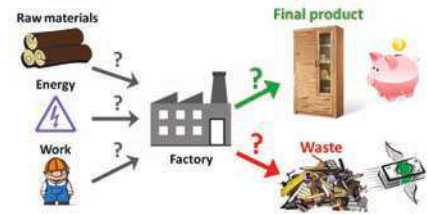




## Main recommendations to strengthen the ENP forest-based sector

### 2. Promoting resource efficiency in the sector

- Develop targeted support programs for SMEs to implement cleaner production and sustainability
- Aim of programs:
  - Reduction of wasted raw materials and energy,
  - Higher recycling rates
  - Less environmental pollution
  - Technological modernisation
- Effective methods to foster market uptake:
  - Innovation vouchers and grants
  - Enterprise checks and audits
  - Competitions and prizes
  - Joint market promotion
- Dedicated training and qualification programs



## Main recommendations to strengthen the ENP forest-based sector

### 3. Stimulate higher value adding and improve business climate

- 'From volume to value added': promote new investments in higher level manufacturing and domestic value adding
- Specific promotion programs for local wood industries
  - Acquisition of new technologies, tools and equipment
  - Preparation of new investments
  - How to implement innovations
  - Upgrade production systems and competence
- Impacts:
  - Stimulate new foundations of enterprises
  - Create higher employment in local communities



## The future of RERAM: Challenges

### Forest-based sector + ENP = Horizon2020 ?

- Specific EU calls for 'forest/wood' decreased
- No more specific ENP programme lines / calls
- Trend towards cross-sectoral initiatives:  
forest-based sector as a (small/minor) part of bio-economy,  
environment, renewable energies, rural development etc.
- Competitive innovation: real opportunity for ENP countries?

### Other funding lines/ programmes ?

- INTERREG (ETC)
- Eastern Partnership Territorial Cooperation (EAPTC)
- COST                    - EuropeAid                    - Erasmus Mundus
- Other International Donors

## The future of RERAM: Opportunities

### New Pilot Projects / Proposals - developed by RERAM consortium

- New competences in the wood sector for the growth of  
its innovativeness in the EU and ENP countries (ITD)
  - RERAM-NET (UNFU)
  - Transition to a circular economy: 'zero waste' in the  
European forest-based sector (ITD)
  - Empowering for Climate Change Adaptation (FORZA)
  - Potential and efficiency of wood energy resources (AUG)
  - Promotion of Local Markets for Energy Efficiency (WPFC)
  - Innovative Technological Hubs (AITT)
  - Mentoring Programme for Innovative Youth (AITT)
- ... and many more ...



## The future of RERAM: Opportunities

### New Pilot Projects / Demonstrations - Opportunities for SMEs ?

- Resource efficiency as part of business model
- Innovations (products, processes, markets)
- Value chains
- Joint market promotion

... Outcomes from panel discussions...



### Resource Efficiency and Sustainable Manufacturing in the Forest-based Sector of Eastern Europe (ENP-EaP Countries)

**Thank you for your participation and contributions !**





## 4.5 RERAM Press release

Press release | Lviv, 18.05.2016

### **RERAM project: Resource efficiency offers new opportunities for small enterprises in the forest and woodworking sector of Ukraine**

**Saving resources, raw materials and energy are important for companies to improve their competitiveness and reduce environmental impacts. The EU-funded FP7 project RERAM promoted practical solutions for local woodworking SMEs in the EU Neighbourhood countries Ukraine, Moldova and Georgia, where company managers learn to upgrade the efficiency and implement sustainability measures in their production. During the final conference held in Lviv, Ukraine, the results were discussed by a large panel of industry managers and experts, who stressed the importance of resource efficiency to enhance value adding, innovation and new markets for wood manufacturers in Eastern Europe.**

Wood is an astonishingly versatile raw material: it is simultaneously renewable, recyclable, reusable and refineable, offering a multitude of environmentally friendly products to society, such as construction, furniture, flooring, interior design, paper products, bioenergy and even bio-chemical products. Using more wood efficiently is good to substitute fossil fuels or other energy-intensive materials and is an active contribution to climate protection.

