

ARCTIC SMART RURAL COMMUNITY

CLUSTER

Future of the Forest

Who I am

- Johannes Vallivaara, Business Advisor and cluster manager
- Our mission is to stop capital outflow from rural areas
- We are focusing on our strategy to food, decentralized energy and combining various projects

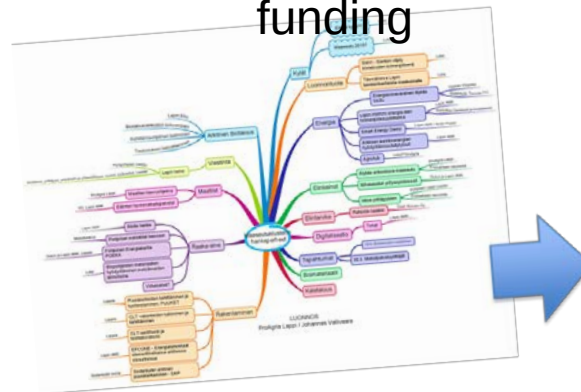


**ARCTIC
SMART RURAL
COMMUNITY**

Value chains

CLUSTER
Customer
perspective

Supporting by regional development funding



Some statistics

- Population 181.700
- Working places 70.300
- gross domestic product 5.900 million €
- Companies 15.000
 - Turnover 10.200 million €
- Export 3.500 million €
- Forest cluster startistics
 - Forestry, timber, paper and furnitures
 - Turnover 1.400 million €, 3.200 employees

ARKTINEN
ÄLYKÄS
MAASEUTU-
VERKOSTO

KLUSTERI

My point of forest issue is...

- I represent local point of view
 - how to get best annual profit in a sustainable way from forests
- More added value to landowners
- Indirectly developing operating environment for big industries to produce more developed components
 - And to create product production from those components

➡ More capital to Lapland

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Sustainability

- What mean sustainability when we are talking about forestry?
- What is the value of forest in Lapland?
- Who will get the benefits from our lands?
- What sustainability means for other forest related industries (non-wood forest products)
 - Tourism
 - Reindeer herding
 - Natural product industry
 - Decentralised energy industry
 - Wood construction
 - Chemical industry

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Some criticism from other industries

Decrease in the amount of blueberries: soil cultivation and clear cutting

”Avohakkuiden ja maanmuokkauksen vuoksi mustikoiden määrä on vähentynyt tasaisesti jo vuosikymmeniä. WWF Suomen mukaan mustikkaa on metsissämme nykyään puolet vähemmän kuin 1950-luvulla.

— Tämä on valtava ekologinen muutos metsäluonnossa. Mustikan väheneminen johtuu avohakkuista ja maanmuokkauksesta sekä puustojen tihentymisestä, sanoo WWF Suomen metsäasiantuntija Annukka Valkeapää.”

Hunted birds living conditions need to take care at forestry

”Asiaan perehtyneiden mukaan metsäkanalintujen huomioiminen metsänsäätelyn eri vaiheissa on vain kohtalaisella tasolla. Valtaosalta toimihenkilöistä, metsureista ja koneenkuljettajista puuttuu riittävä tieto metsäkanalinnuista ja näin ne jäävät liian usein vaille riittävää huomiota, sanoo metsänhoitoyhdistys Lakeuden metsätalousinsinööri AMK Markku Salmirinne.”

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Kestävyysskriteerit

- Kaikkien uusien prosessien ja tuotteiden täytyy olla kestäviä (ympäristö, talous ja sosiaalinen ulottuvuus)
- Kun arvioidaan uusia biojalostamoja, niin raaka-aineen saatavuudella ja [Ei otsikkoa] hinnalla on suuri merkitys!!
 - Eräs skenaario on se, että puun energiasisällön hinta seuraa raaka-öljyn energiasisällön hintaa? (arvio 1000 kg raakaöljyä = 41868 MJ ja 1000 kg puuta = 17 000 MJ)

Raakaöljy, barelli	20 USD	100 USD	150 USD	200 USD
Puun hinta, m ³	15.5 €	77.5 €	116.3 €	155.1 €

- Tästä yhteydestä johtuen uusien prosessien tulee olla tehokkaita ja niiden lopputuotteiden tulee olla erittäin arvokkaita tai niiden tulee korvata tuotteita, joita nykyisin valmistetaan raaka-öljystä (liikennepolttoaineet, energia, muovit, jne...)