RERAM developed an instructive training programme on resource efficiency and carried out hands-on reality checks and coaching of enterprises. More than 20 woodworking companies participated and obtained useful knowledge of how to improve environmental performance of their business. In general, managers are not aware that inefficiencies such as improper processing and lacking maintenance of equipment do in fact generate high amounts of wasted material and energy and sum up to considerable unproductive hidden costs.

Through the first self check of a company's situation, various improvement options are identified by auditors or trained staff. These options can be realised at little cost and will pay back in a short time ('low hanging fruits'). The RERAM Handbook explains this approach tailored for managers and technical personnel in SMEs. It is a guide on effective methods, measures and tools to detect high cost drivers and leverage a variety of saving potentials, and it is published as a free download from the RERAM project website.

Dr. Uwe Kies of the Wald-Zentrum in Germany, the coordinator of the RERAM project, points out the usefulness for every enterprise: "Less input of resources with the same high output always results in less production costs and higher climate protection. RERAM demonstrated that resource efficiency and sustainability represents a real opportunity for the forest-based sector in Eastern Europe. It is always a win-win situation for the companies, the environment and the climate – and in general for our society".

The results of the RERAM project were presented Final Conference on 18 May 2016 in Lviv, Ukraine to a wider audience, where industry managers and experts engaged in an open panel discussion. Today's renaissance of wood as a renewable resource has resulted in a strong increase of the demand on a global level and leads to more and more non-sustainable exploitation of forests, especially in the European Neighbourhood countries (ENP). Preserving natural forest resources and promoting a sustainable use of wood raw materials is therefore one of today's grand societal challenges.

Prof. Dr. Orest Kiyko of the Ukrainian National Forest University, stresses the importance of a strong partnership of companies, scientists and authorities: "Today Ukraine's forest-based sector needs a joint initiative including all forestry, woodworking and furniture industries. Such an initiative shall develop the sector with a coordinated support for more sustainable, domestic value added. The RERAM project laid a good foundation and demonstrated that it is important to strengthen the domestic growth potential in SMEs, research and innovation through broader public dissemination and networking in the ENP region. Resource efficiency is the smart solution for this."

The RERAM project is a collaboration of 11 partner organisations in Germany, Austria, Belgium, Poland (EU member states), Ukraine, Moldova and Georgia (ENP countries) funded for 2 years by the EU FP7-INCO programme. For further info please visit: [www.reram.eu](http://www.reram.eu)

#### Contacts



**Agency for Sustainable Development of the Carpathian Region (FORZA)**

Shvabska str., 51a (4 floor), Uzhhorod, 88018, Ukraine  
Tel./Fax +38 0312 67 14 50, Mob +38067 310 1631  
[www.forza.org.ua](http://www.forza.org.ua), [lesya.loyko@forza.org.ua](mailto:lesya.loyko@forza.org.ua)



**Wood and Furniture Processing Cluster (WPFC)**

Henerala Chuprynyky 50/12, 79044 Lviv, Ukraine  
Tel./Fax +380 32 2457812, Mob +380 67 6700106  
[domv.lviv.ua](http://domv.lviv.ua), [vv@ppv.net.ua](mailto:vv@ppv.net.ua)



**Ukrainian National Forestry University (UNFU)**

Gen. Tchuprynyka str., 103, Lviv, Ukraine  
Tel. +38 032 238 45 04  
[www.nltu.edu.ua](http://www.nltu.edu.ua), [orest.kiyko@nltu.edu.ua](mailto:orest.kiyko@nltu.edu.ua)



Wald-Zentrum

**Internationales Institut für Wald und Holz e.V. (IIWH)**

Hafenweg 24 a, 48155 Münster, Germany  
[www.wald-zentrum.de](http://www.wald-zentrum.de), [uwe.kies@wald-zentrum.de](mailto:uwe.kies@wald-zentrum.de)



**Holzcluster Steiermark GmbH (HCS)**

Holzinnovationszentrum 1a, 8740 Zeltweg, Austria  
[holzcluster-steiermark.at](http://holzcluster-steiermark.at), [oberwimmer@holzcluster-steiermark.at](mailto:oberwimmer@holzcluster-steiermark.at)

#### 4.6 Declaration of the Forest Sector Council for the Lviv Oblast (English translation)



LVIV REGIONAL STATE ADMINISTRATION

O R D E R

May 11, 2016

№ 265/0/5-16

*About the creation of the forest sector Council  
under umbrella of the regional state administration*

According to paragraph 9 of the Article 39 of the Law of Ukraine "About local state administrations" in order to improve the resource efficiency of forest resources of the region:

1. To create the Council of the forestry sector in the Lviv region (hereinafter - the Council) and approve its staff according to the application.
2. To approve the Council Regulation.
3. To put control over the execution of this order on the first deputy head of the regional state administration – R.T. Zamlynsky.

**Head**

**O.M. Sunytka**



Appendix  
to the order of the Head of Regional  
State Administration  
from 11 May 2016, №265 / 0 / 5-16

**Staff  
of the forest sector Council under the umbrella  
of the Regional State Administration**

БУРИК Зоряна Михайлівна	– Representative from the public (by consent)
БІЛЯК Михайло Васильвич	– Representative of the Public Council at the Lviv regional state administration (by consent)
<i>Vorobey Volodymur</i>	<i>Head of the woodworking and furniture Cluster (by consent)</i>
ГРЕЧАНИК Руслан Мар'янович	– Director of the Department of Environment and Natural Resources of Lviv Regional State Administration
ГУБЕР Юрій Мирославович	– Associate Professor of the National Forestry University of Ukraine (by consent)
ДЕЙНЕКА Анатолій Михайлович	– Head of the Lviv Forestry and Hunting Committee (by consent)
ЗАМЛИНСЬКИЙ Ростислав Теодозійович	– First Deputy of the Chairman of Regional State Administration
КАРАБЧУК Дмитро Юрійович	– representative of the NGO "Danube-Carpathian Programme" (in Ukraine WWF) (by consent)
<i>Orest Kiyko</i>	– <i>Head of the Department of Furniture Production Techniques and Wood Product Technology of the Ukrainian National Forestry University</i>

КОВАЛЬ Любомир Ігорович	– chief editor of newspaper "Woodworker" (by agreement)
КОГУТ Микола Васильович	– Chairman of the Association of wood processors Lviv (by consent)
КОЛОМІЙЧЕНКО Микола Віталійович	– President of the Ukrainian Pellet Union (by consent)
ПОШИВАЙЛО Ярослав Євгенович	– CEO "Cardboard and Paper Company" (by agreement)
МИКЛУШ Степан Іванович	– Chairman of the Public Council at the Lviv Regional Forestry and Hunting (by agreement)
ПАСІЧНИК Володимир Володимирович	representative of the company «Eco Optima» (by agreement)
ПІГУЛЯК Василь Миколайович	CEO "Lviv Trade Exchange" (by agreement)
ПЕШКО Петро Степанович	– CEO of specialized regional municipal forest management "Halsillis" (by agreement)
СІДОРКОВ Валерій Галактіонович	– director of the Lviv Military Forestry Complex (by agreement)
ШАТИНСЬКИЙ Юрій Богданович	– director of LTD "Chumak" (by agreement)
ЮЩИШИН Руслан Ярославович	– Director of PE "Yushchyshyn" (by agreement)
Анджей Зайонц	– CEO LTD «Krono-Ukraine» (by agreement)

**First Deputy Chairman**

**R.T. Zamlynsky**

APPROVED by  
The Head of Lviv Regional  
Administration  
from May 11, 2016  
Number 265/0 / 5-16

REGULATION  
in regard to Forest Sector Council  
under the umbrella of the Regional State Administration

1. The Council of the forestry sector in the regional state administration is a permanent collegial advisory body established for elaborating of the strategic approaches in order to improve the resource efficiency of forest resources usage and public control over the implementation of the approach that can increase the added economic value of the unit volume harvested timber, improving the quality and quantity of jobs in the sector and ensure the development of the maximum amount of energy from solid fuels without damage to the environment.

2. The work of the Council is based on the Constitution of Ukraine and laws of Ukraine, acts of the President of Ukraine and resolutions of the Ukrainian, acts of the Cabinet of Ministers of Ukraine, orders and instructions of the Head of Regional State Administration and these Regulations.

Council Regulations approved by the Head of Regional State Administration.