Added value from raw material?

- Traditional pulp: 350 – 700 €/tn
 - Market growth 0
 - Paper, ...
- Dissolving pulp: 350 – 1.400 €/tn
 - Market growth 5-10 %
 - Textiles (future cotton)
- MCC 2.000 – 6.000 €/tn
- NCC > 10.000 €/tn
- Lingins,...



Products are multiplying added value to locals,
not big industry products

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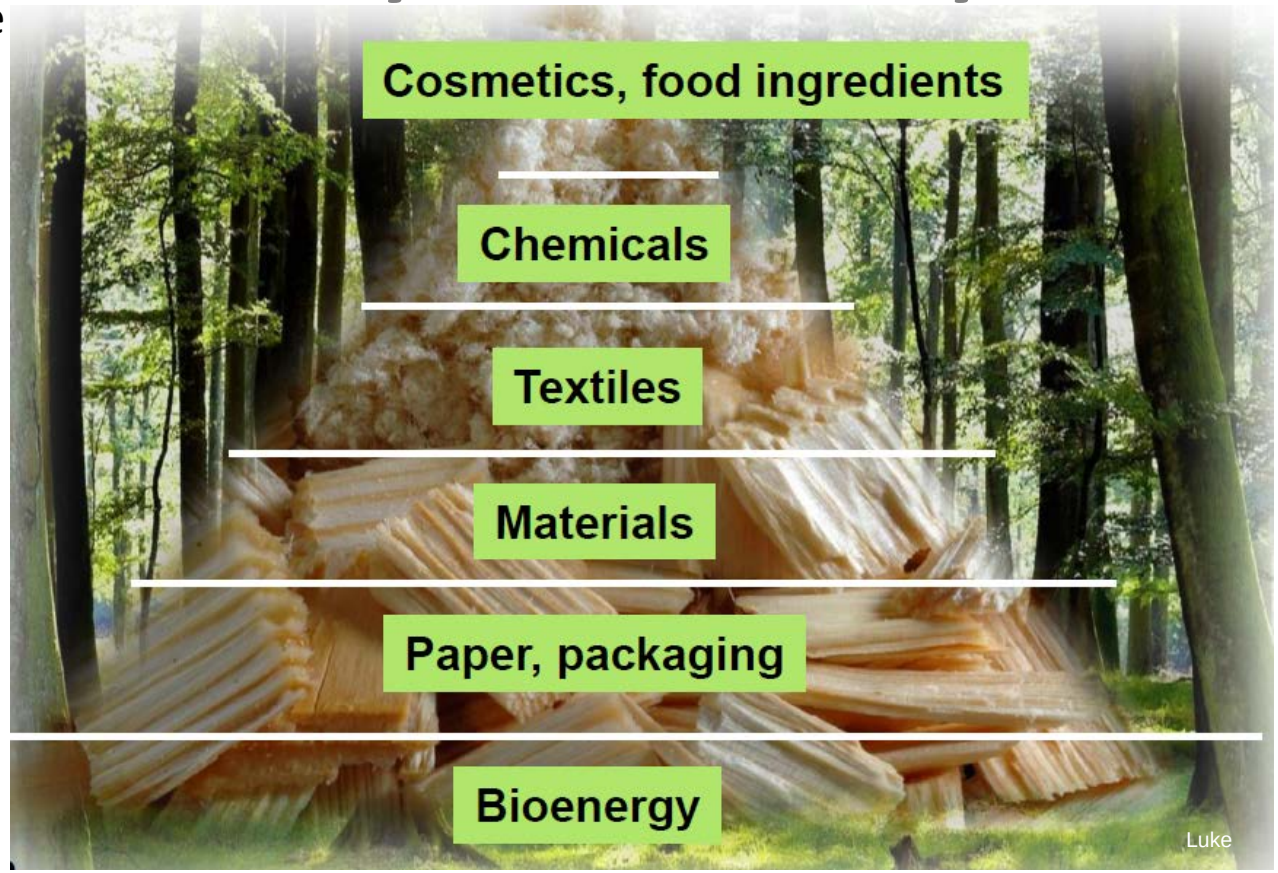
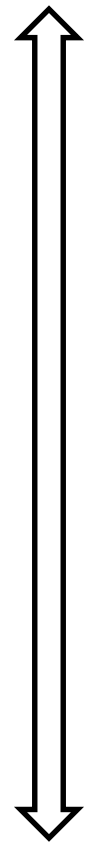
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What if we would look forests in new way – forest ecosystem