3. The main tasks of the Council are:

- Coordination of strategic approaches in regard to improving of the efficiency of the forest institutions and related industries with all interested stakeholders (including forestry, woodworking, furniture, pulp and paper, bioenergy and other sub-sectors);
- Elaborating of the long, medium and short-term objectives for all branches of the forest sector.
- Determining of the internal and cross-sectoral projects between stakeholders to improve resource efficiency and cooperation.
- Analysis of the forest resources usage.
- Taking into consideration of the public opinion and support of the community initiatives for the formation and implementation of the state and regional policy in forestry and hunting, conservation and protection of the forests, evaluate the use and reproduction of forest resources on the basis of sustainable development, biodiversity in forests, resource-efficient driving of the woodworking and furniture industry, pulp and paper industry and bioenergy.
- Forming a balanced development of the forest sector in Lviv region, facilitate compliance with environmental rights in the usage, protection, restoration and enhancement of forest resources.



- Sharing knowledge in reference to approaches, methods and techniques of forest management, environmental aspects of forest management, effective management of woodworking and furniture sector, pulp and paper industry and bioenergy.

4. Council in accordance with its tasks:

- Analyzes the key performance indicators of forest resources area;
- Elaborates strategic approaches and offers the tools and mechanisms for their implementation, including acts of proposals for programs and projects of Plan Implementation Strategy of Lviv region till the end of 2020;
- Prepares and submits proposals for the organization of public consultations;
- Submits for the consideration of Lviv Hunting Administration, State Agency of forest resources, ACS LHP "Halsillis", Lviv Military Forestry and other forest users suggestions for drafting regulations on the formation and implementation of the state and regional policy in the field of forest relations, improvement institutions of Lviv forest industry;
- Submits for the consideration of the Lviv regional council proposals for preparation of draft decisions aimed an improvement of forest enterprises sub-sector, which are subordinated by the Lviv regional council;
- Gets according to approved procedure from executive authorities and local government information necessary for the Council within the framework of current legislation of Ukraine;
- Informs without fail public about its activities, decisions, their implementation by placing information in the appropriate section on the official website of Lviv Regional State Administration and other appropriate way;
- Summarizes information in reference to the proposals of NGOs to address issues relating to the activities of the Council, and submits them to the leadership of the regional state administration;
- Organizes public events and discussions in regard to development of the forest sector in the Lviv region at the national or regional level;
- Prepares and publishes an annual report on its activities in the relevant section on the official website of Lviv Regional State Administration.

5. The Council has a right:

- to establish permanent and temporary working bodies (board secretariat, committees, commissions, expert groups, etc.) in areas of activity, the staff of which is approved by the Council;
- to engage in its activity members of local governments, representatives of national and international experts and scientific organizations, enterprises, institutions and organizations (with the consent of their heads) as well as individual experts;
- to organize and conduct workshops, conferences, round tables and other events;
- to receive according to approved procedure from executive authorities and local government information necessary for the Council;

- to receive from Forest and Hunting Administration, forest enterprise "Halsillis", Lviv Military Forestry Complex and other forest users information relating to its activity.

6. The members of the Council have access to the premises of the Lviv Regional State Administration, Lviv Hunting Administration, forest enterprise "Halsillis", Lviv Military Forestry Complex, enterprises, institutions and organizations that are under their control, in order to obtain information necessary for Council activity providing.

7. Council members must:

- carry out the requirements of this Regulation and the decisions of the Council;
- participate in all meetings of the Council and its working bodies;
- prepare background material on issues of industry, represented by a member of the Council for their joint review meetings.

8. The Council may include representatives of business, NGOs, central and local executive authorities, local authorities, civil society organizations, educational and research institutions, associations, clusters and other business support organizations, and independent experts on the base of their agreement. The principles of the formation of the Council is a balanced representation of all sub-sectors of the forestry sector, the availability of professional expertise in the relevant sub forestry sector and providing of the preferential representation of business entities and organizations, business support organizations among members of Council.

9. Staff of the Council is formed for three years.

10. The personal and quantitative composition of the Board is approved by the Head of regional state administration number of members does not exceed 25 people.

Membership in the main part of the Council foresees possibility of delegation and presenting at the Council meeting only one representative from each institution of civil society or the forestry sector. Membership of two or more delegates is acceptable only in the working bodies of the Council.

11. It is possible to include somebody in the staff of the Council according to the initiative of:

- Civil society who provided their representatives to represent this organization on the Board;
- Council itself.

The decision is taken by the Council at its meeting and it submits relevant recommendations and guides to the head of regional state administration.

12. Termination of membership in the Council conducts in accordance with the decision of the Board if:

- absence of the member of the Council at the Council meeting 2 or more times in a row without considerable reason (information about the presence of considerable reason in regard to the impossibility to participate in the meeting by the message of Secretary of the meeting - e-mailing and / or mobile communications is mandatory )



- there is a message from civil society about the recalling of their representative and suspension his/ her membership in the Council;
- Termination of duties by member of the organization who represent this member of the Council;
- it is possible to replace member of the forestry sector in the following cases:
- The entry into force of a court decision in regard to prosecute members to the criminal liability;
- Inability of a member to take part in the work in reference her/his state of health ;
- Death of a member of the Council.

13. The Council is headed by the chairman, elected by members of the Council at its first meeting by a simple majority of votes of the participants, and in the case of the nomination of several candidates - by rating voting. Chairman has deputies who are elected from the members of the Council by a simple majority of the participants, and in the case of the nomination of several candidates - by rating voting.

Powers of the Chairman of the Board may be terminated by the Council in the event of termination of its membership in the Council, and the emergence of the grounds provided by item 12 of this Regulation.

14. The Chairman of the forestry sector:

- Organizes the work of the Council;
- Convenes and organizes the preparation and conduct meetings (informs members of the Council about such events not later than 14 days prior to their implementation);
- Signs documents on behalf of the Council;
- Disposes of expert-analytical and any other material accumulated by a member of their activities;
- Represents the Council in relations with the executive bodies, public associations, local authorities and media.

Chairman and in the case of his absence - Deputy Chairman on his behalf, presides at council meetings.

15. Organization of the Council meetings and keeping minutes carry out the Secretary, who is elected by members of the Council at its first meeting by a simple majority of votes of the participants. Functions of the Secretary of the forest sector Council can perform the worker of the regional state administration, who is not a member of the Council.

16. The main form of work of the Council is meeting which are conducted twice a year (last Thursday of May and November), as well as meetings of the working bodies that carry out if necessary. Extraordinary Council meeting may be convened on the initiative of the leadership of the Lviv Regional State Administration, Chairman of the Board or one third of the Board.

The Council is competent if it is attended by at least by half of its members.

Council meetings are available for viewing live (online) and in the recording public. Results of Board meetings and logged freely available online.



Contact information about Council members, industry analyzes and materials Board meetings are published in the relevant section on the official website of Lviv Regional State Administration.

In the meetings of the Council may participate (in an advisory capacity) authorized representative of the regional administration.

At the invitation of Chairman of the Board at its meetings open to other persons who are not entitled to vote.

17. The Council takes decision by open vote by simple majority of its members presented at the meeting, in the presence of a quorum. In case of equality of votes the deciding vote belongs to the presiding judge.

Council Decisions are advisory recommendations and may be used by:

- Executive agencies to develop and implement strategies and programs;
- Bodies of the forest management in the development and implementation of action plans;
- Forest sector companies for the planning and implementation of innovative solutions and implementing investment projects;
- NGOs for the establishment and implementation of projects;
- Research institutions for planning research activities.

Chairman of the Board or an authorized representative proves Council decision and rationale to guide them to the attention of Lviv Regional State Administration, Lviv Hunting Administration, ACS LHP "Halsillis", Lviv Military Forestry Complex, personally at the meetings of collegial governance of these institutions and organizations.

18. The Council informs the public about its work by posting information on the analytical and materials on meetings of the official website of the regional administration and the own page of social media, by publication in another acceptable way of material constituting documents, work plan, management team, decisions, annual reports on its work. Results of Board meetings and logged freely available online.

19. Providing by premises, communications and creating the necessary conditions for the work of the Council and its meetings carry out Regional State Administration.

*Citation, Acknowledgement and Disclaimer*

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IIWH Internationales Institut für Wald und Holz e.V., FORZA, UNFU, WPFC. Münster, Uzhorod, Lviv. [www.reram.eu](http://www.reram.eu)

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