Value



Luke

Production volume

- Aim to maximize owners incomings from forests
- If we look forests "with new eyes"
 - What else forests could to offer than wood to create profit

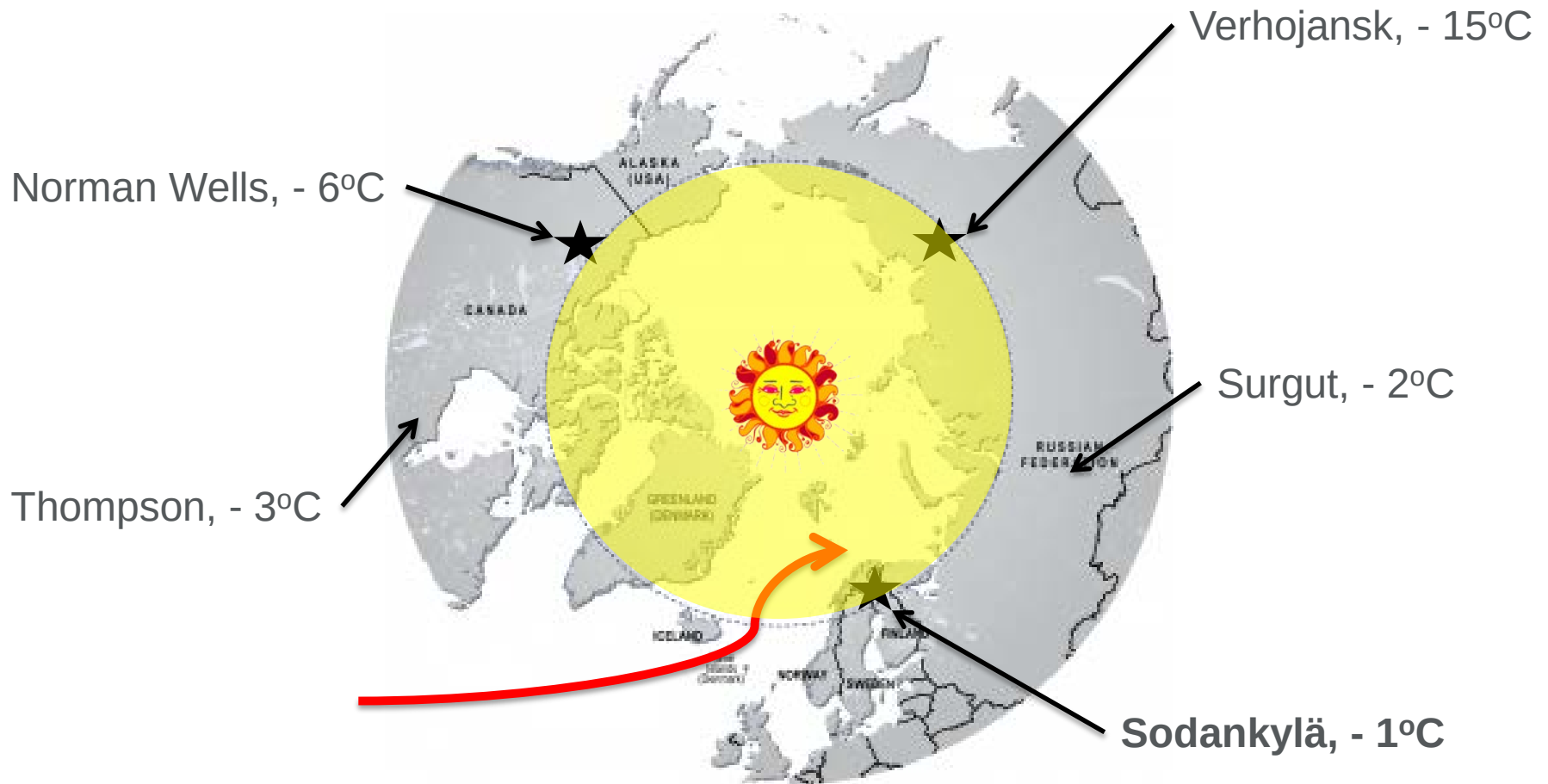


Unique combination

- Temperature conditions, especially differences between daytime and nocturnal temperature
- +
- Arctic solar radiation during growing season, especially dusk / dawn conditions
- +
- Nutrient poor forest soil
- +
- Pristine environment
- +
- Highly developed infrastructure

**= the highest quality natural products
in the world**

But yet quite warm
– and during growing season also sunny



Forest of Lapland

LAPLAND - THE LARGEST CONTROLLED ORGANIC PICKING AREA IN THE WORLD

One continuous, 11,6 hectars, controlled organic picking area

⇒ 3 x the size of Belgium

⇒ 30% of the controlled organic picking areas of the world

99% of the surface of the Lapland's forest fullfills the criteria

Criteria for organic production is set in the EU regulation N:o 834/2007

EU regulation 889/2008 art. 70.2; criteria for accepting areas for organic picking areas

The key criterion is that no chemical fertilizers or plant protection products have been used in the picking areas in the previous three years.

WORLDWIDE TRENDS

Demand for organic products is growing

“Wild picked” is getting more valued

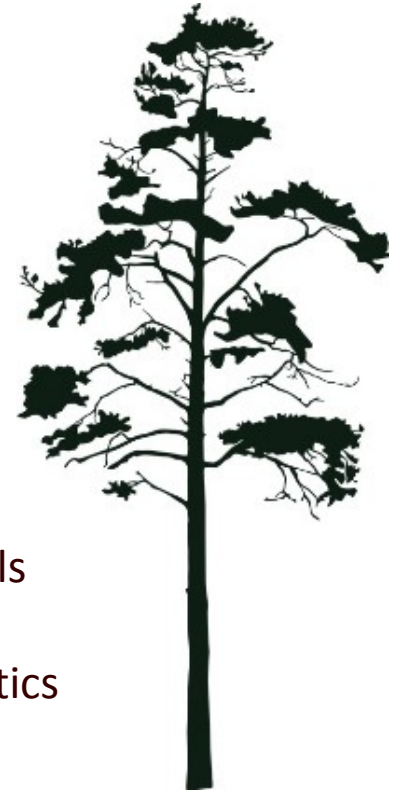
Food industry is looking for natural food preservatives

Cosmetics industry is seeking substituents for synthetic chemicals

Pharmaceutical industry is trying to find substituents for antibiotics

Chemical industry is looking for new raw material base

“Everywhere in the world a consumer chooses more and more often a product which is based on renewable raw materials and which does not include syntethic chemicals.”



Forest of Lapland

ADDING VALUE BY PROCESSING



Berries 1 euro / kg

Potential

Bilberry (<i>Vaccinium myrtillus</i>)			Lingonberry (<i>Vaccinium vitis-idaea</i>)		
Harvest in Lapland (milj. kg)	Calculatory value (milj. €)	Utilization now (%)	Harvest in Lapland (milj. kg)	Calculatory value (milj. €)	Utilization now (%)
31 - 108	45 – 157	1,2	42 - 128	37 - 115	1,9

Value chains (prices are from spring 2010)



Pulpwood, pine

1 kg 0.017 €

0.25 kg pulp 0.2 €



Bilberry

1 kg 1.6 €

0.15 kg bilberry powder 15 €

0.020 kg bilberry extract 70 €

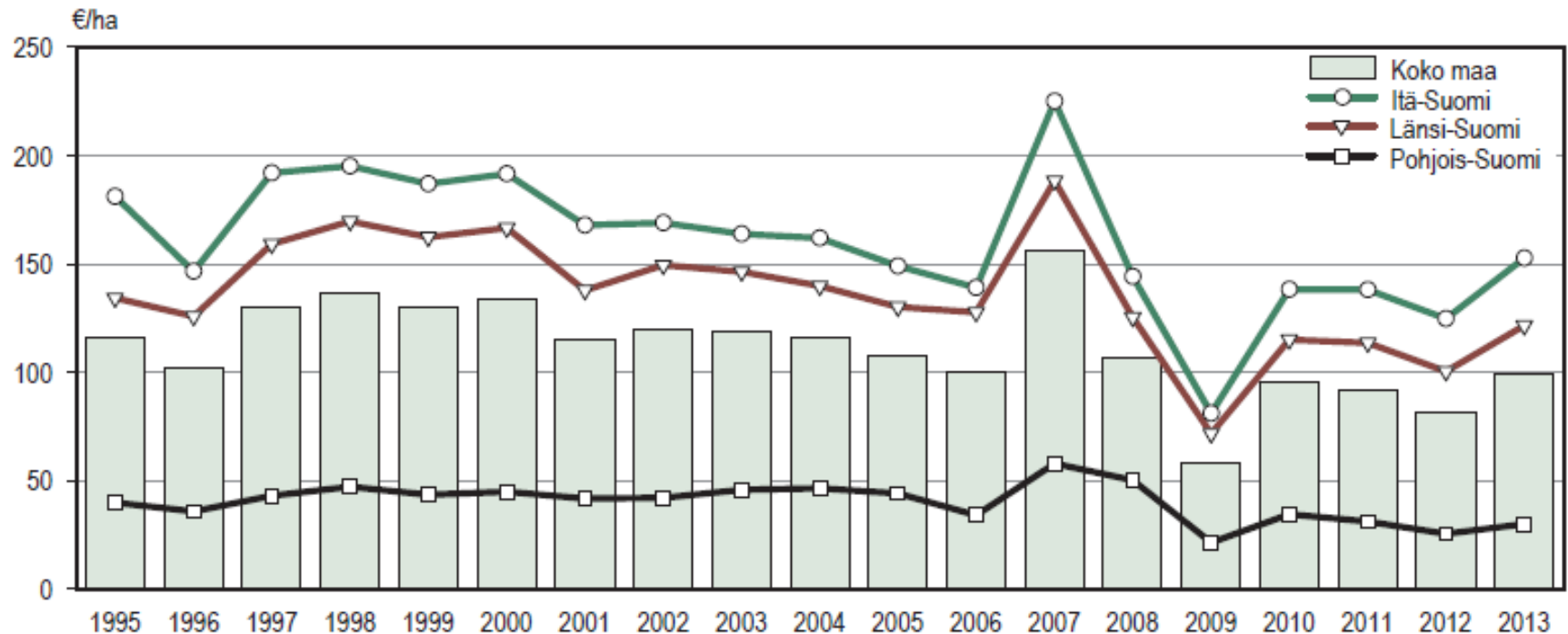
What should be done?



Rainer Peltola

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Why natural products should be emphasized especially in Lapland?



Annual operating income from private-owned forests 1995 – 2013 (2013 = reference year)

Birch sap – new coco water

NATURE'S OWN WELLNESS DRINK

- Nordic Koivu birch sap - nature's own health drink is a clear and refreshing glassful of wellbeing. The tasty and delightful Nordic Koivu wellness drink is suitable for any time of the day. Have a glass of natural well-being to quench your thirst and to indulge your body.
- End product value 12 € / l
 - Annually 20-50 kg per birch
 - 240 – 600 € / birch



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Chaga mushroom

- Big market potential to Asia
 - Price in Finland 20 – 100 € / kg
 - powder >50€ / kg
 - Growing time 5-6 years
 - Profit for landowner/ birch >100 €
 - Rest of the wood can be use as a wood chips, firewood or pulpwood



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Resin salve

- The favorable effect of Abilar 10% Resin Salve in wound healing is a consequence of the antimicrobial components of spruce (*Picea abies*) resin and probably those components which enhance the speed of wound regeneration
- End product's resin value is about 100 € / kg

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Some else

Transparent wood

- <http://cameliapr.blogspot.be/2016/05/scientists-have-now-made-transparent.html>

Wood construction

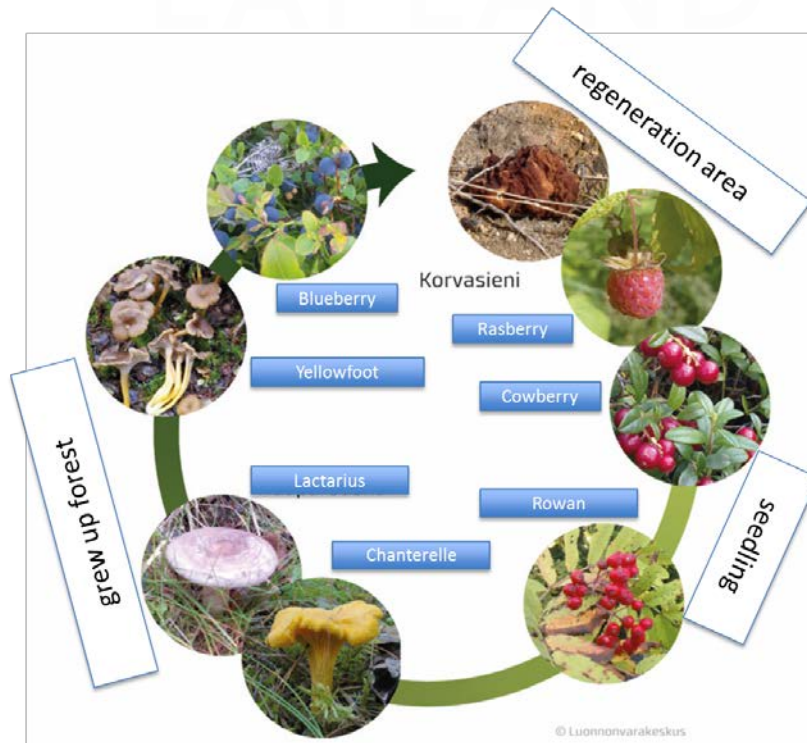
- Wood materials have positive effects to humans
 - Antibakterian
 - Decrease heart rate and stress levels

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In the end

- Lapland's future is on forest land
- Secure forest management in new context
 - Ecosystemical approach: develop hand in hand wood and non-wood industries
- Central issue: how to create new business to there where the resources are



Global market for
Nutraceuticals will
reach US\$311.8 billion
by 2020
GLOBAL INDUSTRY ANALYSTS,
INC.

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Thank you

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